# THE DEAF

## ERRATA.

Page 65, second column, line 13, instead of 71,795 read 64,763.

Page 65, in table, instead of 69,023 blind (alone) read 61,991, and instead of 158,310 aggregate blind and deaf read 151,278.

# THE DEAF.

By Alexander Graham Bell.

## INTRODUCTION.

This report relates to the deaf of the United States living on June 1, 1900.

In accordance with the census act the enumerators of the Twelfth Census were required to return only the name, sex, age, and post office address of each deaf, or deaf and dumb person, leaving all further details to be ascertained subsequently through correspondence with the deaf persons themselves, or their parents or guardians.

The nature of the instructions to the enumerators is indicated by the extract given on page 3.

Upon receipt of the enumerators' special schedules containing lists of persons reported to be deaf, or deaf and dumb, a circular letter of inquiry, or individual schedule, was sent to each address given, asking whether the person had been correctly returned as deaf, or deaf and dumb, and requesting further information in the form of replies to specific queries.

The special schools for the deaf in the United States were also requested to furnish the Census Bureau with the information contained in their school records concerning deaf pupils admitted between June 1, 1890, and June 1, 1900. Similar information concerning all pupils admitted from the opening of the schools up to June 1, 1890, had been collected in 1890 upon cards which have been preserved. The same form of card was used in 1900, and the complete card catalogue, arranged alphabetically, was employed in checking and verifying the returns made by the enumerators and by the deaf persons themselves in cases where the persons had attended special schools.

The special schools for the deaf were also supplied, upon request, with lists of deaf children of school age within the territory covered by the schools, taken from the enumerators' returns, and the superintendents were requested to inform the Census Bureau of any erroneous returns discovered.

The replies to the circular letter of inquiry, and the correspondence with heads of schools for the deaf, enabled the Census Bureau to eliminate from the enumerators' lists large numbers of persons who were only hard of hearing, or who had been erroneously returned as deaf, leaving a total of 89,287 persons with seriously impaired powers of hearing.

Of these, 51,861 were not totally deaf, as they could understand loudly shouted conversation. The returns in these cases have been tabulated separately under the head of "partially deaf," although of course they represent only a portion of the partially deaf of the United States, every effort having been made to exclude persons merely "hard of hearing" from the returns.

Persons returned as both blind and deaf numbered 2,772. Since the returns in these cases are included in the report on the blind because they were blind, they are also included in the present report on the deaf because they were deaf.

Comparing the total number in the two afflicted classes, 71,795 persons were returned as blind and 89,287 as deaf; but the aggregate number of blind and deaf is less than the sum of these two figures, because the blind-deaf cases are doubly reported.

| | |
|---|---|
| Blind (alone) | 69,023 |
| Deaf (alone) | 86,515 |
| Blind-deaf | 2,772 |
| Aggregate blind and deaf | 158,310 |

The present report differs in several important respects from former Census reports on the same subject.

In order to secure as large aggregates as possible upon which to base the statistical analysis, the tables deal chiefly with the deaf of the whole of the United States, rather than with those of the states and territories individually, or of the counties contained in them.

States and territories are the lowest units of geographic distribution employed; county tables are omitted altogether, as they occupy space quite out of proportion to their real importance or value, and the figures are too small to yield statistical results of significance.

Another difference relates to institution statistics: No special inquiry has been made through the Census Office concerning the deaf persons in institutions or schools for the deaf, as such inquiry appeared to be unnecessary in view of the fact that statistics of this character are collected no less than three times every year through other agencies. Such statistics are compiled by:

1. The United States Government, through its Bureau of Education (published annually in the report of the United States Commissioner of Education).

2. The Conference of Superintendents and Principals of American Schools for the Deaf (published annually

in the "American Annals of the Deaf," Kendall Green, Washington, D. C.).

3. The American Association to Promote the Teaching of Speech to the Deaf (published annually in the "Association Review," Mt. Airy, Philadelphia, Pa.).

The published results contained in these three sources of information are utilized in this report.

The assigned causes of deafness are classified by their effect on the ear All the assigned causes act only indirectly, the true cause of deafness being in every case the injury to the ear and not the cause assigned.

The present classification has been effected through the cooperation of a committee of experts—Dr. Z. T. Sowers, general physician, Dr. Charles W. Richardson, aurist, and the late Dr. Swan M. Burnett, oculist, all of Washington, District of Columbia.

Diseases that produce the same effect upon the ear are grouped together. For example, scarlet fever, measles, disease of ear, etc., operate to produce an abscess in the middle ear. They are therefore grouped together, and the deafness is assigned to a "suppurative condition of the middle ear."

The assigned causes of deafness are also considered in connection with hereditary influences shown by the consanguinity of the parents or the possession of deaf relatives. Deaf relatives are classified into four groups: *a*, deaf brothers, sisters, or ancestors (relatives in the direct line); *b*, collateral relatives (uncles, aunts, cousins, and other relatives not *a*, *c*, or *d*); *c*, deaf children (sons or daughters); and *d*, deaf husbands or wives.

The present report also differs from former reports in its treatment of occupations. In order that the occupations of the deaf may be compared with the occupations of normal persons, the same classification has been adopted as that employed in the Twelfth Census for the general population of the country.

The occupations of the deaf are also considered in connection with sex, race, and education, so that the occupations of the whites can be compared with those of the colored, and the occupations of the educated deaf contrasted with those of the uneducated. In relation to the educated deaf, the kind of school attended is noted, so that the occupations of those who have been educated in special schools for the deaf may be compared with the occupations of those who have been educated in the ordinary public schools of the country, or who have not been educated at all.

Another difference relates to the classification of the deaf themselves.

In the earlier Census reports the attempt was made to enumerate the "deaf and dumb" alone, excluding all of the deaf who could speak. In the Tenth Census all persons who lost hearing before they reached the age of 16 years were classed as "deaf and dumb," whether they could speak or not; and in the Eleventh Census the deaf were divided into two broad classes based upon their ability to speak, viz, "the deaf and dumb" and "the deaf but not dumb."

In the present report the age or period of life when deafness occurred is adopted as the basis of classification; and the deaf are divided into two broad classes quite independently of their ability to speak—"the deaf from childhood" and "the deaf from adult life."

The ability to speak is an acquired condition, and not, therefore, suitable as a basis for classification. Speech is usually acquired through hearing and imitation, but it may also be acquired (independently of hearing) through special instruction; and, as a matter of fact, many deaf mutes are now taught to speak in a more or less intelligible manner. These cases make their appearance in the census returns as "deaf but not dumb," thus apparently reducing the numbers of the class "deaf and dumb," to which they originally belonged.

It is very desirable that the classification of the deaf should be based upon a natural condition which can not be changed. The age or period of life when deafness occurred is a condition of this kind, and the deaf and dumb, whether they have been taught to speak or not, belong naturally to the class "deaf from childhood," and are thus differentiated from that large class of speaking persons who lost hearing in adult life.

Another noteworthy difference between this and former reports consists in the copious use of graphical diagrams upon a small scale, illustrating the tables. The smallness of the scale employed reduces to insignificance minor details, in which only small numbers are involved, thus bringing out clearly in relief the really salient features of the tables. The diagrams give a sort of bird's-eye view of the general features of the tables, and when closer inspection is desired the tables themselves give the details.

All the information tabulated by the Census Bureau concerning the deaf will be found fully elaborated in the general tables. All other tables used in this report have been compiled from these. Tables 1 to 10 of the general tables are summary tables, giving a survey of the whole scope of the investigation.

### COMPARISON WITH FORMER CENSUSES.

In taking the earlier censuses (1830 to 1870) the enumerators were instructed to return only those who were actually deaf and dumb; but in 1880 it was recognized that many of the so-called deaf and dumb could speak—imperfectly perhaps, but still sufficiently to enable them to escape enumeration as persons totally deprived of the power of utterance. It was thus seen that the plan of limiting the returns to those who were unable to articulate failed to secure a full census of the class intended to be enumerated; and in taking the census of 1880 the plan was adopted of

considering all persons who lost hearing in childhood as belonging naturally to the class "deaf and dumb," whether, as a matter of fact, they were able to speak or not.

This same plan has been adopted in the present census, but it has been deemed advisable to extend the age limits assigned to "childhood" from 15 years (1880) to 19 years (1900), for the reason that special schools for the deaf and dumb are open to all deaf children of school age. All persons, therefore, who lost hearing before the age of 20 are admissible as pupils, and this quite irrespectively of their ability to speak. It has also been deemed advisable in the present report to designate this class as "the deaf from childhood (under 20)," rather than the "deaf and dumb;" for it is manifestly incorrect to label as "deaf and dumb" a class of persons containing many members who can speak. For this reason the "deaf and dumb" of 1880 would more properly be termed "the deaf from childhood (under 16)."

The inclusion of speaking persons in the returns of the deaf and dumb for 1880 is probably the main cause of the increased ratio per million noted for that census (Diagram 1).

There are other causes, however. Previously to 1880 the accuracy of the census returns depended upon the enumerators alone, for there was no possibility of going behind their returns and correcting errors; but in 1880 the Census Bureau entered into correspondence with physicians residing in all parts of the country, through whose agency the enumerators' returns were checked and verified. Many names of deaf-mutes who had been overlooked by the enumerators were supplied to the Census Bureau by the physicians.

This correspondence revealed the fact, which has been amply substantiated by the experience of the present census, that the returns of the ordinary enumerators regarding the deaf, or deaf and dumb, are erroneous in a large proportion of cases, and need correction and verification before being made the basis of statistical inquiries.

In 1890 a new departure was made. Previously to that year the census returns related to a portion only of the deaf and not the whole, viz, the deaf and dumb (1830 to 1870), or those who were supposed to belong naturally to that class, even though they could speak (1880); but in 1890, instead of relying upon the enumerators to make the distinction desired, the attempt was made to take a census of the whole number of the deaf, and to have the dividing line drawn by experts in the Census Office during the examination of the returns.

In 1890 the enumerators were instructed to make returns of all persons who were so deaf as to be unable to understand loudly shouted conversation, with the object of limiting the inquiry substantially to persons who were totally deaf.

The dividing line was drawn in accordance with the practice of the earlier censuses and not with that of 1880. The deaf were divided into two broad classes, viz, the "deaf and dumb" and the "deaf but not dumb." Deaf-mutes who had been taught to speak in oral schools were included among the "deaf but not dumb," but comparison was made with former censuses on the basis of the "deaf and dumb" alone.

Under such circumstances we would naturally expect to find a falling off in the ratio per million of population returned as deaf and dumb proportional to the activity displayed by the special schools in imparting speech to their pupils; and by reference to Diagram 1 it will be observed that there was a decrease in 1890 as compared with 1880.

This falling off, however, is more apparent than real, because the returns of the deaf and dumb for 1890 included only persons who were reported as unable to speak; whereas those for 1880 included all persons who lost hearing before reaching the age of 16 years, many of whom possessed some power of speech. The true comparison, therefore, should be made with the earlier censuses, in which the returns were limited to those who were *de facto* deaf and dumb.

In taking the Twelfth Census (1900) the plan of 1890 was adopted of taking a census of all of the deaf who were unable to understand loudly shouted conversation; but in accordance with a special statute of Congress the enumerators were required to report only the name, age, sex, and post office address of deaf, or deaf and dumb, persons discovered, leaving all other details to be ascertained by correspondence with the deaf persons themselves.

After all corrections had been made in the data secured for the present report, it was found that of those who had been correctly reported as deaf, the majority were able to understand loudly shouted conversation, in spite of the specific instructions to the enumerators that such persons were not to be returned. Out of 89,287 deaf, 37,426 were totally deaf and 51,861 could hear loudly shouted conversation. These latter cases were too numerous to be ignored in the tabulation of the results, and the returns have therefore been analyzed under the head of "partially deaf," although of course the cases reported constitute only a small fraction of the partially deaf of the country.

It must be difficult for enumerators, who are usually strangers to the persons they return, to decide definitely whether a person is or is not totally deaf; and we must credit the enumerators of the present census with the intention of fulfilling their instructions to the best of their ability. It is therefore probable that the majority of the partially deaf persons returned were laboring under serious defects of hearing, and were not simply "hard of hearing." They are believed, as a class, to be persons so deaf that it required correspondence with the persons themselves to ascertain the fact that they were not totally deaf.

In the present census the proportion of the popula-

tion reported as deaf and dumb (unable to speak at all) is less than one-half of that returned in 1890 (648 to the million in 1890, 321 to the million in 1900). (Diagram 1.)

In explanation it may be said that many thousands of persons who belong naturally to the class "deaf and dumb" are reported, or rather reported themselves, in the present census as able to speak; so that it is obvious that the increased activity in articulation teaching in our schools for the deaf is responsible for a considerable portion of this result.

It is doubtful, however, whether this explanation alone is sufficient to account for the great difference between the two censuses in this respect; and it is possible that there may have been an overestimate of the deaf and dumb in 1890 or an underestimate in the present census, or perhaps both suppositions may be correct.

The returns of the 1890 census were based upon the reports of the enumerators alone, without verification by correspondence with the deaf persons, as in 1900, or by correspondence with physicians, as in 1880. It is therefore probable that erroneous returns, similar to those discovered in 1880 and 1900 through correspondence, exist uncorrected in the returns for 1890.

On the other hand, several thousands of circular letters of inquiry, sent out to the addresses of persons reported as deaf by the enumerators of the present census, failed to bring any reply, in spite of repeated requests for information. These cases were therefore thrown out of the investigation as resting upon insufficient evidence. They may represent erroneous returns; but, on the other hand, it is possible that the enumerators were correct, and that the deaf persons reported belonged to illiterate families unable to respond by mail.

Whatever may be the deficiencies of the present census, the information actually compiled is authoritative so far as it goes, because it is based upon statements made by the deaf persons themselves, or by parents, guardians, or friends intimately acquainted with the condition of the deaf persons considered.

In addition to the "deaf and dumb" returned in 1890, 80,616 persons, or 1,287 per million of population, were reported as "deaf but not dumb," so that the whole number of deaf returned in the 1890 census was 121,178, or 1,935 per million of population; whereas, in the present census, 89,287 deaf are reported in all, constituting a ratio of 1,175 per million of population, and the number able to speak (including those who speak well and those who speak imperfectly) is 64,918, or 854 per million.

Table I shows the number of deaf and dumb returned at each census since 1830 and the ratio per million of population, the figures for the present census including only those of the deaf who are "unable to speak at all."

TABLE I.—*Number of deaf and dumb and the ratio per million of total population: 1830 to 1900.*

| CENSUS. | Total population. | DEAF AND DUMB. | |
|---|---|---|---|
| | | Number. | Ratio per 1,000,000 of population. |
| 1830 | 12,866,020 | 6,106 | 475 |
| 1840 | 17,069,453 | 7,665 | 449 |
| 1850 | 23,191,876 | 9,803 | 423 |
| 1860 | 31,443,321 | 12,821 | 408 |
| 1870 | 38,558,371 | 16,205 | 420 |
| 1880 | 50,155,783 | 33,878 | 675 |
| 1890 | 62,622,250 | 40,592 | 648 |
| 1900 | 75,994,575 | 24,369 | 321 |

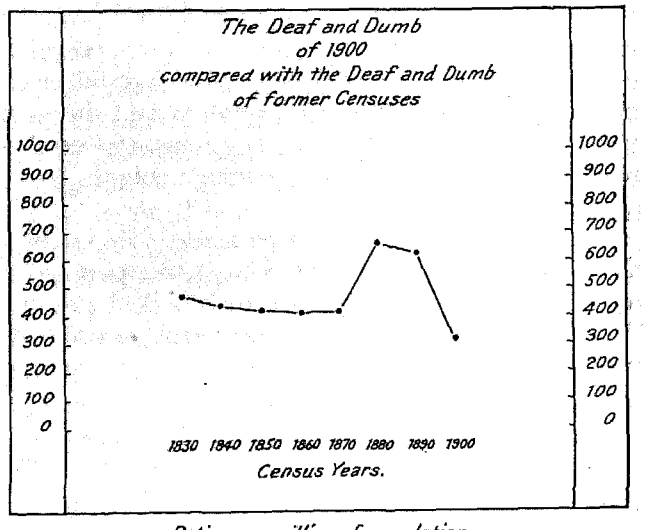
Table II shows the "deaf from childhood" of the present census compared with the "deaf and dumb" of former censuses.

TABLE II.—*Comparison of deaf from childhood in 1900 with deaf and dumb of former censuses: 1830 to 1900.*

| CENSUS. | Number. | Ratio per 1,000,000 of population. |
|---|---|---|
| 1830, deaf and dumb | 6,106 | 475 |
| 1840, deaf and dumb | 7,665 | 449 |
| 1850, deaf and dumb | 9,803 | 423 |
| [illegible] | 12,821 | 408 |
| [illegible] | 16,205 | 420 |
| 1880, deaf and dumb | 33,878 | 675 |
| 1890, deaf and dumb | 40,592 | 648 |
| 1900, [illegible] | 50,296 | 662 |
| 1900, [illegible] | 51,871 | 682 |

The ratios per million of population given in Tables I and II are shown graphically in Diagrams 1 and 2.

*Diagram 1.*

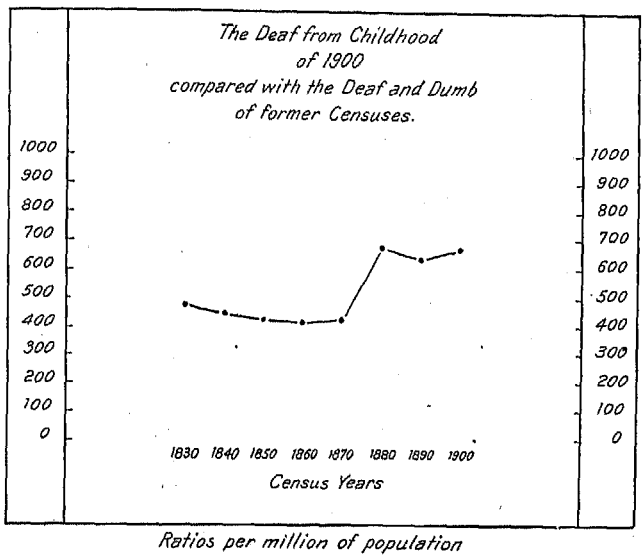



*Ratios per million of population.*

It is obvious at once from inspection of the diagrams that the returns of the different censuses are not fully comparable with one another. The earlier censuses (1830 to 1870) differ materially from the later (1880 to 1900).

The returns of the deaf and dumb of the present census are more comparable with those of the earlier censuses than with those of 1880 or 1890 (Diagram 1); and the deaf from childhood of the present census are more comparable with the deaf and dumb of 1880 and 1890 than with those of the earlier censuses (Diagram 2).

*Diagram 2.*




In 1890 the age or period of life when deafness occurred was noted both in the case of the "deaf and dumb" and the "deaf but not dumb," so that it is possible, by adding the two classes together, to institute a comparison between the 1890 and 1900 censuses upon this basis, as well as on the basis of ability to speak. This is done in Table III.

TABLE III.—*Number of deaf and ratio per million of total population, by period of life when deafness occurred and ability to speak: 1900 and 1890.*

| PERIOD OF LIFE WHEN DEAFNESS OCCURRED AND ABILITY TO SPEAK. | NUMBER. | | RATIO PER 1,000,000 OF POPULATION. | |
|---|---|---|---|---|
| | 1900 | 1890 | 1900 | 1890 |
| Total | 89,287 | 121,178 | 1,175 | 1,935 |
| Period of life when deafness occurred: | | | | |
| Childhood (under 20) | 50,296 | 52,827 | 662 | 844 |
| Adult life (20 and over) | 35,924 | 55,728 | 473 | 890 |
| [illegible] | 3,067 | 12,623 | 40 | 201 |
| [illegible] | 64,918 | 80,616 | 854 | 1,287 |
| [illegible] | 24,369 | 40,562 | 321 | 648 |

The deaf from childhood (under 20) constituted 844 to the million in 1890 and 662 to the million in 1900. The deaf from adult life (20 and over) constituted 890 to the million in 1890 and 473 to the million in 1900. The period of life when deafness occurred (whether childhood or adult life) was unknown in 12,623 cases, or 201 to the million, in 1890, and unknown in 3,067 cases, or 40 to the million, in 1900.

The discrepancy between the two censuses is not, therefore, confined to the deaf and dumb alone, but is manifest on all the points of comparison noted. It is therefore probable that in one or both censuses the returns themselves are defective—probably excessive in 1890 and deficient in 1900.

DISCUSSION OF THE RESULTS.

*Age or period of life when deafness occurred.*—The period of life when deafness occurred (whether childhood or adult life) was unknown in 10.4 per cent of the cases reported in 1890, but in only 3.4 per cent of the cases returned in 1900. It may be well, therefore, to emphasize the method by which this diminution in the proportion of unknown cases was effected in 1900.

In the circular letters of inquiry sent out by the Census Bureau the deaf persons were requested to state as accurately as possible the exact age when deafness occurred, and if this was unknown, to point out the period of life when it occurred (whether childhood or adult life). The returns showed that in 7,697 cases the exact age when deafness occurred was unknown or indefinitely stated: In 659 cases the persons were less than 20 years of age at the time the census was taken, and therefore lost hearing in childhood (under 20); in 404 cases the persons were reported to have become deaf in "infancy," in 1,227 cases in "childhood," and in 57 cases in "youth," making a total of 2,347 cases deaf from childhood (under 20); while in 1,224 cases the persons became deaf in "adult life," and in 1,059 cases in "old age," making a total of 2,283 cases deaf from adult life (20 and over), leaving a balance of 3,067 cases undetermined.

As the period of life when deafness occurred is adopted as the basis of classification in the present census, it is advisable to determine as accurately as possible the number of deaf from childhood (under 20) and from adult life (20 and over). There are 50,296 cases known to be deaf from childhood (under 20), and 35,924 cases deaf from adult life (20 and over); but it is estimated that the actual number deaf from childhood (under 20) is 51,871, and deaf from adult life (20 and over) 37,416.

In case the present classification is adopted in subsequent censuses, it may be well to point out the method by which this estimate has been made.

In 3,067 cases the period of life when deafness occurred is unknown. In these unknown cases, however, the numbers totally deaf and partially deaf were known, and also the numbers who could speak well, imperfectly, or not at all.

Table IV shows the percentage of the deaf who became deaf at known periods of age, by certain specified classes, and the application of the same in estimating the number of the *unknown* period who became deaf at the stated ages.

TABLE IV.—*Per cent distribution by period of life when deafness occurred of the deaf for whom the age when deafness occurred is known, and estimated number for whom age is unknown, by specified classes.*

| CLASS. | PER CENT DISTRIBUTION OF THE DEAF FOR WHOM THE AGE WHEN DEAFNESS OCCURRED IS KNOWN. | | | NUMBER OF THE DEAF FOR WHOM THE AGE WHEN DEAFNESS OCCURRED IS UNKNOWN. | | |
|---|---|---|---|---|---|---|
| | Total. | Becoming deaf in— | | Total. | Estimated number becoming deaf in— | |
| | | Childhood (under 20). | Adult life (20 and over). | | Childhood (under 20). | Adult life (20 and over). |
| 1. Total | 100.0 | 58.3 | 41.7 | 3,067 | 1,788 | 1,279 |
| 2. Totally deaf | 100.0 | 90.5 | 9.5 | 795 | 719 | 76 |
| Partially deaf | 100.0 | 34.6 | 65.4 | 2,272 | 786 | 1,486 |
| 3. Speak well | 100.0 | 34.0 | 66.0 | 2,310 | 785 | 1,525 |
| Imperfectly | 100.0 | 93.3 | 6.7 | 254 | 237 | 17 |
| Not at all | 100.0 | 99.2 | 0.8 | 503 | 499 | 4 |
| 4. Totally deaf: | | | | | | |
| Speak well | 100.0 | 58.8 | 41.2 | 246 | 145 | 101 |
| Imperfectly | 100.0 | 97.2 | 2.8 | 99 | 96 | 3 |
| Not at all | 100.0 | 99.5 | 0.5 | 450 | 448 | 2 |
| Partially deaf: | | | | | | |
| Speak well | 100.0 | 29.7 | 70.3 | 2,064 | 613 | 1,451 |
| Imperfectly | 100.0 | 86.3 | 13.7 | 155 | 134 | 21 |
| Not at all | 100.0 | 92.8 | 7.2 | 53 | 49 | 4 |
| 1. First estimate | | | | 3,067 | 1,788 | 1,279 |
| 2. Second estimate | | | | 3,067 | 1,505 | 1,562 |
| 3. Third estimate | | | | 3,067 | 1,521 | 1,546 |
| 4. Fourth estimate | | | | 3,067 | 1,485 | 1,582 |
| Mean of four estimates | | | | 3,067 | 1,575 | 1,492 |

The percentages given in Table IV afford us means of estimating, in various ways, how many of these 3,067 cases were deaf from childhood, and how many were deaf from adult life. For example, taking all the cases in which the period of life when deafness occurred was known, 58.3 per cent were deaf from childhood and 41.7 per cent from adult life. Therefore, if these percentages hold good for the unknown cases, 58.3 per cent of the 3,067 cases were deaf from childhood and 41.7 per cent from adult life. This first estimate gives us 1,788 deaf from childhood and 1,279 deaf from adult life.

Again, the percentages in Table IV show that 90.5 per cent of the totally deaf were deaf from childhood. Of the 3,067 unknown cases, 795 were totally deaf, and 90.5 per cent of this number gives us 719 cases as totally deaf from childhood, etc. The percentages in Table IV enable us to make four distinct estimates of this character, and the mean of the four estimates yields the following results:

Out of a total of 3,067 cases in which the period of life when deafness occurred was unknown, 1,575 were probably deaf from childhood (under 20), and 1,492 from adult life. Adding these to the totals known to be deaf from childhood and adult life, we obtain the results shown in Table V.

One of the main objects of comparing one census with another is to determine, from an inspection of returns compiled at different times, whether the proportion of the population deaf, or deaf and dumb, is increasing or diminishing. Unfortunately the existing censuses are not sufficiently comparable with one another to enable us to do this, since no uniform plan was adopted in the collection of the statistics.

Some light, however, may be thrown upon the subject from the returns of a single census by comparing the present ages of the deaf with the ages of the whole population. If deafness is increasing, we should naturally expect to find a larger proportion of deaf among the younger persons than among the older.

TABLE V.—*The deaf, by period of life when deafness occurred.*

| PERIOD OF LIFE WHEN DEAFNESS OCCURRED. | THE DEAF. | | |
|---|---|---|---|
| | Total. | Estimated number becoming deaf in— | |
| | | Childhood (under 20). | Adult life (20 and over). |
| Total | 89,287 | 51,871 | 37,416 |
| Known | 86,220 | 50,296 | 35,924 |
| Unknown | 3,067 | 1,575 | 1,492 |

The difficulty in making such a comparison lies in the fact that deafness occurs at different ages, so that it would not be possible to include the whole of the deaf in one determination. It so happens that the great mass of the deaf and dumb lost hearing before the age of 5, so that in their case we have a considerable aggregate with comparatively slight differences in the age when deafness occurred; and in the deaf from birth, we have a large subgroup in which no differences at all exist in this respect.

Table VI shows the present ages of the whole population of the United States in 1900 by five-year periods, and the present ages of the totally deaf from early childhood (under 5)—all of whom are, naturally, deaf and dumb—distinguishing the congenital from the noncongenital cases. The table also shows the proportion deaf per million of population of the same age.

The ratios contained in Table VI are shown graphically in Diagrams 3, 4, and 5.

In these three diagrams the dotted lines represent returns that are known to be incomplete. It is always found to be the case that deaf children under 10 years of age are incompletely returned, and the younger the deaf children the less complete are the returns.

It is obvious from inspection of Table VI that the proportion of the population totally deaf from early childhood (under 5) is greater among the younger persons than among the older (Diagram 3).

Referring to Diagram 4, there seems to be no substantial difference among the older persons in the ratio per million totally deaf from birth, but among the younger the ratio per million is very much greater. For example, the totally deaf from birth constitute

135 to the million among persons 30 to 35 years of age, and 282 to the million among persons 10 to 15 years of age—a ratio more than double the former. This result is probably due to the prevalence of intermarriages among the deaf and dumb during the latter part of the nineteenth century. Some of these unions have been productive of deaf offspring, who belong largely to the class of totally deaf from birth. The deaf, both of whose parents were deaf and dumb, are mostly young, few of them having reached middle life.

TABLE VI.—*The totally deaf from early childhood, by period when deafness occurred and present age, compared with total population.*

| PRESENT AGE. | Total population. | THE TOTALLY DEAF FROM EARLY CHILDHOOD (UNDER 5). | | | | | |
|---|---|---|---|---|---|---|---|
| | | Total. | When deafness occurred. | | Ratio per 1,000,000 of population of same age. | | |
| | | | At birth. | After birth. | Total. | At birth. | After birth. |
| Total | 75,994,575 | 26,152 | 12,609 | 13,543 | 344 | 166 | 178 |
| Present age: | | | | | | | |
| Not stated | 200,584 | 94 | 62 | 32 | 469 | 309 | 160 |
| Stated | 75,793,991 | 26,058 | 12,547 | 13,511 | 344 | 166 | 178 |
| Under 5 | 9,170,628 | 846 | 446 | 400 | 92 | 49 | 43 |
| 5 and under 10 | 8,874,123 | 3,245 | 1,674 | 1,571 | 366 | 189 | 177 |
| 10 and under 15 | 8,080,234 | 4,390 | 2,281 | 2,118 | 544 | 282 | 262 |
| 15 and under 20 | 7,556,089 | 3,784 | 1,937 | 1,847 | 501 | 256 | 245 |
| 20 and under 25 | 7,335,016 | 2,422 | 1,128 | 1,294 | 330 | 154 | 176 |
| 25 and under 30 | 6,529,441 | 2,424 | 888 | 1,536 | 371 | 136 | 235 |
| 30 and under 35 | 5,556,039 | 1,962 | 749 | 1,213 | 353 | 135 | 218 |
| 35 and under 40 | 4,964,781 | 1,858 | 696 | 1,162 | 374 | 140 | 234 |
| 40 and under 45 | 4,247,166 | 1,297 | 648 | 649 | 305 | 152 | 153 |
| 45 and under 50 | 3,454,612 | 1,024 | 516 | 508 | 296 | 149 | 147 |
| 50 and under 55 | 2,942,829 | 895 | 492 | 403 | 304 | 167 | 137 |
| 55 and under 60 | 2,211,172 | 664 | 343 | 321 | 300 | 155 | 145 |
| 60 and under 65 | 1,701,363 | 483 | 278 | 205 | 270 | 155 | 115 |
| 65 and under 70 | 1,302,926 | 325 | 198 | 127 | 249 | 152 | 97 |
| 70 and under 75 | 883,841 | 214 | 136 | 78 | 242 | 154 | 88 |
| 75 and under 80 | 519,857 | 132 | 81 | 51 | 254 | 156 | 98 |
| 80 and under 85 | 251,512 | 53 | 37 | 16 | 211 | 147 | 64 |
| 85 and under 90 | 88,600 | 19 | 12 | 7 | ..... | ..... | ..... |
| 90 and under 95 | 23,992 | 10 | 5 | 5 | ..... | ..... | ..... |
| 95 and under 100 | 6,266 | 2 | 2 | ..... | ..... | ..... | ..... |
| 100 and over | 3,504 | ..... | ..... | ..... | ..... | ..... | ..... |

Referring to Diagram 5, relating to the noncongenital cases among the totally deaf from early childhood, the curve is more irregular than in the case of those deaf from birth, as would naturally be expected when we consider these persons became deaf from apparently adventitious causes, some of which are of an epidemical nature, like cerebro-spinal meningitis. Upon the whole, the proportion deaf is greater among the younger persons than the older, and proportionally greater as the age is younger. It is not clear that we can interpret the figures to mean that the proportion of the population noncongenitally deaf (under 5) is increasing more rapidly than the population; for a curve of similar character to that in Diagram 5 would be produced upon the assumption that the death rate is greater in these cases than in the population at large, which is not unlikely to be the case when we consider the fact that these persons lost hearing from severe illnesses which must have tried their constitutions.

*Diagram 3.*

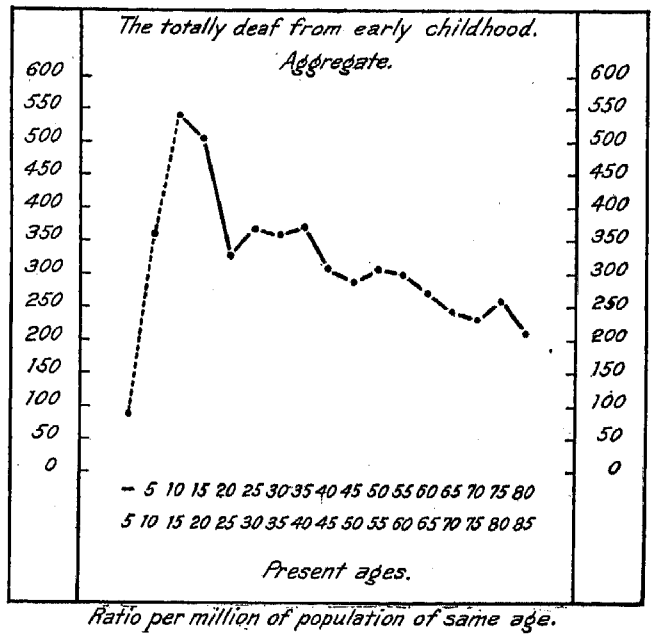



*Diagram 4.*

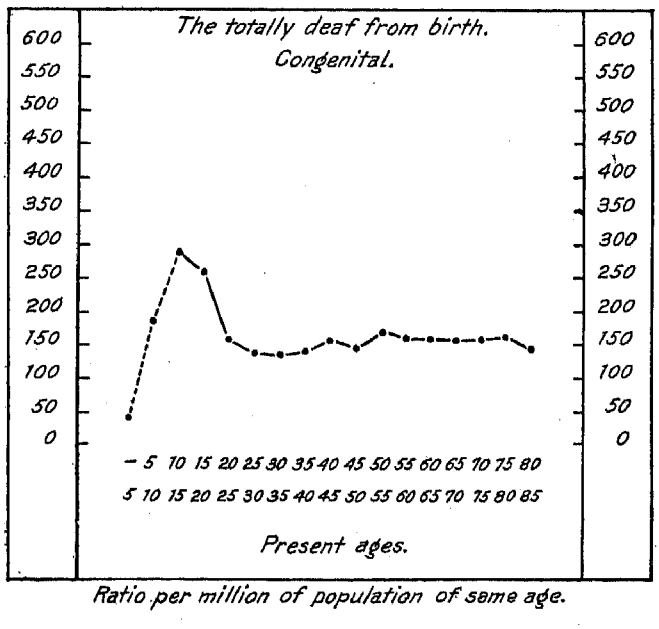
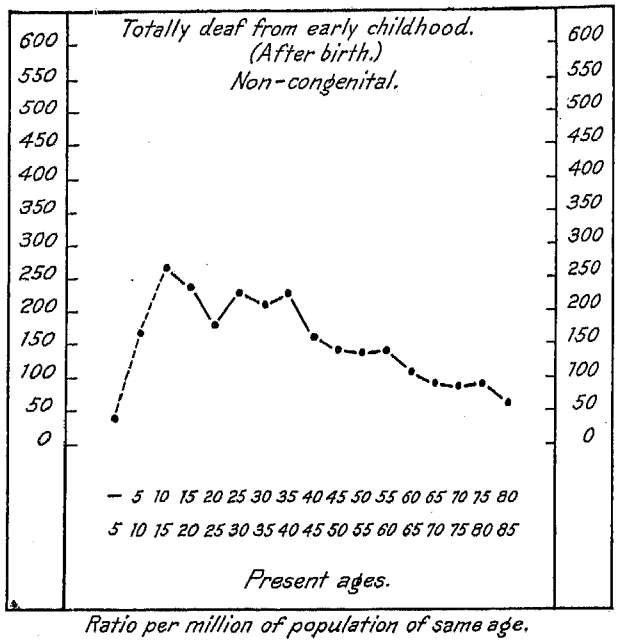


*Diagram 5.*




*Age when deafness occurred for the whole of the deaf.*—The age when deafness occurred is definitely stated in 81,590 cases, and of these, 59 per cent became deaf before reaching the age of 20 years, 48 per cent became deaf before reaching the age of 10 years, 40 per cent became deaf before reaching the age of 5 years, and 18 per cent were born deaf. One-half of the deaf lost hearing before they were 11 years old.

Diagrams 6 and 7 illustrate in graphical form the figures contained in Table XI and Table 17.

*Diagram 6.*

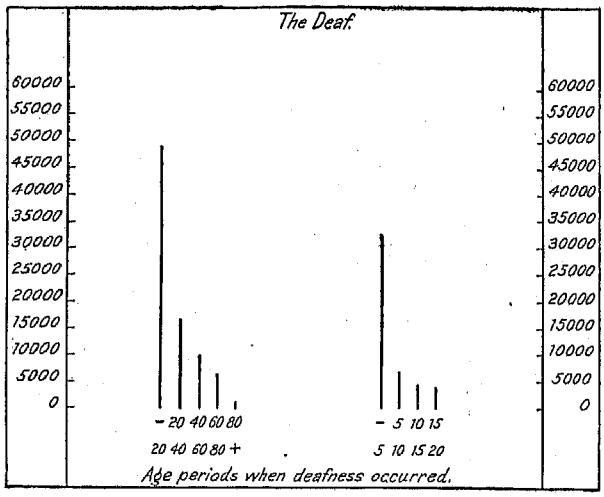
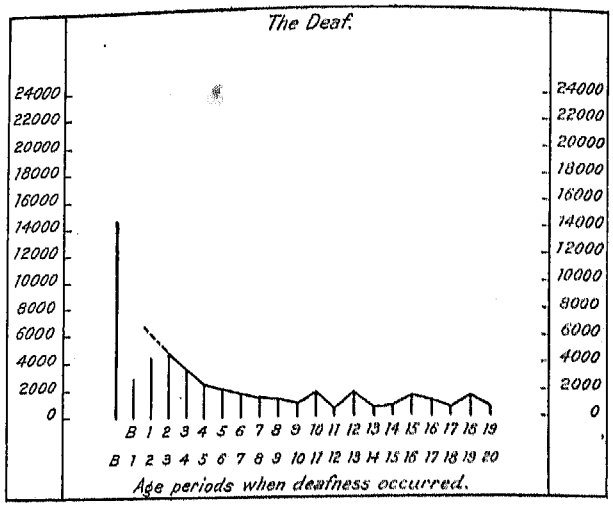



*Diagram 7.*




The large number returned as deaf from birth and the small number reported deaf during the first and second years of life after birth (Diagram 7), is suggestive of some inaccuracy in the returns; and this is extremely probable, for the reason that in many if not in most cases the fact that an infant is deaf is not discovered, or is not certainly known, until after he is 2 years of age. At or about the age of 2 most children begin to speak, but the deaf child does not. This speechless condition attracts attention and he is then found to be also deaf. If during his infancy he has had some serious illness, the deafness is naturally attributed to that; if not, the natural assumption is that he was born deaf. It is probable that some of those reported deaf from birth really lost hearing in infancy after birth, and that some of those reported deaf from infancy after birth were really born deaf. The irregularity of the figures suggests that, on the whole, too many are returned as deaf from birth and too few as deaf during the first and second years of life after birth.

*The deaf from childhood of the census of 1900 compared with the deaf and dumb of former censuses, by states and territories.*—In Tables 8 and 9 the deaf from childhood of the census of 1900 are compared with the deaf and dumb of former censuses, by states and territories.

The New England states, and especially Connecticut, show a larger proportion of deaf than the average for the United States as a whole. From 1830 to 1860 Kentucky showed a relatively large ratio of deaf and dumb as compared with the ratios of surrounding states. In 1870 Indiana, Kentucky, and North Caro-

lina became conspicuous in this respect. In 1880 the predominance of Indiana over its neighboring states became very marked, and this predominance has continued up to the latest census (1900).

From 1830 to 1860 the largest ratios appeared in Connecticut, and since 1860, in the District of Columbia. In both cases, however, the ratios are fallacious, because of the existence in these parts of the country of schools for the deaf which draw pupils from the whole of the United States, whereas the ratios are based upon the local population alone. During the first half of the nineteenth century the American School for the Deaf in Hartford, Conn. (then known as the American Asylum for Deaf-Mutes), drew pupils from the whole of the United States; but as special schools for the deaf multiplied the supply of pupils from the more distant states was practically cut off and the school attendance became more local in character. Even to-day, however, the school is by no means representative of Connecticut alone, for it draws pupils from all of the New England states, a portion only coming from Connecticut. The predominance of the District of Columbia since 1860 is due to the existence within the District of the Columbian Institution for the Deaf and Dumb, with its primary and collegiate departments, known as the Kendall School, and Gallaudet College (formerly the National Deaf-Mute College). Both primary and collegiate departments draw pupils from outside the District of Columbia. Gallaudet College particularly, being the only special school in the country for the higher education of the deaf, attracts deaf students from all parts of the United States.

The tables show a large proportion of deaf in the New England states, especially Maine, New Hampshire, and Vermont. Scarlet fever, measles, and other diseases causing inflammation and abscess in the middle ear are the predominating causes, especially in Vermont and New Hampshire, and congenital deafness is frequent in Maine. Nonsuppurative or catarrhal affections of the middle ear are also frequent in these states, but catarrh, colds, etc., cause deafness chiefly in adults rather than in children, and do not appear as prominent causes of deafness among the deaf from childhood or deaf and dumb. In their case scarlet fever seems to be the principal cause.

The cause of the local congestion of the deaf in Kentucky from 1830 to 1860, and its extension in 1870 to North Carolina and Indiana, is unknown; but the Indiana congestion of 1880 appears to have been due chiefly to an epidemic of cerebro-spinal meningitis. This seems to be the same disease formerly known as spotted fever, and it is not improbable that brain fever is another name for it. The persistence of the Indiana congestion up to the present census year, 1900, appears to be due, in part at least, to the same cause.

*Geographic distribution of the deaf.*—Tables VII, VIII, and IX relate to the geographic distribution of the deaf, by states and territories.

Table VII shows the deaf, by age or period of life when deafness occurred, for states and territories.

Table VIII shows the deaf by degree of deafness, also the deaf from childhood and the totally deaf from early childhood, distinguished as deaf from birth and as deaf subsequent to birth, for states and territories.

Table IX shows the deaf, by race, nativity (of whites), present age, and ability to speak, for states and territories.

Table X gives the ratios per million of total population for the classes of deaf shown in Tables VII, VIII, and IX.

TABLE VII.—THE DEAF, BY PERIOD OF LIFE WHEN DEAFNESS OCCURRED, FOR STATES AND TERRITORIES.

| STATE OR TERRITORY. | Total. | PERIOD OF LIFE WHEN DEAFNESS OCCURRED. | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Childhood (under 20). | Adult life (20 and over). | Unknown. | Under 20. | | | | | | | 20 and over. | | | | |
| | | | | | Birth. | After birth, under 2. | 2 and under 5. | 5 and under 10. | 10 and under 15. | 15 and under 20. | Not stated. | 20 and under 40. | 40 and under 60. | 60 and under 80. | 80 and over. | Not stated. |
| Continental United States | 89,287 | 50,296 | 35,924 | 3,067 | 14,474 | 7,396 | 10,536 | 7,018 | 4,464 | 4,061 | 2,347 | 16,588 | 9,437 | 6,595 | 1,021 | 2,283 |
| North Atlantic division | 28,632 | 14,161 | 13,224 | 1,247 | 3,468 | 1,772 | 3,113 | 2,261 | 1,435 | 1,401 | 711 | 5,852 | 3,387 | 2,513 | 427 | 1,045 |
| New England | 8,854 | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | 462 | 464 | 209 | 1,954 | 1,129 | 915 | 180 | 355 |
| Maine | 1,257 | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | 58 | 56 | 29 | 300 | 158 | 120 | 20 | 35 |
| New Hampshire | 762 | 305 | 420 | 37 | 57 | 34 | 84 | 30 | 45 | 34 | 21 | 173 | 106 | 86 | 19 | 36 |
| Vermont | 723 | 238 | 467 | 18 | 29 | 29 | 48 | 36 | 40 | 40 | 16 | 183 | 128 | 108 | 16 | 32 |
| Massachusetts | 4,015 | 1,838 | 2,019 | 158 | 432 | 226 | 358 | 286 | 216 | 223 | 97 | 880 | 477 | 408 | 78 | 176 |
| Rhode Island | 583 | 274 | 285 | 24 | 56 | 24 | 60 | 60 | 33 | 26 | 15 | 132 | 75 | 47 | 13 | 18 |
| Connecticut | 1,514 | 730 | 709 | 75 | 190 | 80 | 161 | 113 | 70 | 85 | 31 | 286 | 185 | 146 | 34 | 58 |
| Southern North Atlantic | 19,778 | 10,179 | 8,691 | 908 | 2,518 | 1,304 | 2,289 | 1,656 | 973 | 937 | 502 | 3,898 | 2,258 | 1,598 | 247 | 690 |
| New York | 9,946 | 5,011 | 4,499 | 436 | 1,178 | 674 | 1,189 | 783 | 459 | 445 | 283 | 1,908 | 1,150 | 914 | 136 | 391 |
| New Jersey | 2,285 | 1,066 | 1,123 | 96 | 229 | 96 | 203 | 215 | 138 | 132 | 53 | 524 | 309 | 177 | 42 | 71 |
| Pennsylvania | 7,547 | 4,102 | 3,069 | 376 | 1,111 | 534 | 897 | 658 | 376 | 360 | 166 | 1,466 | 799 | 507 | 69 | 228 |
| South Atlantic division | 10,193 | 6,510 | 3,379 | 304 | 2,721 | 718 | 968 | 775 | 559 | 465 | 304 | 1,564 | 923 | 593 | 71 | 228 |
| Northern South Atlantic | 5,400 | 3,229 | 1,988 | 183 | 1,152 | 358 | 553 | 442 | 312 | 251 | 161 | 930 | 527 | 341 | 41 | 149 |
| Delaware | 255 | 119 | 129 | 7 | 36 | 11 | 19 | 20 | 16 | 13 | 4 | 59 | 40 | 20 | ..... | 10 |
| Maryland | 1,579 | 850 | 676 | 53 | 291 | 66 | 157 | 124 | 88 | 77 | 47 | 329 | 182 | 112 | 13 | 40 |
| District of Columbia | 507 | 280 | 212 | 15 | 51 | 31 | 56 | 58 | 35 | 22 | 27 | 82 | 43 | 33 | 3 | 51 |
| Virginia | 1,913 | 1,193 | 653 | 67 | 527 | 122 | 157 | 132 | 111 | 92 | 52 | 293 | 182 | 119 | 21 | 38 |
| West Virginia | 1,146 | 787 | 318 | 41 | 247 | 128 | 164 | 108 | 62 | 47 | 31 | 167 | 80 | 57 | 4 | 10 |
| Southern South Atlantic | 4,793 | 3,281 | 1,391 | 121 | 1,569 | 360 | 415 | 333 | 247 | 214 | 143 | 634 | 396 | 252 | 30 | 79 |
| North Carolina | 1,642 | 1,197 | 409 | 36 | 646 | 134 | 147 | 89 | 67 | 61 | 53 | 183 | 111 | 84 | 13 | 18 |
| South Carolina | 952 | 655 | 275 | 22 | 333 | 66 | 73 | 59 | 51 | 50 | 23 | 109 | 78 | 58 | 8 | 22 |
| Georgia | 1,817 | 1,199 | 565 | 53 | 502 | 128 | 166 | 154 | 111 | 84 | 54 | 276 | 167 | 88 | 8 | 26 |
| Florida | 382 | 230 | 142 | 10 | 88 | 32 | 29 | 31 | 18 | 19 | 13 | 66 | 40 | 22 | 1 | 13 |
| North Central division | 34,076 | 19,358 | 13,676 | 1,042 | 4,603 | 3,368 | 4,590 | 2,760 | 1,689 | 1,509 | 839 | 6,561 | 3,589 | 2,436 | 379 | 711 |
| Eastern North Central | 21,618 | 12,021 | 8,904 | 693 | 2,823 | 2,037 | 2,872 | 1,696 | 1,080 | 987 | 526 | 4,210 | 2,322 | 1,607 | 269 | 496 |
| Ohio | 6,080 | 3,115 | 2,744 | 221 | 790 | 440 | 745 | 440 | 287 | 285 | 128 | 1,286 | 714 | 503 | 75 | 166 |
| Indiana | 3,607 | 2,093 | 1,421 | 93 | 447 | 431 | 509 | 276 | 187 | 165 | 78 | 667 | 399 | 227 | 55 | 73 |
| Illinois | 6,053 | 3,439 | 2,423 | 191 | 706 | 622 | 831 | 513 | 302 | 291 | 174 | 1,164 | 604 | 460 | 59 | 136 |
| Michigan | 3,402 | 1,883 | 1,434 | 85 | 413 | 305 | 462 | 269 | 191 | 170 | 73 | 693 | 391 | 244 | 45 | 61 |
| Wisconsin | 2,476 | 1,491 | 882 | 103 | 467 | 239 | 325 | 198 | 113 | 76 | 73 | 400 | 214 | 173 | 35 | 60 |
| Western North Central | 12,458 | 7,337 | 4,772 | 349 | 1,780 | 1,331 | 1,718 | 1,064 | 609 | 522 | 313 | 2,351 | 1,267 | 829 | 110 | 215 |
| Minnesota | 1,738 | 1,085 | 594 | 59 | 325 | 222 | 227 | 150 | 81 | 54 | 26 | 318 | 149 | 89 | 16 | 22 |
| Iowa | 2,952 | 1,622 | 1,256 | 74 | 336 | 278 | 379 | 245 | 168 | 149 | 67 | 593 | 337 | 227 | 34 | 65 |
| Missouri | 3,766 | 2,302 | 1,367 | 97 | 578 | 412 | 547 | 347 | 177 | 146 | 95 | 658 | 364 | 255 | 23 | 67 |
| North Dakota | 256 | 176 | 70 | 10 | 48 | 34 | 47 | 21 | 12 | 7 | 7 | 42 | 17 | 10 | ..... | 1 |
| South Dakota | 430 | 261 | 156 | 13 | 52 | 42 | 63 | 44 | 22 | 18 | 20 | 97 | 35 | 19 | 1 | 4 |
| Nebraska | 1,220 | 711 | 475 | 34 | 161 | 120 | 171 | 97 | 48 | 61 | 53 | 238 | 114 | 84 | 19 | 20 |
| Kansas | 2,096 | 1,180 | 854 | 62 | 280 | 223 | 284 | 160 | 101 | 87 | 45 | 405 | 251 | 145 | 17 | 36 |
| South Central division | 12,322 | 8,131 | 3,862 | 329 | 3,164 | 1,182 | 1,401 | 913 | 587 | 477 | 407 | 1,748 | 1,082 | 730 | 98 | 204 |
| Eastern South Central | 6,968 | 4,576 | 2,178 | 214 | 1,832 | 597 | 774 | 526 | 357 | 269 | 221 | 917 | 625 | 463 | 66 | 107 |
| Kentucky | 2,619 | 1,719 | 812 | 88 | 630 | 240 | 322 | 210 | 151 | 100 | 66 | 353 | 208 | 187 | 23 | 41 |
| Tennessee | 2,026 | 1,331 | 638 | 57 | 554 | 186 | 231 | 135 | 77 | 73 | 75 | 267 | 196 | 134 | 15 | 26 |
| Alabama | 1,333 | 866 | 427 | 40 | 370 | 95 | 131 | 107 | 69 | 55 | 39 | 181 | 126 | 81 | 14 | 25 |
| Mississippi | 990 | 660 | 301 | 29 | 278 | 76 | 90 | 74 | 60 | 41 | 41 | 116 | 95 | 61 | 14 | 15 |
| Western South Central | 5,354 | 3,555 | 1,684 | 115 | 1,332 | 585 | 627 | 387 | 230 | 208 | 186 | 831 | 457 | 267 | 32 | 97 |
| Louisiana | 1,211 | 731 | 444 | 36 | 363 | 63 | 84 | 78 | 53 | 57 | 33 | 209 | 116 | 72 | 13 | 34 |
| Arkansas | 1,317 | 906 | 382 | 29 | 328 | 119 | 190 | 114 | 52 | 45 | 58 | 175 | 110 | 71 | 2 | 24 |
| Indian Territory | 228 | 161 | 64 | 3 | 43 | 41 | 31 | 18 | 12 | 10 | 6 | 33 | 24 | 5 | ..... | 2 |
| Oklahoma | 282 | 198 | 77 | 7 | 51 | 50 | 44 | 20 | 14 | 10 | 9 | 55 | 13 | 7 | 1 | 1 |
| Texas | 2,316 | 1,559 | 717 | 40 | 547 | 312 | 278 | 157 | 99 | 86 | 80 | 359 | 194 | 112 | 16 | 36 |
| Western division | 4,064 | 2,136 | 1,783 | 145 | 518 | 356 | 464 | 309 | 194 | 209 | 86 | 863 | 456 | 323 | 46 | 95 |
| Rocky Mountain | 1,076 | 589 | 447 | 40 | 149 | 101 | 127 | 75 | 55 | 62 | 20 | 213 | 107 | 86 | 12 | 29 |
| Montana | 126 | 87 | 37 | 2 | 16 | 20 | 23 | 11 | 5 | 11 | 1 | 18 | 13 | 5 | ..... | 1 |
| Idaho | 146 | 79 | 60 | 7 | 17 | 13 | 20 | 9 | 5 | 12 | 3 | 38 | 9 | 10 | 1 | 2 |
| Wyoming | 29 | 13 | 16 | ..... | 2 | 1 | 4 | 3 | 1 | 2 | ..... | 14 | 2 | ..... | ..... | ..... |
| Colorado | 472 | 262 | 193 | 17 | 52 | 59 | 55 | 32 | 29 | 25 | 10 | 107 | 46 | 28 | 5 | 7 |
| New Mexico | 303 | 148 | 141 | 14 | 62 | 8 | 25 | 20 | 15 | 12 | 6 | 36 | 37 | 43 | 6 | 19 |
| Basin and Plateau | 455 | 260 | 183 | 12 | 64 | 51 | 65 | 32 | 19 | 22 | 7 | 89 | 44 | 41 | 5 | 4 |
| Arizona | 51 | 25 | 24 | 2 | 5 | 6 | 7 | 3 | 2 | 1 | 1 | 14 | 6 | 2 | 1 | 1 |
| Utah | 343 | 215 | 123 | 5 | 54 | 43 | 57 | 26 | 12 | 19 | 4 | 60 | 32 | 26 | 4 | 1 |
| Nevada | 61 | 20 | 36 | 5 | 5 | 2 | 1 | 3 | 5 | 2 | 2 | 15 | 6 | 13 | ..... | 2 |
| Pacific | 2,533 | 1,287 | 1,153 | 93 | 305 | 204 | 272 | 202 | 120 | 125 | 59 | 561 | 305 | 196 | 29 | 62 |
| Washington | 374 | 222 | 145 | 7 | 48 | 39 | 48 | 39 | 19 | 20 | 9 | 82 | 38 | 14 | 5 | 6 |
| Oregon | 410 | 252 | 151 | 7 | 52 | 52 | 62 | 38 | 16 | 20 | 12 | 83 | 40 | 22 | 2 | 4 |
| California | 1,749 | 813 | 857 | 79 | 205 | 113 | 162 | 125 | 85 | 85 | 38 | 396 | 227 | 160 | 22 | 52 |

TABLE VIII.—THE DEAF, THE DEAF FROM CHILDHOOD, AND THE TOTALLY DEAF FROM EARLY CHILDHOOD, COMPARED WITH TOTAL POPULATION, FOR STATES AND TERRITORIES.

| STATE OR TERRITORY. | Total population. | THE DEAF. | | | DEAF FROM CHILDHOOD (UNDER 20). | | | TOTALLY DEAF FROM EARLY CHILDHOOD (UNDER 5). | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Total. | Totally deaf. | Partially deaf. | Total. | Deafness occurring— At birth. | Deafness occurring— After birth. | Total. | Deafness occurring— At birth. | Deafness occurring— After birth. |
| Continental United States | 75,994,575 | 89,287 | 37,426 | 51,861 | 50,296 | 14,474 | 35,822 | 26,152 | 12,609 | 13,543 |
| North Atlantic division | 21,046,695 | 28,632 | 10,380 | 18,252 | 14,161 | 3,468 | 10,693 | 6,739 | 3,055 | 3,684 |
| New England | 5,592,017 | 8,854 | 2,806 | 6,048 | 3,982 | 950 | 3,032 | 1,785 | 845 | 940 |
| Maine | 694,466 | 1,257 | 456 | 801 | 597 | 186 | 411 | 303 | 172 | 131 |
| New Hampshire | 411,588 | 762 | 211 | 551 | 305 | 57 | 248 | 139 | 51 | 88 |
| Vermont | 343,641 | 723 | 158 | 565 | 238 | 29 | 209 | 69 | 25 | 44 |
| [illegible] | 2,805,346 | 4,015 | 1,283 | 2,732 | 1,838 | 432 | 1,406 | 825 | 383 | 442 |
| [illegible] | 428,556 | 583 | 172 | 411 | 274 | 56 | 218 | 105 | 53 | 52 |
| [illegible] | 908,420 | 1,514 | 526 | 988 | 730 | 190 | 540 | 344 | 161 | 183 |
| Southern North Atlantic | 15,454,678 | 19,778 | 7,574 | 12,204 | 10,179 | 2,518 | 7,661 | 4,954 | 2,210 | 2,744 |
| New York | 7,268,894 | 9,946 | 3,751 | 6,195 | 5,011 | 1,178 | 3,833 | 2,498 | 1,051 | 1,447 |
| New Jersey | 1,883,669 | 2,285 | 720 | 1,565 | 1,066 | 229 | 837 | 422 | 209 | 213 |
| Pennsylvania | 6,302,115 | 7,547 | 3,103 | 4,444 | 4,102 | 1,111 | 2,991 | 2,034 | 950 | 1,084 |
| South Atlantic division | 10,443,480 | 10,193 | 4,778 | 5,415 | 6,510 | 2,721 | 3,789 | 3,561 | 2,349 | 1,212 |
| Northern South Atlantic | 4,464,481 | 5,400 | 2,343 | 3,057 | 3,229 | 1,152 | 2,077 | 1,663 | 998 | 665 |
| Delaware | 184,735 | 255 | 79 | 176 | 119 | 36 | 83 | 50 | 32 | 18 |
| Maryland | 1,188,044 | 1,579 | 613 | 966 | 850 | 291 | 559 | 423 | 259 | 164 |
| District of Columbia | 278,718 | 507 | 212 | 295 | 280 | 51 | 229 | 111 | 41 | 70 |
| Virginia | 1,854,184 | 1,913 | 880 | 1,033 | 1,193 | 527 | 666 | 662 | 459 | 203 |
| West Virginia | 958,800 | 1,146 | 559 | 587 | 787 | 247 | 540 | 417 | 207 | 210 |
| Southern South Atlantic | 5,978,999 | 4,793 | 2,435 | 2,358 | 3,281 | 1,569 | 1,712 | 1,898 | 1,351 | 547 |
| North Carolina | 1,893,810 | 1,642 | 920 | 722 | 1,197 | 646 | 551 | 753 | 548 | 205 |
| South Carolina | 1,340,316 | 952 | 500 | 452 | 655 | 333 | 322 | 390 | 294 | 96 |
| Georgia | 2,216,331 | 1,817 | 846 | 971 | 1,199 | 502 | 697 | 630 | 430 | 200 |
| Florida | 528,542 | 382 | 169 | 213 | 230 | 88 | 142 | 125 | 79 | 46 |
| North Central division | 26,333,004 | 34,076 | 14,762 | 19,314 | 19,358 | 4,603 | 14,755 | 10,237 | 4,021 | 6,216 |
| Eastern North Central | 15,985,581 | 21,618 | 9,151 | 12,467 | 12,021 | 2,823 | 9,198 | 6,280 | 2,473 | 3,807 |
| Ohio | 4,157,545 | 6,080 | 2,431 | 3,649 | 3,115 | 790 | 2,325 | 1,615 | 696 | 919 |
| Indiana | 2,516,462 | 3,607 | 1,638 | 1,969 | 2,093 | 447 | 1,646 | 1,169 | 413 | 756 |
| Illinois | 4,821,550 | 6,053 | 2,564 | 3,489 | 3,439 | 706 | 2,733 | 1,761 | 627 | 1,134 |
| [illegible] | 2,420,982 | 3,402 | 1,337 | 2,065 | 1,883 | 413 | 1,470 | 907 | 337 | 570 |
| [illegible] | 2,069,042 | 2,476 | 1,181 | 1,295 | 1,491 | 467 | 1,024 | 828 | 400 | 428 |
| Western North Central | 10,347,423 | 12,458 | 5,611 | 6,847 | 7,337 | 1,780 | 5,557 | 3,957 | 1,548 | 2,409 |
| Minnesota | 1,751,394 | 1,738 | 862 | 876 | 1,085 | 325 | 760 | 631 | 268 | 363 |
| Iowa | 2,231,853 | 2,952 | 1,200 | 1,752 | 1,622 | 336 | 1,286 | 802 | 297 | 505 |
| Missouri | 3,106,665 | 3,766 | 1,776 | 1,990 | 2,302 | 578 | 1,724 | 1,271 | 515 | 756 |
| North Dakota | 319,146 | 256 | 135 | 121 | 176 | 48 | 128 | 108 | 42 | 66 |
| South Dakota | 401,570 | 430 | 191 | 239 | 261 | 52 | 209 | 122 | 45 | 77 |
| Nebraska | 1,066,300 | 1,220 | 522 | 698 | 711 | 161 | 550 | 358 | 132 | 226 |
| Kansas | 1,470,495 | 2,096 | 925 | 1,171 | 1,180 | 280 | 900 | 665 | 249 | 416 |
| South Central division | 14,080,047 | 12,322 | 5,963 | 6,359 | 8,131 | 3,164 | 4,967 | 4,562 | 2,756 | 1,806 |
| Eastern South Central | 7,547,757 | 6,968 | 3,362 | 3,606 | 4,576 | 1,832 | 2,744 | 2,554 | 1,605 | 949 |
| Kentucky | 2,147,174 | 2,619 | 1,257 | 1,362 | 1,719 | 630 | 1,089 | 940 | 545 | 395 |
| Tennessee | 2,020,616 | 2,026 | 984 | 1,042 | 1,331 | 554 | 777 | 780 | 501 | 279 |
| Alabama | 1,828,697 | 1,333 | 609 | 724 | 866 | 370 | 496 | 465 | 314 | 151 |
| Mississippi | 1,551,270 | 990 | 512 | 478 | 660 | 278 | 382 | 369 | 245 | 124 |
| Western South Central | 6,532,290 | 5,354 | 2,601 | 2,753 | 3,555 | 1,332 | 2,223 | 2,008 | 1,151 | 857 |
| Louisiana | 1,381,625 | 1,211 | 527 | 684 | 731 | 363 | 368 | 410 | 312 | 98 |
| Arkansas | 1,311,564 | 1,317 | 664 | 653 | 906 | 328 | 578 | 499 | 285 | 214 |
| Indian Territory | 392,060 | 228 | 94 | 134 | 161 | 43 | 118 | 73 | 28 | 45 |
| Oklahoma | 398,331 | 282 | 164 | 118 | 198 | 51 | 147 | 122 | 40 | 82 |
| Texas | 3,048,710 | 2,316 | 1,152 | 1,164 | 1,559 | 547 | 1,012 | 904 | 486 | 418 |
| Western division | 4,091,349 | 4,064 | 1,543 | 2,521 | 2,136 | 518 | 1,618 | 1,053 | 428 | 625 |
| Rocky Mountain | 1,232,642 | 1,076 | 391 | 685 | 589 | 149 | 440 | 267 | 111 | 156 |
| Montana | 243,329 | 126 | 70 | 56 | 87 | 16 | 71 | 48 | 12 | 36 |
| Idaho | 161,772 | 146 | 51 | 95 | 79 | 17 | 62 | 37 | 12 | 25 |
| Wyoming | 92,531 | 29 | 9 | 20 | 13 | 2 | 11 | 7 | 2 | 5 |
| Colorado | 539,700 | 472 | 176 | 296 | 262 | 52 | 210 | 119 | 42 | 77 |
| New Mexico | 195,310 | 303 | 85 | 218 | 148 | 62 | 86 | 56 | 43 | 13 |
| Basin and Plateau | 442,015 | 455 | 200 | 255 | 260 | 64 | 196 | 147 | 53 | 94 |
| Arizona | 122,931 | 51 | 25 | 26 | 25 | 5 | 20 | 16 | 5 | 11 |
| Utah | 276,749 | 343 | 156 | 187 | 215 | 54 | 161 | 125 | 44 | 81 |
| Nevada | 42,335 | 61 | 19 | 42 | 20 | 5 | 15 | 6 | 4 | 2 |
| Pacific | 2,416,692 | 2,533 | 952 | 1,581 | 1,287 | 305 | 982 | 639 | 264 | 375 |
| Washington | 518,103 | 374 | 168 | 206 | 222 | 48 | 174 | 100 | 36 | 64 |
| Oregon | 413,536 | 410 | 193 | 217 | 252 | 52 | 200 | 141 | 45 | 96 |
| California | 1,485,053 | 1,749 | 591 | 1,158 | 813 | 205 | 608 | 398 | 183 | 215 |

TABLE IX.—THE DEAF, BY RACE, NATIVITY OF WHITES, PRESENT AGE, AND ABILITY TO SPEAK, FOR STATES AND TERRITORIES.

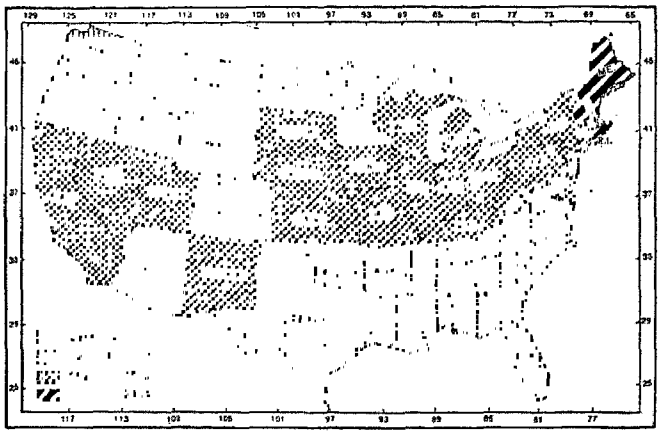
| STATE OR TERRITORY. | Total. | RACE. | | NATIVITY OF WHITES. | | | PRESENT AGE. | | | ABILITY TO SPEAK. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | White. | Colored. | Native. | Foreign born. | Unknown. | Under 20. | 20 and over. | Unknown. | Well. | Imperfectly. | Not at all. |
| Continental United States | 89,287 | 84,361 | 4,926 | 69,865 | 13,786 | 710 | 18,358 | 70,602 | 327 | 55,501 | 9,417 | 24,369 |
| North Atlantic division | 28,632 | 28,459 | 173 | 23,222 | 5,114 | 123 | 4,222 | 24,335 | 75 | 20,376 | 3,003 | 5,253 |
| New England | 8,854 | 8,815 | 39 | 7,291 | 1,493 | 31 | 981 | 7,849 | 24 | 6,843 | 732 | 1,279 |
| Maine | 1,257 | 1,256 | 1 | 1,140 | 114 | 2 | 144 | 1,110 | 3 | 895 | 125 | 237 |
| New Hampshire | 762 | 762 | ..... | 665 | 91 | 6 | 37 | 724 | 1 | 604 | 47 | 111 |
| Vermont | 723 | 723 | ..... | 613 | 106 | 4 | 27 | 693 | 3 | 641 | 22 | 60 |
| Massachusetts | 4,015 | 3,994 | 21 | 3,165 | 817 | 12 | 472 | 3,531 | 12 | 3,082 | 371 | 562 |
| Rhode Island | 583 | 573 | 10 | 447 | 126 | ..... | 83 | 498 | 2 | 490 | 40 | 53 |
| Connecticut | 1,514 | 1,507 | 7 | 1,261 | 239 | 7 | 218 | 1,293 | 3 | 1,131 | 127 | 256 |
| Southern North Atlantic | 19,778 | 19,644 | 134 | 15,931 | 3,621 | 92 | 3,241 | 16,486 | 51 | 13,533 | 2,271 | 3,974 |
| New York | 9,946 | 9,898 | 48 | 7,656 | 2,202 | 40 | 1,713 | 8,205 | 28 | 6,901 | 1,181 | 1,864 |
| New Jersey | 2,285 | 2,256 | 29 | 1,855 | 394 | 7 | 276 | 2,006 | 3 | 1,705 | 189 | 391 |
| Pennsylvania | 7,547 | 7,490 | 57 | 6,420 | 1,025 | 45 | 1,252 | 6,275 | 20 | 4,927 | 901 | 1,719 |
| South Atlantic division | 10,193 | 8,060 | 2,133 | 7,514 | 406 | 140 | 2,745 | 7,385 | 63 | 5,432 | 1,088 | 3,673 |
| Northern South Atlantic | 5,400 | 4,696 | 704 | 4,300 | 339 | 57 | 1,192 | 4,179 | 29 | 3,134 | 576 | 1,690 |
| Delaware | 255 | 237 | 18 | 217 | 19 | 1 | 28 | 224 | 3 | 186 | 22 | 47 |
| Maryland | 1,579 | 1,364 | 215 | 1,194 | 142 | 28 | 255 | 1,320 | 4 | 1,026 | 158 | 395 |
| District of Columbia | 507 | 436 | 71 | 343 | 92 | 1 | 74 | 430 | 3 | 360 | 72 | 75 |
| Virginia | 1,913 | 1,531 | 382 | 1,473 | 49 | 9 | 489 | 1,410 | 14 | 1,007 | 200 | 706 |
| West Virginia | 1,146 | 1,128 | 18 | 1,073 | 37 | 18 | 346 | 795 | 5 | 555 | 124 | 467 |
| Southern South Atlantic | 4,793 | 3,364 | 1,429 | 3,214 | 67 | 83 | 1,553 | 3,206 | 34 | 2,298 | 512 | 1,983 |
| North Carolina | 1,642 | 1,304 | 338 | 1,215 | 14 | 75 | 626 | 1,000 | 16 | 707 | 199 | 736 |
| South Carolina | 952 | 520 | 432 | 506 | 12 | 2 | 302 | 648 | 2 | 423 | 102 | 427 |
| Georgia | 1,817 | 1,268 | 549 | 1,245 | 20 | 3 | 527 | 1,276 | 14 | 948 | 181 | 688 |
| Florida | 382 | 272 | 110 | 248 | 21 | 3 | 98 | 282 | 2 | 220 | 30 | 132 |
| North Central division | 34,076 | 33,661 | 415 | 26,579 | 6,807 | 275 | 6,675 | 27,301 | 100 | 20,771 | 3,589 | 9,716 |
| Eastern North Central | 21,618 | 21,469 | 149 | 16,984 | 4,315 | 170 | 4,013 | 17,548 | 57 | 13,560 | 2,424 | 5,634 |
| Ohio | 6,080 | 6,021 | 59 | 5,026 | 955 | 40 | 951 | 5,116 | 13 | 3,914 | 656 | 1,510 |
| Indiana | 3,607 | 3,584 | 23 | 3,222 | 345 | 17 | 644 | 2,951 | 12 | 2,156 | 348 | 1,103 |
| Illinois | 6,053 | 6,014 | 39 | 4,587 | 1,335 | 92 | 1,238 | 4,794 | 21 | 3,802 | 789 | 1,462 |
| Michigan | 3,402 | 3,386 | 16 | 2,551 | 820 | 15 | 622 | 2,772 | 8 | 2,288 | 313 | 801 |
| Wisconsin | 2,476 | 2,464 | 12 | 1,598 | 860 | 6 | 558 | 1,915 | 3 | 1,400 | 318 | 758 |
| Western North Central | 12,458 | 12,192 | 266 | 9,595 | 2,492 | 105 | 2,662 | 9,753 | 43 | 7,211 | 1,165 | 4,082 |
| Minnesota | | | | | | | | | | | | |
| Iowa | | | | | | | | | | | | |
| Missouri | | | | | | | | | | | | |
| North Dakota | | | | | | | | | | | | |
| South Dakota | | | | | | | | | | | | |
| Nebraska | | | | | | | | | | | | |
| Kansas | | | | | | | | | | | | |
| South Central division | | | | | | | | | | | | |
| Eastern South Central | 6,968 | 5,716 | 1,252 | 5,494 | 201 | 21 | 2,039 | 4,890 | 39 | 3,542 | 731 | 2,695 |
| Kentucky | 2,619 | 2,387 | 232 | 2,247 | 136 | 4 | 720 | 1,880 | 19 | 1,357 | 286 | 976 |
| Tennessee | 2,026 | 1,760 | 266 | 1,712 | 41 | 7 | 664 | 1,355 | 7 | 1,027 | 219 | 780 |
| Alabama | 1,333 | 957 | 376 | 939 | 15 | 3 | 349 | 978 | 6 | 690 | 121 | 522 |
| Mississippi | 990 | 612 | 378 | 596 | 9 | 7 | 306 | 677 | 7 | 468 | 105 | 417 |
| Western South Central | 5,354 | 4,511 | 843 | 4,074 | 355 | 82 | 1,803 | 3,518 | 33 | 2,681 | 573 | 2,100 |
| Louisiana | 1,211 | 878 | 333 | 749 | 110 | 19 | 328 | 877 | 6 | 656 | 109 | 446 |
| Arkansas | 1,317 | 1,102 | 215 | 1,077 | 19 | 6 | 453 | 844 | 20 | 645 | 116 | 556 |
| Indian Territory | 228 | 184 | 44 | 175 | 9 | ..... | 74 | 152 | 2 | 125 | 26 | 77 |
| Oklahoma | 282 | 260 | 22 | 190 | 24 | 46 | 110 | 172 | ..... | 119 | 32 | 131 |
| Texas | 2,316 | 2,087 | 229 | 1,883 | 193 | 11 | 838 | 1,473 | 5 | 1,136 | 290 | 890 |
| Western division | 4,064 | 3,954 | 110 | 2,982 | 903 | 69 | 874 | 3,173 | 17 | 2,609 | 433 | 932 |
| Rocky Mountain | 1,076 | 1,023 | 53 | 841 | 144 | 38 | 289 | 782 | 5 | 697 | 132 | 247 |
| Montana | 126 | 115 | 11 | 91 | 23 | 1 | 48 | 78 | ..... | 62 | 13 | 51 |
| Idaho | 146 | 129 | 17 | 100 | 29 | ..... | 38 | 107 | 1 | 96 | 17 | 33 |
| Wyoming | 29 | 26 | 3 | 20 | 6 | ..... | 6 | 23 | ..... | 20 | 4 | 5 |
| Colorado | 472 | 471 | 1 | 364 | 70 | 37 | 123 | 347 | 2 | 305 | 73 | 94 |
| New Mexico | 303 | 282 | 21 | 266 | 16 | ..... | 74 | 227 | 2 | 214 | 25 | 64 |
| Basin and Plateau | 455 | 430 | 25 | 254 | 175 | 1 | 110 | 343 | 2 | 287 | 45 | 123 |
| Arizona | 51 | 41 | 10 | 34 | 6 | 1 | 11 | 38 | 2 | 25 | 11 | 15 |
| Utah | 343 | 340 | 3 | 192 | 148 | ..... | 90 | 253 | ..... | 212 | 30 | 101 |
| Nevada | 61 | 49 | 12 | 28 | 21 | ..... | 9 | 52 | ..... | 50 | 4 | 7 |
| Pacific | 2,533 | 2,501 | 32 | 1,887 | 584 | 30 | 475 | 2,048 | 10 | 1,715 | 256 | 562 |
| Washington | 374 | 368 | 6 | 285 | 82 | 1 | 94 | 280 | ..... | 215 | 62 | 97 |
| Oregon | 410 | 402 | 8 | 323 | 63 | 16 | 86 | 321 | 3 | 236 | 33 | 141 |
| California | 1,749 | 1,731 | 18 | 1,279 | 439 | 13 | 295 | 1,447 | 7 | 1,264 | 161 | 324 |

TABLE X.—NUMBER OF THE DEAF FROM SPECIFIED CLASSES PER MILLION OF TOTAL POPULATION, FOR STATES AND TERRITORIES.

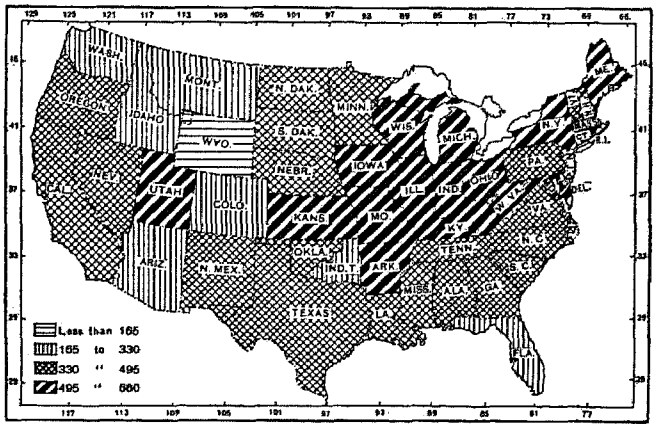
| STATE OR TERRITORY. | NUMBER OF DEAF PER 1,000,000 POPULATION. | | | | | TOTALLY DEAF FROM EARLY CHILDHOOD (UNDER 5) PER 1,000,000 POPULATION. | | Number of native white deaf per 1,000,000 native white population. | Number of foreign born white deaf per 1,000,000 foreign born white population. |
|---|---|---|---|---|---|---|---|---|---|
| | Total. | Totally deaf. | Partially deaf. | Deaf from childhood (under 20). | Deaf from adult life (20 and over). | Congenitals. | Noncongenitals. | | |
| Continental United States | 1,175 | 493 | 682 | 662 | 473 | 166 | 178 | 1,234 | 1,350 |
| North Atlantic division | 1,360 | 493 | 867 | 673 | 628 | 145 | 175 | 1,461 | 1,079 |
| New England | 1,583 | 502 | 1,081 | 712 | 811 | 151 | 168 | 1,783 | 1,039 |
| Maine | 1,810 | 657 | 1,153 | 860 | 911 | 248 | 189 | 1,902 | 1,227 |
| New Hampshire | 1,851 | 512 | 1,339 | 741 | 1,020 | 124 | 214 | 2,060 | 1,035 |
| Vermont | 2,104 | 460 | 1,644 | 693 | 1,359 | 73 | 128 | 2,057 | 2,372 |
| Massachusetts | 1,431 | 457 | 974 | 655 | 720 | 137 | 158 | 1,640 | 972 |
| Rhode Island | 1,360 | 401 | 959 | 639 | 665 | 124 | 121 | 1,567 | 942 |
| Connecticut | 1,667 | 579 | 1,088 | 804 | 780 | 177 | 201 | 1,925 | 1,007 |
| Southern North Atlantic | 1,280 | 490 | 790 | 659 | 562 | 143 | 178 | 1,349 | 1,097 |
| New York | 1,368 | 516 | 852 | 689 | 619 | 145 | 199 | 1,453 | 1,165 |
| New Jersey | 1,213 | 382 | 831 | 566 | 596 | 111 | 113 | 1,342 | 916 |
| Pennsylvania | 1,198 | 493 | 705 | 651 | 487 | 151 | 172 | 1,244 | 1,043 |
| South Atlantic division | 976 | 458 | 518 | 623 | 324 | 225 | 116 | 1,157 | 1,944 |
| Northern South Atlantic | 1,210 | 525 | 685 | 723 | 445 | 224 | 149 | 1,328 | 2,020 |
| Delaware | 1,380 | 427 | 953 | 644 | 698 | 173 | 97 | 1,547 | 1,384 |
| Maryland | 1,329 | 516 | 813 | 715 | 509 | 218 | 138 | 1,390 | 1,525 |
| District of Columbia | 1,819 | 761 | 1,058 | 1,005 | 761 | 147 | 251 | 1,994 | 4,713 |
| Virginia | 1,032 | 475 | 557 | 643 | 352 | 248 | 109 | 1,255 | 2,570 |
| West Virginia | 1,195 | 583 | 612 | 821 | 332 | 216 | 219 | 1,202 | 1,653 |
| Southern South Atlantic | 802 | 407 | 395 | 549 | 233 | 226 | 91 | 980 | 1,632 |
| North Carolina | 867 | 486 | 381 | 632 | 216 | 289 | 108 | 965 | 3,186 |
| South Carolina | 710 | 373 | 337 | 489 | 205 | 219 | 72 | 916 | 2,234 |
| Georgia | 820 | 382 | 438 | 541 | 255 | 194 | 90 | 1,065 | 1,664 |
| Florida | 723 | 320 | 403 | 435 | 269 | 149 | 87 | 892 | 1,091 |
| North Central division | 1,294 | 561 | 733 | 735 | 519 | 153 | 236 | 1,229 | 1,640 |
| Eastern North Central | 1,352 | 572 | 780 | 752 | 557 | 155 | 238 | 1,298 | 1,647 |
| Ohio | 1,462 | 585 | 877 | 749 | 660 | 167 | 221 | 1,395 | 2,086 |
| Indiana | 1,433 | 651 | 782 | 832 | 565 | 164 | 300 | 1,391 | 2,432 |
| Illinois | 1,255 | 532 | 723 | 713 | 503 | 130 | 235 | 1,217 | 1,384 |
| Michigan | 1,405 | 552 | 853 | 778 | 592 | 139 | 235 | 1,373 | 1,518 |
| Wisconsin | 1,197 | 571 | 626 | 721 | 426 | 193 | 207 | 1,036 | 1,668 |
| Western North Central | 1,204 | 542 | 662 | 709 | 461 | 150 | 233 | 1,124 | 1,628 |
| Minnesota | 992 | 492 | 500 | 620 | 339 | 153 | 207 | 863 | 1,307 |
| Iowa | 1,323 | 538 | 785 | 727 | 563 | 133 | 226 | 1,209 | 2,008 |
| Missouri | 1,212 | 572 | 640 | 741 | 440 | 166 | 243 | 1,174 | 1,821 |
| North Dakota | 802 | 423 | 379 | 551 | 219 | 132 | 207 | 628 | 1,021 |
| South Dakota | 1,071 | 476 | 595 | 650 | 388 | 112 | 192 | 783 | 1,438 |
| Nebraska | 1,144 | 489 | 655 | 667 | 445 | 124 | 212 | 1,067 | 1,496 |
| Kansas | 1,425 | 629 | 796 | 802 | 581 | 169 | 283 | 1,336 | 2,512 |
| South Central division | 875 | 423 | 452 | 577 | 274 | 196 | 128 | 1,011 | 1,572 |
| Eastern South Central | 923 | 445 | 478 | 606 | 289 | 213 | 126 | 1,109 | 2,241 |
| Kentucky | 1,220 | 586 | 634 | 801 | 378 | 254 | 184 | 1,240 | 2,713 |
| Tennessee | 1,003 | 487 | 516 | 659 | 316 | 248 | 138 | 1,124 | 2,331 |
| Alabama | 729 | 333 | 396 | 474 | 233 | 172 | 83 | 952 | 1,046 |
| Mississippi | 638 | 330 | 308 | 425 | 194 | 158 | 80 | 941 | 1,180 |
| Western South Central | 820 | 398 | 422 | 544 | 258 | 176 | 131 | 904 | 1,345 |
| Louisiana | 877 | 382 | 495 | 529 | 321 | 226 | 71 | 1,105 | 2,121 |
| Arkansas | 1,004 | 506 | 498 | 691 | 291 | 217 | 163 | 1,158 | 1,339 |
| Indian Territory | 582 | 240 | 342 | 411 | 163 | 71 | 115 | 587 | 1,880 |
| Oklahoma | 708 | 412 | 296 | 497 | 193 | 100 | 206 | 540 | 1,538 |
| Texas | 760 | 378 | 382 | 511 | 235 | 159 | 137 | 837 | 1,087 |
| Western division | 993 | 377 | 616 | 522 | 436 | 105 | 153 | 958 | 1,187 |
| Rocky Mountain | 873 | 317 | 556 | 478 | 363 | 90 | 127 | 863 | 704 |
| Montana | 518 | 288 | 230 | 358 | 152 | 49 | 148 | 555 | 369 |
| Idaho | 903 | 316 | 587 | 488 | 371 | 74 | 155 | 754 | 1,325 |
| Wyoming | 313 | 97 | 216 | 140 | 173 | 22 | 54 | 276 | 362 |
| Colorado | 875 | 326 | 549 | 485 | 358 | 78 | 143 | 830 | 774 |
| New Mexico | 1,551 | 435 | 1,116 | 758 | 722 | 220 | 67 | 1,593 | 1,207 |
| Basin and Plateau | 1,029 | 452 | 577 | 588 | 414 | 120 | 213 | 801 | 2,089 |
| Arizona | 415 | 203 | 212 | 203 | 195 | 41 | 89 | 482 | 268 |
| Utah | 1,239 | 563 | 676 | 777 | 444 | 159 | 293 | 874 | 2,803 |
| Nevada | 1,441 | 449 | 992 | 472 | 850 | 94 | 47 | 1,044 | 2,447 |
| Pacific | 1,048 | 394 | 654 | 533 | 477 | 109 | 155 | 1,036 | 1,236 |
| Washington | 722 | 324 | 398 | 428 | 280 | 69 | 124 | 723 | 803 |
| Oregon | 991 | 466 | 525 | 609 | 365 | 109 | 232 | 948 | 1,170 |
| California | 1,178 | 398 | 780 | 547 | 577 | 123 | 145 | 1,177 | 1,387 |

Table x is illustrated by Maps 1, 2, and 3, showing the ratios per million of population in each state and territory

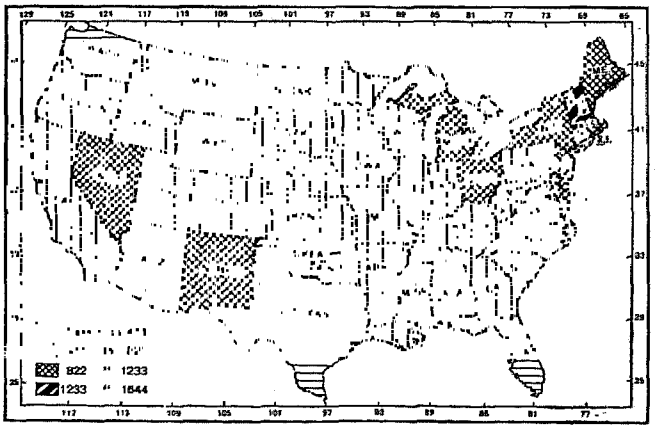
MAP 1.—*Number of deaf per million of population, by states and territories.*



MAP 2.—*Number of totally deaf per million of population, by states and territories.*




MAP 3.—*Number of partially deaf per million of population, by states and territories.*



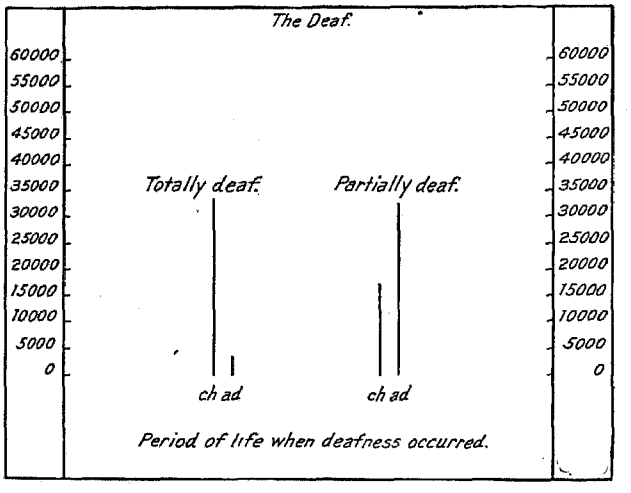

Map 1 shows the geographic distribution of the total number of deaf reported at the Twelfth Census, from which it appears that, upon the whole, deafness is more common in the northern part of the United States than in the southern. The North Atlantic and North Central divisions show a larger ratio per million than the South Atlantic and South Central divisions, and the largest ratio of all is found in the New England states. The ratios shown in the states composing the Western division, with the exception of California, are of comparatively slight significance, because of the small numbers involved.

Maps 2 and 3 show, in contrast, the geographic distribution of the totally deaf and the partially deaf, and in studying these maps it will be remembered that the totally deaf consist largely of persons deaf from childhood and the partially deaf largely of persons deaf from adult life.

*Degree of deafness.*—Out of an aggregate of 89,287 deaf, 37,426 were reported as totally deaf and 51,861, as partially deaf (Table 1).

Table 1 reveals the fact that the vast majority of the totally deaf became deaf in childhood, before reaching the age of 20 years, whereas the majority of the partially deaf lost hearing in adult life (Diagram 8).

*Diagram 8.*




In Table XI the totally and partially deaf are analyzed by the age at which deafness occurred.

From this table it appears that out of 35,479 totally deaf cases in which the age when deafness occurred was definitely stated, 91 per cent were totally deaf from childhood (under 20), 52 per cent were totally deaf from infancy (under 2), and 36 per cent were totally deaf from birth. More than half of the totally deaf lost hearing before they were 2 years of age.

Of the partially deaf, about one-third became deaf before they were 20, one-third between 20 and 40, and one-third after reaching 40, approximately.

Table XI is illustrated by Diagrams 9 and 10.

TABLE XI.—*The deaf, by degree of deafness and age when deafness occurred.*

| AGE WHEN DEAFNESS OCCURRED. | Total. | Totally deaf. | Partially deaf. |
|---|---|---|---|
| Total | 89,287 | 37,426 | 51,861 |
| Age when deafness occurred: | | | |
| Unknown | 3,067 | 795 | 2,272 |
| Indefinitely stated | 4,630 | 1,152 | 3,478 |
| Definitely stated | 81,590 | 35,479 | 46,111 |
| Indefinitely stated: | | | |
| Childhood | 2,347 | 988 | 1,359 |
| Adult life | 2,283 | 164 | 2,119 |
| Definitely stated: | | | |
| Birth | 14,474 | 12,609 | 1,865 |
| After birth, under 2 | 7,396 | 5,998 | 1,398 |
| Under 2 | 21,870 | 18,607 | 3,263 |
| 2 and under 4 | 8,259 | 6,072 | 2,187 |
| 4 and under 6 | 4,277 | 2,601 | 1,676 |
| 6 and under 8 | 2,955 | 1,617 | 1,338 |
| 8 and under 10 | 2,063 | 973 | 1,090 |
| 10 and under 12 | 1,830 | 626 | 1,204 |
| 12 and under 14 | 1,804 | 572 | 1,232 |
| 14 and under 16 | 1,915 | 457 | 1,458 |
| 16 and under 18 | 1,427 | 344 | 1,083 |
| 18 and under 20 | 1,549 | 291 | 1,258 |
| Under 5 | 32,406 | 26,152 | 6,254 |
| 5 and under 10 | 7,018 | 3,718 | 3,300 |
| 10 and under 15 | 4,464 | 1,425 | 3,039 |
| 15 and under 20 | 4,061 | 865 | 3,196 |
| Under 20 | 47,949 | 32,160 | 15,789 |
| 20 and under 40 | 16,588 | 2,021 | 14,567 |
| 40 and [illegible] | 9,437 | 867 | 8,570 |
| 60 and [illegible] | 6,595 | 374 | 6,221 |
| 80 and under 100 | 1,013 | 57 | 956 |
| 100 and over | 8 | ..... | 8 |

*Diagram 9.*

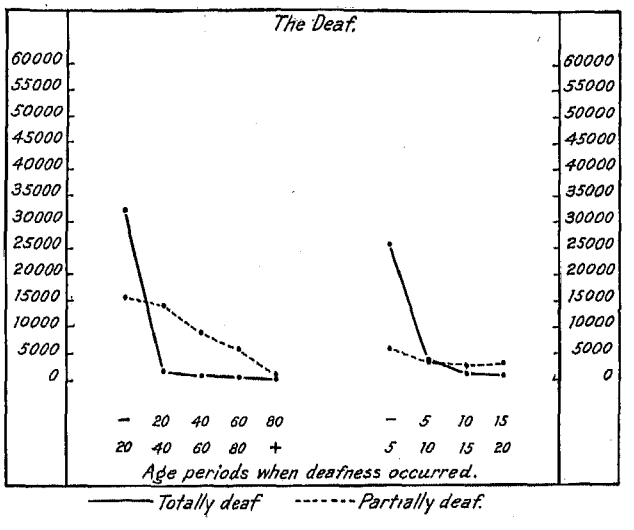
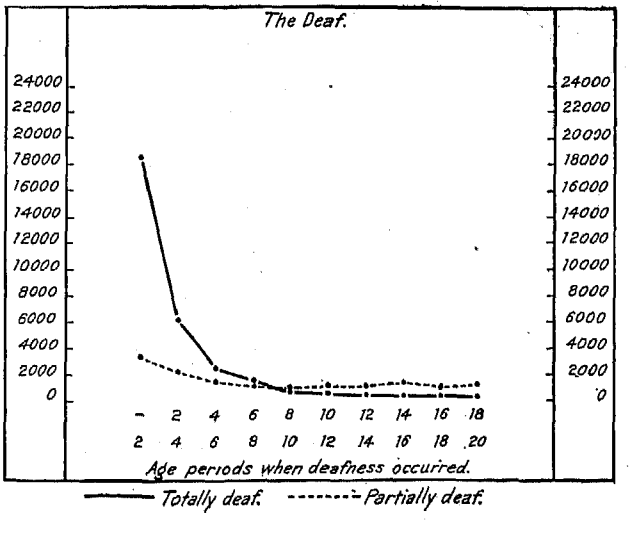



*Diagram 10.*




*Ability to speak.*—Out of an aggregate of 89,287 persons returned as deaf, 55,501 were able to speak "well," 9,417 "imperfectly," and 24,369 "not at all" (Table 1).

In the case of those who do not speak at all, the period of life when deafness occurred (whether childhood or adult life) is known in 23,866 cases, and of these, 23,687, or more than 99 per cent, became deaf in childhood, before reaching the age of 20 years.

The class "deaf from childhood" thus includes substantially all of the deaf and dumb (Diagram 11). This is true even if we include, as is usually done, "semimutes," who speak imperfectly, as well as "deaf-mutes" proper, who do not speak at all, among the deaf and dumb; for nearly 98 per cent of these two subgroups combined (deaf-mutes and semimutes) became deaf in childhood, before reaching the age of 20 years.

On the other hand, the majority of the deaf who speak well became deaf in adult life.

*Diagram 11.*

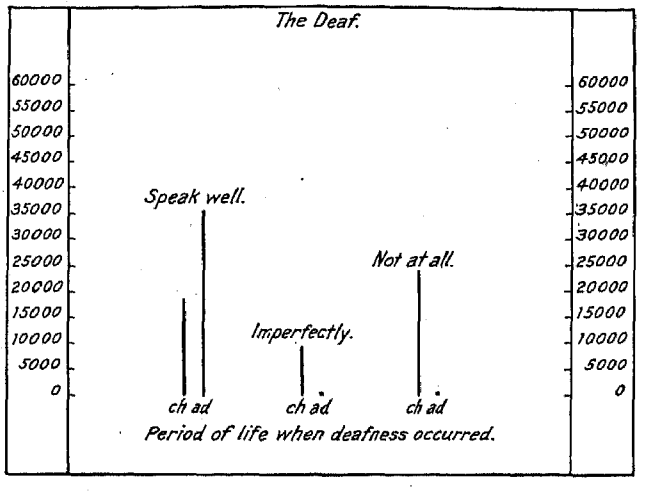


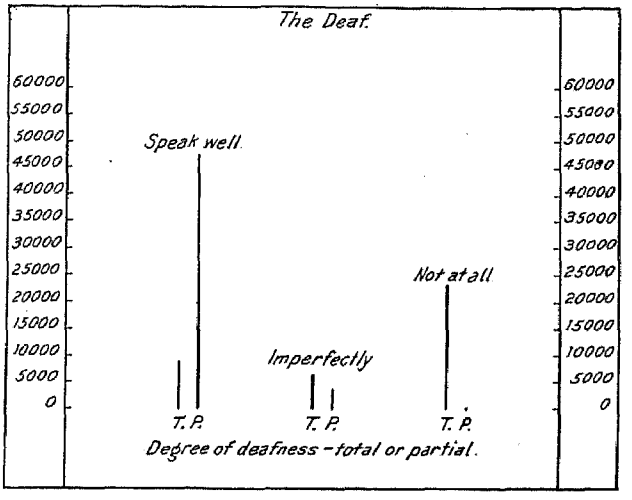

TABLE XII.—*Number and per cent of deaf, by period of life when deafness occurred, degree of deafness, and ability to speak.*

| DEGREE OF DEAFNESS AND ABILITY TO SPEAK. | Total. | PERIOD OF LIFE WHEN DEAFNESS OCCURRED. | | | | |
|---|---|---|---|---|---|---|
| | | Unknown. | Known. | | | |
| | | | Total. | Childhood (under 20). | | Adult life (20 and over). |
| | | | | Number. | Per cent. | Number. | Per cent. |
| Total | 89,287 | 3,067 | 86,220 | 50,296 | 58.3 | 35,924 | 41.7 |
| Totally deaf | 37,426 | 795 | 36,631 | 33,148 | 90.5 | 3,483 | 9.5 |
| Partially deaf | 51,861 | 2,272 | 49,589 | 17,148 | 34.6 | 32,441 | 65.4 |
| Speak well | 55,501 | 2,310 | 53,191 | 18,064 | 34.0 | 35,127 | 66.0 |
| Imperfectly | 9,417 | 254 | 9,163 | 8,545 | 93.3 | 618 | 6.7 |
| Not at all | 24,369 | 503 | 23,866 | 23,687 | 99.2 | 179 | 0.8 |
| Totally deaf: | | | | | | | |
| Speak well | 8,027 | 246 | 7,781 | 4,578 | 58.8 | 3,203 | 41.2 |
| Imperfectly | 5,917 | 99 | 5,818 | 5,657 | 97.2 | 161 | 2.8 |
| Not at all | 23,482 | 450 | 23,032 | 22,913 | 99.5 | 119 | 0.5 |
| Partially deaf: | | | | | | | |
| Speak well | 47,474 | 2,064 | 45,410 | 13,486 | 29.7 | 31,924 | 70.3 |
| Imperfectly | 3,500 | 155 | 3,345 | 2,888 | 86.3 | 457 | 13.7 |
| Not at all | 887 | 53 | 834 | 774 | 92.8 | 60 | 7.2 |

In Table XII the returns of the deaf who speak "well," "imperfectly," or "not at all," are analyzed by period of life when deafness occurred (whether childhood or adult life) and by degree of deafness (whether total or partial).

Out of 24,369 deaf and dumb who can not speak, 23,482, or more than 96 per cent, were reported as totally deaf; and only 887, or less than 4 per cent, as partially deaf. Table XII is illustrated by Diagram 12.

*Diagram 12.*




The small proportion of partially deaf is somewhat surprising, in view of the fact that it is a common practice in American schools for the deaf and dumb to summon the pupils in from the playground by the ringing of a bell. In 1888 experiments were made in a number of schools to ascertain the percentage of children who could hear this call, and out of 1,475 pupils tested, 304, or nearly 21 per cent, could hear the ringing of the bell[1]; but in the Census tables less than 4 per cent of the deaf and dumb are reported as partially deaf.

It may possibly be that in the case of the deaf and dumb there has been an overestimate of the number totally deaf, for the test of total deafness adopted, although perfectly applicable to deaf persons who can speak, is not so well adapted to distinguish the totally from the partially deaf among the deaf and dumb. In the Census tables those persons are returned as totally deaf who "can not be made to understand what people say even when they shout;" but the deaf and dumb have no knowledge of spoken language, and so could not "understand" even if they heard. Few Americans could be made to understand Chinese, even though the spoken words were shouted into their ears, but it does not necessarily follow that such persons are totally deaf; and spoken English is as unintelligible to the deaf and dumb as Chinese is to us.

On the other hand, the small proportion of partially deaf among the deaf and dumb is explicable without the assumption that the returns of the totally deaf are excessive. Articulation teaching has been pursued for a good many years in American schools for the deaf, and it is known that the partially deaf acquire speech more readily by instruction than those who can not hear at all, and this would result in comparatively few of them being returned as deaf and dumb; they would appear instead among those who speak, either well or imperfectly. This interpretation, upon the whole, seems more probable than the other.

The number of cases in which the period of life when deafness occurred is known (Table XII) forms the basis upon which the following percentages have been calculated: Thirty-four per cent of those who could speak well, 93 per cent of those who could speak imperfectly, and 99 per cent of those who could speak not at all became deaf in childhood, before reaching the age of 20. Sixty-six per cent of those who could speak well, 7 per cent of those who could speak imperfectly, and 1 per cent of those who could speak not at all lost hearing in adult life.

The following percentages have been calculated on the basis of the whole of the deaf who speak well, imperfectly, or not at all (Table XII): Fourteen per cent of those who could speak well, 63 per cent of those who could speak imperfectly, and 96 per cent of those who could speak not at all were reported as totally deaf. Eighty-six per cent of those who could speak well, 37 per cent of those who could speak imperfectly, and 4 per cent of those who could speak not at all were returned as partially deaf.

It will thus be seen that the ability to speak (whether well, imperfectly, or not at all) is largely dependent upon the period of life when deafness occurred (whether childhood or adult life) and upon the degree of deafness (whether total or partial). A correlation exists between these three elements.

In Table XIII the deaf who speak well, imperfectly, or not at all are analyzed by the age when deafness occurred, and the results are shown graphically in Diagram 13.

Speaking broadly, about one-third of the deaf who speak well lost hearing before they were 20 years old, one-third between 20 and 40, and one-third after reaching 40.

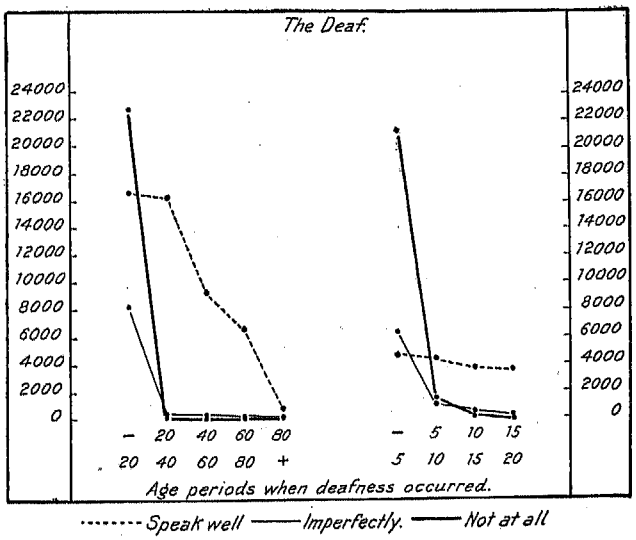
Of the deaf who speak imperfectly or not at all, most lost hearing at a very early age—before they were 5—and practically all became deaf before they were 20.

[1] See "Education of Deaf Children: Evidence of Edward Miner Gallaudet and Alexander Graham Bell presented to the Royal Commission of the United Kingdom on the Condition of the Blind, the Deaf and Dumb, etc.; with accompanying papers, postscripts, and an index. Edited by Joseph C. Gordon, professor of mathematics, etc., in the National College for the Deaf, Washington, U. S. A.: published by the Volta Bureau, Washington, D. C., 1892." Part II, query 21395. Also exhibit entitled "Facts and Opinions Relating to the Deaf in America" in the same volume.

TABLE XIII.—*The deaf, by ability to speak and age when deafness occurred.*

| AGE WHEN DEAFNESS OCCURRED. | Total. | ABILITY TO SPEAK. | | |
|---|---|---|---|---|
| | | Well. | Imperfectly. | Not at all. |
| Total | 89,287 | 55,501 | 9,417 | 24,369 |
| Age when deafness occurred: | | | | |
| Unknown | 3,067 | 2,310 | 254 | 503 |
| Indefinitely stated | 4,630 | 3,357 | 517 | 756 |
| Definitely stated | 81,590 | 49,834 | 8,646 | 23,110 |
| Indefinitely stated: | | | | |
| Childhood (under 20) | 2,347 | 1,137 | 468 | 742 |
| Adult life (20 and over) | 2,283 | 2,220 | 49 | 14 |
| Definitely stated: | | | | |
| Birth | 14,474 | 1,217 | 2,452 | 10,805 |
| After birth, under 2 | 7,396 | 946 | 1,611 | 4,839 |
| 2 and under 5 | 10,536 | 2,669 | 2,228 | 5,639 |
| Under 5 | 32,406 | 4,832 | 6,291 | 21,283 |
| 5 and under 10 | 7,018 | 4,324 | 1,279 | 1,415 |
| 10 and under 15 | 4,464 | 3,908 | 372 | 184 |
| 15 and under 20 | 4,061 | 3,863 | 135 | 63 |
| Under 20 | 47,949 | 16,927 | 8,077 | 22,945 |
| 20 and under 40 | 16,588 | 16,215 | 283 | 90 |
| 40 and under 60 | 9,437 | 9,241 | 155 | 41 |
| 60 and under 80 | 6,595 | 6,453 | 113 | 29 |
| 80 and over | 1,021 | 998 | 18 | 5 |
| Under 20 | 47,949 | 16,927 | 8,077 | 22,945 |
| 20 and over | 33,641 | 32,907 | 569 | 165 |

*Diagram 13.*




A more exact statement is contained in Tables XIV and XV, illustrated by Diagrams 14, 15, and 16.

Table XIV shows the number and percentage of the deaf who speak well, imperfectly, or not at all, who lost hearing before reaching certain specified ages.

From Table XIV and Diagrams 14 and 15 it appears that substantially all of the deaf and dumb became deaf before they were 20, nearly all (98 per cent) before they were 10, and the vast majority (92 per cent) before they were 5. More than two-thirds lost hearing before they were 2, and nearly one-half were born deaf.

In the case of the semimutes, also, the vast majority (93 per cent) became deaf before they were 20, nearly three-fourths lost hearing before they were 5, nearly one-half before they were 2, and more than one-quarter were born deaf.

TABLE XIV.—*Number and per cent of deaf, by ability to speak and age when deafness occurred.*

| AGE WHEN DEAFNESS OCCURRED. | Total. | ABILITY TO SPEAK. | | | | | |
|---|---|---|---|---|---|---|---|
| | | Number. | | | Per cent. | | |
| | | Well. | Imperfectly. | Not at all. | Well. | Imperfectly. | Not at all. |
| All ages | 89,287 | 55,501 | 9,417 | 24,369 | ..... | ..... | ..... |
| Age when deafness occurred: | | | | | | | |
| Unknown | 3,067 | 2,310 | 254 | 503 | ..... | ..... | ..... |
| Indefinitely stated | 4,630 | 3,357 | 517 | 756 | ..... | ..... | ..... |
| Definitely stated | 81,590 | 49,834 | 8,646 | 23,110 | ..... | ..... | ..... |
| All ages | 81,590 | 49,834 | 8,646 | 23,110 | 100.0 | 100.0 | 100.0 |
| Under 80 | 80,569 | 48,836 | 8,628 | 23,105 | 98.0 | 99.8 | 99.9 |
| Under 60 | 73,974 | 42,383 | 8,515 | 23,076 | 85.0 | 98.5 | 99.9 |
| Under 40 | 64,537 | 33,142 | 8,360 | 23,035 | 66.5 | 96.7 | 99.7 |
| Under 20 | 47,949 | 16,927 | 8,077 | 22,945 | 34.0 | 93.4 | 99.3 |
| Under 10 | 39,424 | 9,156 | 7,570 | 22,698 | 18.4 | 87.6 | 98.2 |
| Under 5 | 32,406 | 4,832 | 6,291 | 21,283 | 9.7 | 72.8 | 92.1 |
| Under 2 | 21,870 | 2,163 | 4,063 | 15,644 | 4.3 | 47.0 | 67.7 |
| Birth | 14,474 | 1,217 | 2,452 | 10,805 | 2.4 | 28.4 | 46.8 |

*Diagram 14.*

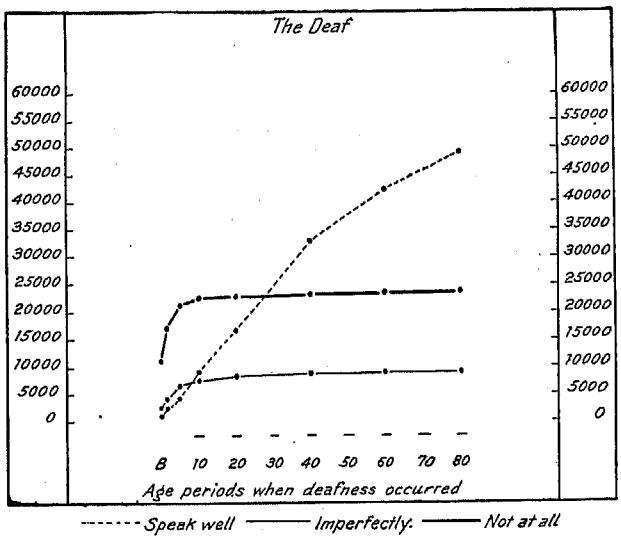



*Diagram 15.*

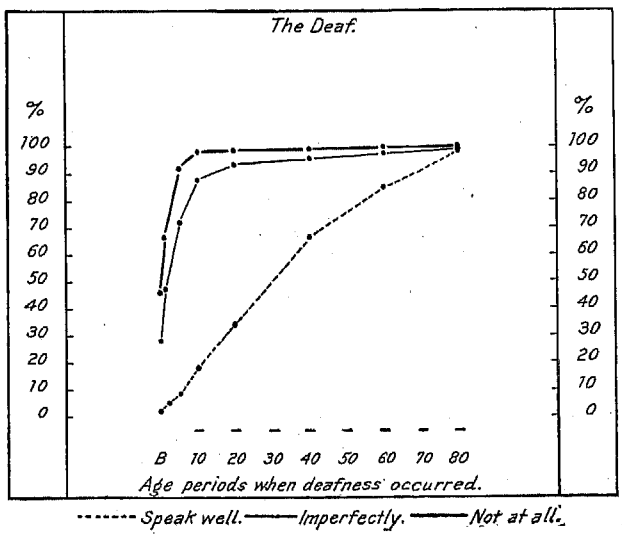



Table XV shows the percentage of the deaf who lost hearing before reaching certain specified ages—who speak well, imperfectly, or not at all.

TABLE XV.—*Per cent of deaf, by ability to speak and age when deafness occurred.*

| AGE WHEN DEAFNESS OCCURRED. | Total. | ABILITY TO SPEAK. | | |
|---|---|---|---|---|
| | | Well. | Imperfectly. | Not at all. |
| All ages | 100.0 | 62.2 | 10.5 | 27.3 |
| Age when deafness occurred: | | | | |
| Unknown | 100.0 | 75.3 | 8.3 | 16.4 |
| Indefinitely stated | 100.0 | 72.5 | 11.2 | 16.3 |
| Definitely stated | 100.0 | 61.1 | 10.6 | 28.3 |
| All ages | 100.0 | 61.1 | 10.6 | 28.3 |
| Under 80 | 100.0 | 60.6 | 10.7 | 28.7 |
| Under 60 | 100.0 | 57.3 | 11.5 | 31.2 |
| Under 40 | 100.0 | 51.3 | 13.0 | 35.7 |
| Under 20 | 100.0 | 35.3 | 16.8 | 47.9 |
| Under 10 | 100.0 | 23.2 | 19.2 | 57.6 |
| Under 5 | 100.0 | 14.9 | 19.4 | 65.7 |
| Under 2 | 100.0 | 9.9 | 18.6 | 71.5 |
| Birth | 100.0 | 8.4 | 16.9 | 74.7 |

*Diagram 16.*

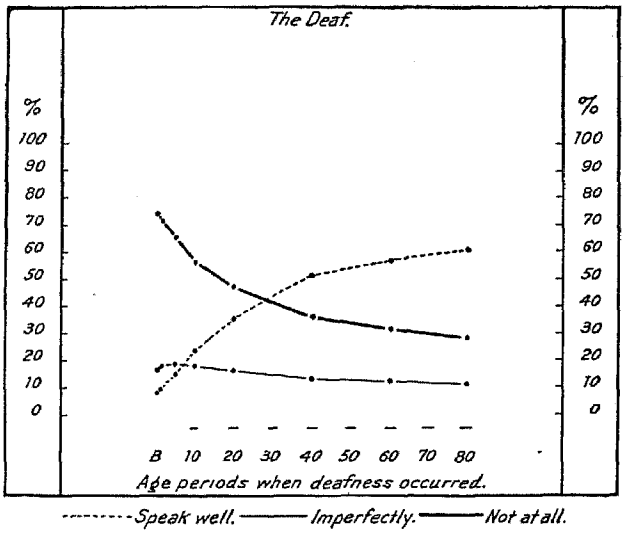



TABLE XVI.—*The totally deaf, by ability to speak and age when deafness occurred.*

| AGE WHEN DEAFNESS OCCURRED. | Total. | ABILITY TO SPEAK. | | |
|---|---|---|---|---|
| | | Well. | Imperfectly. | Not at all. |
| Total | 37,426 | 8,027 | 5,917 | 23,482 |
| Age when deafness occurred: | | | | |
| Unknown | 795 | 246 | 99 | 450 |
| Indefinitely stated | 1,152 | 259 | 213 | 680 |
| Definitely stated | 35,479 | 7,522 | 5,605 | 22,352 |
| Indefinitely stated: | | | | |
| Childhood | 988 | 115 | 202 | 671 |
| Adult life | 164 | 144 | 11 | 9 |
| Definitely stated: | | | | |
| Birth | 12,609 | 492 | 1,589 | 10,528 |
| After birth, under 2 | 5,998 | 281 | 1,072 | 4,645 |
| 2 and under 5 | 7,545 | 580 | 1,489 | 5,476 |
| Under 5 | 26,152 | 1,353 | 4,150 | 20,649 |
| 5 and under 10 | 3,718 | 1,373 | 975 | 1,370 |
| 10 and under 15 | 1,425 | 1,001 | 251 | 173 |
| 15 and under 20 | 865 | 736 | 79 | 50 |
| Under 20 | 32,160 | 4,463 | 5,455 | 22,242 |
| 20 and under 40 | 2,021 | 1,852 | 99 | 70 |
| 40 and under 60 | 867 | 808 | 34 | 25 |
| 60 and under 80 | 374 | 346 | 15 | 13 |
| 80 and over | 57 | 53 | 2 | 2 |

Table XV and Diagram 16 show that the proportion of the deaf who are deaf and dumb becomes progressively greater as the age when deafness occurred is younger.

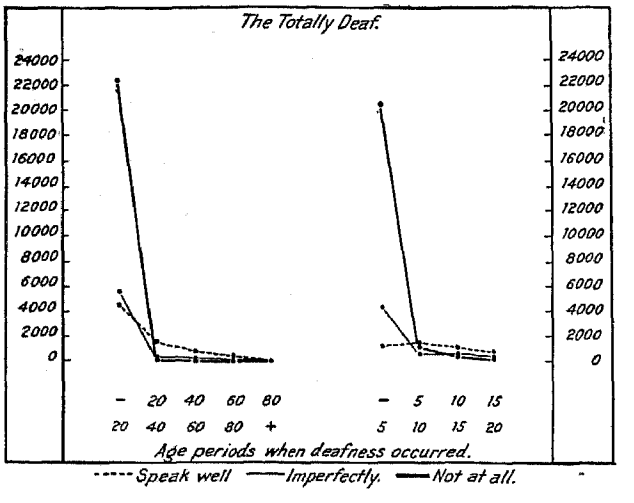
In Table XVI (the totally deaf) and in Table XVII (the partially deaf) the returns are analyzed by the age when deafness occurred, so that it may be seen how far the degree of deafness (whether total or partial) modifies the results disclosed by Table XIII (Diagram 13).

TABLE XVII.—*The partially deaf, by ability to speak and age when deafness occurred.*

| AGE WHEN DEAFNESS OCCURRED. | Total. | ABILITY TO SPEAK. | | |
|---|---|---|---|---|
| | | Well. | Imperfectly. | Not at all. |
| Total | 51,861 | 47,474 | 3,500 | 887 |
| Age when deafness occurred: | | | | |
| [illegible] | 2,272 | 2,064 | 155 | 53 |
| [illegible] | 3,478 | 3,098 | 304 | 76 |
| [illegible] | 46,111 | 42,312 | 3,041 | 758 |
| Indefinitely stated: | | | | |
| Childhood | 1,359 | 1,022 | 266 | 71 |
| Adult life | 2,119 | 2,076 | 38 | 5 |
| Definitely stated: | | | | |
| Birth | 1,865 | 725 | 863 | 277 |
| After birth, under 2 | 1,398 | 665 | 539 | 194 |
| 2 and under 5 | 2,991 | 2,089 | 739 | 163 |
| Under 5 | 6,254 | 3,479 | 2,141 | 634 |
| 5 and under 10 | 3,300 | 2,951 | 304 | 45 |
| 10 and under 15 | 3,039 | 2,907 | 121 | 11 |
| 15 and under 20 | 3,196 | 3,127 | 56 | 13 |
| Under 20 | 15,789 | 12,464 | 2,622 | 703 |
| 20 and under 40 | 14,567 | 14,363 | 184 | 20 |
| 40 and under 60 | 8,570 | 8,433 | 121 | 16 |
| 60 and under 80 | 6,221 | 6,107 | 98 | 16 |
| 80 and over | 964 | 945 | 16 | 3 |

Tables XVI and XVII are illustrated by Diagrams 17 and 18.

*Diagram 17.*



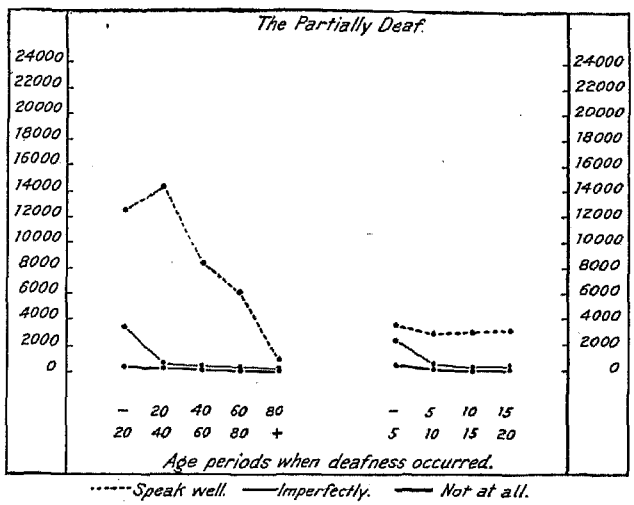

Comparing Tables XVI and XVII, it will be observed that comparatively few of the totally deaf speak well (Diagram 17), and comparatively few of the partially deaf speak imperfectly or not at all (Diagram 18).

The deaf and dumb consist mainly of persons totally deaf from early childhood, under 5 (Diagram 17).

The deaf who speak well consist mainly of persons who became partially deaf in adult life (Diagram 18).

The deaf who speak imperfectly form an intermediate class, more closely affiliated with the deaf and dumb than with those who speak well (Diagrams 11 to 18).

*Diagram 18.*




*Correlated conditions.*—While it is obvious that inability to speak is associated with inability to hear, where the deafness occurred in childhood, it is equally true that deafness itself, irrespective of the age when it occurred, is not necessarily associated with dumbness, for the majority of the deaf can speak perfectly well (Table XII), including several thousands of cases of persons totally devoid of the sense of hearing.

Neither partial nor total deafness, then, necessarily interferes with the power of speech, the controlling factor being the age or period of life when the deafness occurred. The earlier the age when the deafness occurred the larger the proportion who are deaf and dumb. The largest proportion of deaf and dumb is found among those who are born deaf (Table XV).

*The condition of speech naturally resulting from deafness contrasted with the actual condition revealed by the census returns.—Period of life when deafness occurred: Birth.*—A little consideration will show that all persons who are born deaf are naturally also dumb. The dumbness is a necessary consequence of the deafness, and not a defect in itself. We were all born dumb; and no one naturally acquires a language he has never heard. The deaf-born child, then, necessarily remains dumb after the age when others talk, because he has never heard the language the others have acquired.

It is not surprising, therefore, that a large proportion of the deaf from birth should be deaf and dumb. It is only remarkable that any at all should be able to speak. This is the fact that requires explanation.

Table XV shows that less than 75 per cent of the deaf from birth are deaf and dumb; 3,669, or more than 25 per cent, are reported as able to speak (Table XIII).

We can not attribute this result to inaccuracy on the part of the enumerators of the Twelfth Census, for the information did not come from the enumerators, but from the deaf persons themselves in answer to a circular letter of inquiry.

It may be possible that some of the deaf from birth who were only partially deaf possessed a sufficient amount of hearing to enable them to pick up imperfect speech for themselves by imitation in the natural way, although every effort was made by the Census Bureau to exclude from the returns persons who were only hard of hearing. It is absolutely certain, however, that all those who were totally deaf from birth were deaf and dumb at some period of their lives; and yet no less than 2,081 are reported as able to speak. From Table XVI it appears that of these, 492 could speak well and 1,589 imperfectly.

These are by no means all of the deaf and dumb who appear in the returns of the Twelfth Census as speaking persons, as will be evident from the following considerations:

Speech is normally acquired through the sense of hearing by a gradual process of imitation extending through a series of years. If, then, deafness occurs before or during the formative period of speech, the natural result is that the person either remains dumb or tends to revert to the speechless condition; but once the formative period has been passed and the speech habit fully established, deafness no longer tends to produce dumbness or to materially affect the character of the articulation.

*After birth, under 2.*—Normal children do not begin to speak until they are about 2 years old. If a child becomes deaf before reaching that age, he fails to acquire speech just as though he had been born deaf. All persons who lost hearing before they were 2 years of age are naturally deaf and dumb.

Table XIII shows that 2,557 persons who became deaf after birth and under the age of 2 are returned as able to speak; 1,353 of these were totally deaf (Table XVI) and 1,204 partially deaf (Table XVII).

*2 and under 5.*—If a child loses his hearing after having commenced to talk and before reaching the age of 5, his speech at best is imperfect; and though he continues to speak for some time after he becomes deaf, he soon forgets how to talk. The memory of a little child is very short. No longer able to correct his pronunciation by hearing the speech of others, his articulation becomes more and more imperfect, until finally he becomes a deaf-mute. All persons who lost hearing after they had begun to talk and before reaching the age of 5 naturally belong to the class "deaf and dumb." They were not originally deaf-mutes, but they have become so as time passed.

Four thousand eight hundred and ninety-seven persons who became deaf after 2 years of age and before reaching the age of 5 are reported as able to speak (Table XIII); 2,069 of these were totally deaf (Table XVI) and 2,828 partially deaf (Table XVII).

*5 and under 10.*—Children who become deaf after 5 and under 10 years of age continue speaking in a more or less imperfect manner for a long time after they become deaf, but in process of time their speech becomes more and more imperfect; many become dumb, but most of them retain an imperfect articulation.

From Table XIII it appears that the majority of persons—4,324 out of 7,018—who became deaf between 5 and 10 years of age are returned as speaking well (totally deaf, 1,373; partially deaf, 2,951) instead of speaking imperfectly or not at all, which is the natural condition resulting from their deafness.

*10 and under 20.*—At or about the age of 10 most children have acquired the ability to read and write, and, as a rule, if a child becomes deaf after reaching the age of 10, he is able to read, although unable to hear what others say to him. He speaks perfectly, and the tendency to revert to the speechless condition is much less marked than in the case of those who become deaf at an earlier age. Inability to hear the speech of others naturally leads him to seek the society of books. Reading keeps up the knowledge of language he possessed before he became deaf, and also introduces to his notice multitudes of words that he does not know how to pronounce. Not being able to hear how they are pronounced by others, he naturally attempts to speak them as they are spelled; but, unfortunately, our written language is very unphonetical in its character, and the new words acquired through reading are pronounced in a very imperfect manner. Thus, in the case of persons who lost hearing after the age of 10 and under the age of 20, their speech, though perfect at first, becomes peculiar in process of time, and most of this class, especially the illiterate, gradually become "semimutes."

A smaller proportion, the minority, become absolutely deaf and dumb. This statement reflects the natural condition resulting from deafness occurring at this period of life.

From Table XIII it appears that 7,771 of those who became deaf after 10 and under 20 were able to speak well, only 507 imperfectly, and 247 not at all.

*Adult life (20 and over).*—There is no apparent reason why the speech of those who become deaf in adult life should be materially affected by their deafness, and although the total number reported as unable to speak is small (only 179, Table XIII) it is somewhat surprising to find that any of them are returned as deaf and dumb. We can only conclude that the dumbness in these cases did not result from deafness, but from other causes not specified in the returns.

*General conclusions.*—Deafness interferes rather with the acquisition of speech than with its retention after it has once been acquired, and the speaking habit fully established by usage.

Deafness occurring in adult life, therefore, does not materially affect the ability to speak; but deafness occurring in childhood does. This is well established by the returns of the present census; but it is obvious that in the case of those who became deaf in childhood the condition of the speech, as revealed by the census returns, departs very materially from the natural condition resulting from the deafness. Several thousands of persons are reported as able to speak, who would naturally—without special instruction in the use of their vocal organs—be deaf and dumb.

This result indicates either that the census returns are grossly erroneous regarding the ability of the deaf to speak, or that a great and beneficial work has been accomplished by our special schools for the deaf in imparting artificially, by instruction, the power of articulate speech to large numbers of the deaf and dumb.

The first hypothesis can not be entertained, for whatever errors there may be in the present census, they consist of omissions rather than of inaccuracies in the tabulated material. The information actually compiled is authoritative so far as it goes, because it came directly from the deaf persons themselves in answer to a letter of inquiry, or from parents, guardians, or friends intimately acquainted with the condition of the deaf persons considered, and is thus independent of any errors on the part of the original enumerators. The latter hypothesis is more probable and demands special consideration.

No less than 11,123 persons who became deaf before reaching the age of 5 are reported as able to speak (totally deaf, 5,503; partially deaf, 5,620). All of these, naturally, are deaf and dumb, excepting those of the partially deaf, who may be only slightly deaf, but even these belong to the class "semimutes," who are usually included in the returns of the deaf and dumb. The totally deaf cases certainly—all of them—belong naturally to the class deaf and dumb.

*Totally deaf from early childhood (under 5).*—Twenty-six thousand one hundred and fifty-two persons are reported as totally deaf from early childhood (under 5). Of these, 5,503 are reported as able to speak (1,353 speak well and 4,150 imperfectly) Table XVI.

The obvious interpretation of the figures is that these persons have acquired speech artificially by special instruction.

This conclusion is strengthened by the fact that the vast majority of the totally deaf from early childhood, as shown in Table XVIII, have attended special schools for the deaf where facilities exist for articulation teaching.

TABLE XVIII.—*Number and per cent totally deaf from early childhood (under 5), by school attendance.*

| SCHOOL ATTENDANCE. | Number. | PER CENT OF— Total. | Total, schooling stated. | Total, attended school. | Total, kind of school stated. |
|---|---|---|---|---|---|
| Total | 26,152 | 100.0 | | | |
| School attendance: | | | | | |
| Not stated | 592 | 2.3 | | | |
| Stated | 25,560 | 97.7 | 100.0 | | |
| Stated: | | | | | |
| Did not attend school | 4,852 | 18.5 | 19.0 | | |
| Attended school | 20,708 | 79.2 | 81.0 | 100.0 | |
| Attended school: | | | | | |
| Kind of school— | | | | | |
| Not stated | 449 | 1.7 | 1.7 | 2.2 | |
| Stated | 20,259 | 77.5 | 79.3 | 97.8 | 100.0 |
| Stated: | | | | | |
| Special | 19,124 | 73.1 | 74.8 | 92.4 | 94.4 |
| Other | 1,064 | 4.1 | 4.2 | 5.1 | 5.3 |
| Both | 71 | 0.3 | 0.3 | 0.3 | 0.3 |

Out of 20,259 cases where the kind of school attended is stated, 19,195, or 94.7 per cent, were educated in special schools (including 71 persons who attended both special and other schools). These constitute nearly three-fourths of the total, or 73.4 per cent of 26,152 cases totally deaf from early childhood (under 5).

The conclusion that we are here dealing with cases of artificial acquisition of speech is still further strengthened and, indeed, rendered certain by an examination of the present ages of the above cases (Table XIX).

It is only within comparatively recent years that articulation teaching on a wholesale scale has been carried on in the United States; so that the majority of the deaf who have acquired speech artificially by instruction in school are comparatively young, few of them having passed middle life.

If, then, our conclusion is correct, we should naturally expect to find, upon examining the ages of the above cases, that the vast majority of the older persons who have passed middle life, and the vast majority of the younger persons who are under the school age, are deaf and dumb; whereas the proportion of deaf and dumb among those of intermediate age should be less—and progressively less, as the age is younger—down to some minimum well within the limits of school life, and this we find to be the case.

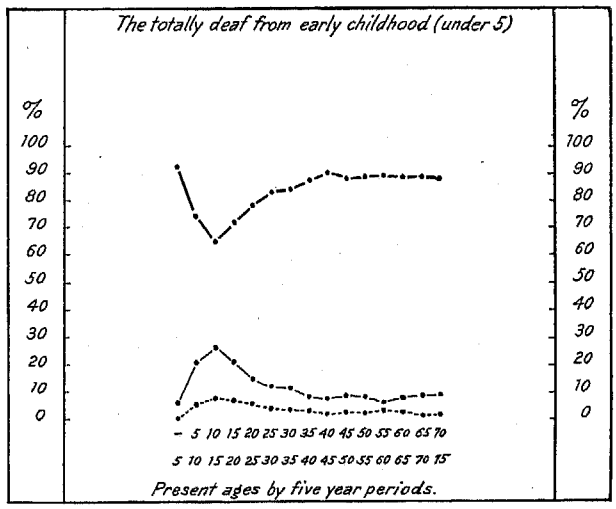
Table XIX shows the present ages of those who are totally deaf from early childhood, by five-year periods, and the number and percentage in each age group who can speak well, imperfectly, or not at all.

The results presented in Table XIX are shown graphically by Diagram 19.

TABLE XIX.—*Number and per cent totally deaf from early childhood (under 5), by present age and ability to speak.*

| PRESENT AGE. | Total. | ABILITY TO SPEAK. Number. Well. | Number. Imperfectly. | Number. Not at all. | Per cent. Well. | Per cent. Imperfectly. | Per cent. Not at all. |
|---|---|---|---|---|---|---|---|
| All ages | 26,152 | 1,353 | 4,150 | 20,649 | 5.2 | 15.9 | 78.9 |
| Present age: | | | | | | | |
| Not stated | 94 | ..... | 13 | 81 | ..... | 13.8 | 86.2 |
| Stated | 26,058 | 1,353 | 4,137 | 20,568 | 5.2 | 15.9 | 78.9 |
| Under 5 | 846 | 5 | 55 | 786 | 0.6 | 6.5 | 92.9 |
| 5 and under 10 | 3,245 | 192 | 651 | 2,402 | 5.9 | 20.1 | 74.0 |
| 10 and under 15 | 4,399 | 383 | 1,160 | 2,856 | 8.7 | 26.4 | 64.9 |
| 15 and under 20 | 3,784 | 281 | 795 | 2,708 | 7.4 | 21.0 | 71.6 |
| 20 and under 25 | 2,422 | 150 | 361 | 1,911 | 6.2 | 14.9 | 78.9 |
| 25 and under 30 | 2,424 | 96 | 293 | 2,035 | 4.0 | 12.1 | 83.9 |
| 30 and under 35 | 1,962 | 73 | 233 | 1,656 | 3.7 | 11.9 | 84.4 |
| 35 and under 40 | 1,858 | 49 | 160 | 1,649 | 2.6 | 8.6 | 88.8 |
| 40 and under 45 | 1,297 | 26 | 104 | 1,167 | 2.0 | 8.0 | 90.0 |
| 45 and under 50 | 1,024 | 22 | 92 | 910 | 2.1 | 9.0 | 88.9 |
| 50 and under 55 | 895 | 18 | 78 | 799 | 2.0 | 8.7 | 89.3 |
| 55 and under 60 | 664 | 23 | 44 | 597 | 3.5 | 6.6 | 89.9 |
| 60 and under 65 | 483 | 14 | 42 | 427 | 2.9 | 8.7 | 88.4 |
| 65 and under 70 | 325 | 5 | 30 | 290 | 1.5 | 9.3 | 89.2 |
| 70 and under 75 | 214 | 4 | 21 | 189 | 1.9 | 9.8 | 88.3 |
| 75 and under 80 | 132 | 6 | 12 | 114 | ..... | ..... | ..... |
| 80 and under 85 | 53 | 3 | 5 | 45 | ..... | ..... | ..... |
| 85 and under 90 | 19 | 1 | 1 | 17 | ..... | ..... | ..... |
| 90 and under 95 | 10 | 2 | ..... | 8 | ..... | ..... | ..... |
| 95 and under 100 | 2 | ..... | ..... | 2 | ..... | ..... | ..... |
| 100 and over | ..... | ..... | ..... | ..... | ..... | ..... | ..... |

*Diagram 19.*




Beginning with the older persons referred to in Diagram 19, we find that the proportion deaf and dumb approximates 90 per cent, the curve hovering pretty steadily in the neighborhood of the 90 per cent level down to the age group 40 to 45. From this point the curve descends. The proportion deaf and dumb becomes less (or in other words the proportion able to speak increases) down to the age group 10 to 15, consisting mainly of children yet in school, of whom only 65 per cent are deaf and dumb. Below

this age group the curve again rises, because many of the children under 10 years of age have not yet entered school and are therefore in their natural speechless condition.

Very few deaf children under 5 years of age have been brought under instruction, so that here the proportion deaf and dumb goes up to the normal 90 per cent level and beyond. It is only remarkable that it does not reach 100 per cent.

That these young children are not all deaf and dumb is doubtless due to the fact that some have only recently lost their hearing, and so have not had time to forget their natural speech; while others may have received speech instruction in a kindergarten way in schools receiving pupils under the usual school age. Infant schools for the deaf have recently made their appearance, receiving pupils as young as 3 or even 2 years of age, under the belief that deaf children can most readily acquire speech at the natural age when hearing children learn to talk.

The majority of those noted in Table XIX as able to speak, speak imperfectly; and this is consistent with the conclusion that they have been taught to articulate.

The artificial speech acquired by the deaf is rarely perfect. It is usually peculiar, like the pronunciation of a foreigner, and it has marked characteristics of its own. It is probable, therefore, that most of the deaf who have acquired speech by instruction are returned as speaking "imperfectly" rather than "well," excepting, perhaps, in the case of the partially deaf, many of whom, by instruction, acquire perfect speech.

Table XIX relates exclusively to the totally deaf from early childhood (under 5), which group includes the great mass of the deaf and dumb (84.7 per cent). Those who lost hearing at a later period of life, or who are only partially deaf, respond more readily to articulation teaching, and it is probable that a larger percentage of the deaf and dumb among them have been converted by instruction into speaking persons.

Table XX gives the number and percentage of pupils taught speech in American schools for the deaf from 1884 to 1904.

Of the deaf and dumb admitted to American schools for the deaf, the proportion receiving instruction in the use of their vocal organs increased from 27.2 per cent in 1884 to 41.3 per cent in 1890 and 63 per cent in 1900.

Since 1900, the year to which the census statistics specially relate, the percentage has continued to increase. The latest available statistics from the Annals (those for 1904) show that more than two-thirds of the whole, or 67.2 per cent, were then taught speech. Still later statistics have been published by the Association Review, Volume VII, page 282, showing that in 1905 (March 31) 69.1 per cent were taught speech.

TABLE XX.—*Number and per cent of deaf taught speech in special schools for the deaf in the United States for specified years.*[1]

| YEAR. | Total schools. | Total. pupils. | NUMBER TAUGHT SPEECH. | | | PER CENT TAUGHT SPEECH. | | |
|---|---|---|---|---|---|---|---|---|
| | | | Total. | Wholly or chiefly by oral method. | Wholly or chiefly by auricular method. | Total. | Wholly or chiefly by oral method. | Wholly or chiefly by auricular method. |
| 1857 | 20 | 1,721 | ..... | ..... | ..... | ..... | ..... | ..... |
| 1863 | 22 | 2,012 | ..... | ..... | ..... | ..... | ..... | ..... |
| 1866 | 24 | 2,469 | ..... | ..... | ..... | ..... | ..... | ..... |
| 1867 | 24 | 2,576 | ..... | ..... | ..... | ..... | ..... | ..... |
| 1868 | 27 | 2,898 | ..... | ..... | ..... | ..... | ..... | ..... |
| 1869 | 30 | 3,246 | ..... | ..... | ..... | ..... | ..... | ..... |
| 1870 | 34 | 3,784 | ..... | ..... | ..... | ..... | ..... | ..... |
| 1871 | 38 | 4,068 | ..... | ..... | ..... | ..... | ..... | ..... |
| 1872 | 36 | 4,253 | ..... | ..... | ..... | ..... | ..... | ..... |
| 1873 | 38 | 4,252 | ..... | ..... | ..... | ..... | ..... | ..... |
| 1874 | 44 | 4,892 | ..... | ..... | ..... | ..... | ..... | ..... |
| 1875 | 48 | 5,309 | ..... | ..... | ..... | ..... | ..... | ..... |
| 1876 | 49 | 5,010 | ..... | ..... | ..... | ..... | ..... | ..... |
| 1877 | 49 | 5,711 | ..... | ..... | ..... | ..... | ..... | ..... |
| 1878 | 49 | 6,166 | ..... | ..... | ..... | ..... | ..... | ..... |
| 1879 | 51 | 6,431 | ..... | ..... | ..... | ..... | ..... | ..... |
| 1880 | 55 | 6,798 | ..... | ..... | ..... | ..... | ..... | ..... |
| 1881 | 55 | 7,019 | ..... | ..... | ..... | ..... | ..... | ..... |
| 1882 | 55 | 7,155 | ..... | ..... | ..... | ..... | ..... | ..... |
| 1883 | 58 | 7,169 | ..... | ..... | ..... | ..... | ..... | ..... |
| 1884 | 61 | 7,482 | 2,041 | ..... | ..... | 27.2 | ..... | ..... |
| 1885 | 64 | 7,801 | 2,618 | ..... | ..... | 33.5 | ..... | ..... |
| 1886 | 66 | 8,050 | 2,484 | ..... | ..... | 30.9 | ..... | ..... |
| 1887 | 69 | 7,978 | 2,556 | ..... | ..... | 32.0 | ..... | ..... |
| 1888 | 73 | 8,372 | 3,251 | ..... | ..... | 38.8 | ..... | ..... |
| 1889 | 73 | 8,575 | 3,412 | ..... | ..... | 39.7 | ..... | ..... |
| 1890 | 77 | 8,901 | 3,682 | ..... | ..... | 41.3 | ..... | ..... |
| 1891 | 77 | 9,232 | 4,245 | ..... | ..... | 46.0 | ..... | ..... |
| 1892[2] | 80 | 7,940 | 3,924 | 1,581 | ..... | 49.4 | 19.9 | ..... |
| 1893 | 79 | 8,304 | 4,485 | 2,056 | 80 | 54.0 | 24.7 | 0.96 |
| 1894 | 82 | 8,825 | 4,802 | 2,260 | 109 | 54.4 | 25.6 | 1.24 |
| 1895 | 89 | 9,252 | 5,084 | 2,570 | 149 | 54.9 | 27.7 | 1.61 |
| 1896 | 89 | 9,554 | 5,243 | 2,752 | 166 | 54.9 | 28.8 | 1.74 |
| 1897 | 95 | 9,749 | 5,498 | 2,466 | 162 | 56.4 | 35.6 | 1.66 |
| 1898 | 101 | 10,139 | 5,817 | 3,672 | 116 | 57.4 | 36.2 | 1.14 |
| 1899 | 112 | 10,087 | 6,237 | 4,089 | 128 | 61.8 | 40.5 | 1.27 |
| 1900 | 115 | 10,608 | 6,687 | 4,538 | 108 | 63.0 | 42.8 | 1.02 |
| 1901 | 118 | 11,028 | 6,988 | 5,147 | 73 | 63.4 | 46.7 | 0.66 |
| 1902 | 123 | 10,952 | 7,017 | 4,888 | 63 | 64.1 | 44.6 | 0.58 |
| 1903 | 128 | 11,225 | 7,482 | 5,433 | 100 | 66.6 | 48.4 | 0.89 |
| 1904 | 133 | 12,534 | 7,601 | 5,508 | 154 | 67.2 | 48.3 | 1.36 |

[1] [illegible] American Annals of the Deaf.
[illegible] subsequent years refer to number of pupils present [illegible] 15). Before 1892 they indicate the number present including portions of two school years.

The above statistics afford a satisfactory explanation of the fact that several thousands of persons who naturally belong to the class deaf and dumb appear in the returns of the Twelfth Census as speaking persons. The power of speech has been acquired in these cases by instruction in school.

*Ability to read the lips.*—Out of a total of 89,287 persons reported at the Twelfth Census as deaf, 14,474 could read the lips, 13,986 could not, and in 60,827 cases the ability to read the lips was not stated.

The large number of "not stated" cases is remarkable; but the reason becomes intelligible from an examination of Table XXI, in which the ability to read the lips is considered in connection with the period of life when deafness occurred, the degree of deafness, and the ability to speak.

The question relating to lip-reading (or "speech-reading," as it is more correctly termed) was very poorly answered by the partially deaf, and the majority of the answers were in the negative. Too few replies were received to warrant analysis, and the whole of the partially deaf were therefore tabulated as not answering the question. This accounts for the large number of "not stated" cases among the deaf

from adult life, and among those who speak well, for the vast majority of those who speak well, or who became deaf in adult life, were partially deaf.

TABLE XXI.—*The deaf, by ability to read lips, period of life when deafness occurred, degree of deafness, and ability to speak.*

| PERIOD OF LIFE WHEN DEAFNESS OCCURRED, DEGREE OF DEAFNESS, AND ABILITY TO SPEAK. | Total. | ABILITY TO READ LIPS. | | |
|---|---|---|---|---|
| | | Can read lips. | Can not read lips. | Not stated. |
| Total | 89,287 | 14,474 | 13,986 | 60,827 |
| When deafness occurred: | | | | |
| Childhood (under 20) | 50,296 | 12,755 | 13,211 | 24,330 |
| Adult life (20 and over) | 35,924 | 1,516 | 568 | 33,840 |
| Unknown | 3,067 | 203 | 207 | 2,657 |
| Degree of deafness: | | | | |
| Totally deaf | 37,426 | 14,474 | 13,986 | 8,966 |
| Partially deaf | 51,861 | ..... | ..... | 51,861 |
| Ability to speak: | | | | |
| Well | 55,501 | 5,140 | 817 | 49,544 |
| Imperfectly | 9,417 | 4,693 | 553 | 4,171 |
| Not at all | 24,369 | 4,641 | 12,616 | 7,112 |

Table XXI is illustrated by Diagram 20.

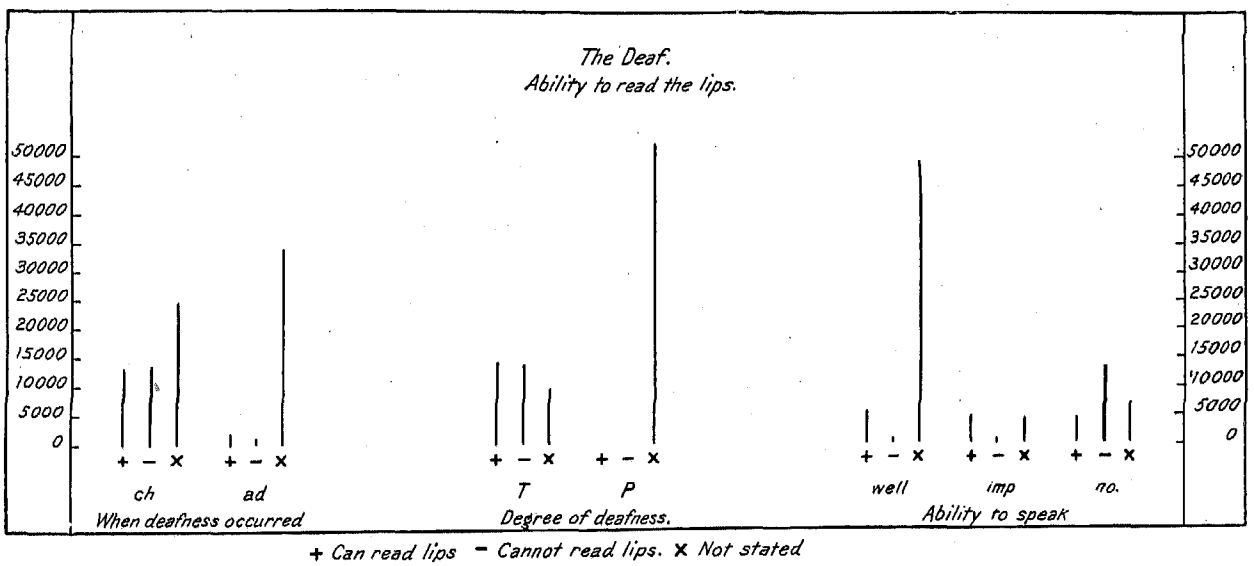
So far as the census returns show, the power of speech-reading is confined to the totally deaf. This does not arise from any natural incapacity on the part of the partially deaf to acquire the art, but from artificial conditions which interfere with its acquisition.

A person who is only slightly deaf usually turns his head away from the person with whom he converses, to one side or the other, to favor his best ear, often placing his hand to his ear to increase the volume of sound.

The turning away of the head, while it may not perhaps entirely prevent the possibility of speech-reading, is certainly not favorable to it, for the speech-reader must look at the speaker, so as to observe the movements of his mouth and the expression of his face.

Many slightly deaf persons, however, do keep their eyes fixed upon the speaker's face, and in such cases it is probable that what they hear is unconsciously supplemented by something they see. They may not call this speech-reading or know anything consciously about the art, but they recognize the fact that they do not seem to hear so well with their eyes closed. Perhaps it might be more correct to say that they have less difficulty in understanding speech when they are watching the face of the speaker than when their eyes are closed. This means that sight undoubtedly aids them in comprehending what is said.

DIAGRAM 20.




In cases of graver disability, where the degree of deafness is so great as to make it very difficult to carry on conversation by ear, the speaker's mouth is usually applied directly to the deaf person's ear, thus precluding entirely the possibility of speech-reading. It is probable that the partially deaf of the present census belong largely to this class.

Even when resort is had to artificial appliances to aid the hearing, the conditions are not favorable to speech-reading, for the mouth of the speaker is apt to be concealed, in whole or in part, by the mouthpiece of the hearing tube into which he speaks.

On the other hand, the totally deaf, though laboring under a greater natural disability than the partially deaf, are not hampered by these artificial hindrances to speech-reading. They do not turn their heads away from the speaker in order to hear better with one ear, for they do not hear at all. For the same reason words are never spoken into their ears. Artificial appliances, too, to aid the hearing never impede their view of the speaker's mouth, for they do not use them. They are free to rivet their whole attention upon the visible manifestations of utterance. It is not surprising, therefore, that some of them should have succeeded in acquiring a useful ability to read the lips, even without special instruction, by simple observation and persistent effort. It is only surprising that the partially deaf should not have been equally successful. Better equipped by nature, they are less efficient in this respect. Two senses used together, one supplementing the deficiencies of the other, would seem to be a better equipment for speech-reading than

the one sense of sight alone; but the partially deaf as a class do not read the lips. The special difficulties in their way, however, are all artificial and not inherent in the nature of the case, and could therefore be removed.

Speech-reading is now taught in our special schools for the deaf, so that many of the deaf from childhood have had the opportunity of acquiring the art by instruction. Most of those, however, who lost hearing in adult life have not apparently yet learned of this important means of ameliorating their condition. They fly to hearing trumpets and speaking tubes for relief, but rarely think of "lip-reading" in this connection. Many of them have never even heard the word, or have associated lip-reading with the "deaf and dumb" rather than with themselves.

Failure to reply to the simple question whether the person could or could not read the lips can only be taken as an indication of ignorance as to what is meant by the term "lip-reading." This involves the further point that the persons who failed to reply were, as a matter of fact, unable to read the lips, for if they could do so they would have known the meaning of the question, and no apparent reason exists why they should not have answered it. It is hardly conceivable that several thousands of persons should have failed to answer "yes" or "no" to that particular question, while freely answering others, if they understood it.

We conclude, therefore, that they did not understand it and that they could not read the lips. The answers should have been in the negative.

From Table XXI it appears that the total number of persons reported as able to read the lips was 14,474, all of whom were totally deaf. These constitute 39 per cent of the totally deaf and 16 per cent of the whole of the deaf.

Of these 14,474 cases, 12,755, or 88 per cent, were deaf from childhood, and 1,516, or 10 per cent, were deaf from adult life; 5,140, or 36 per cent, could speak well; 4,693, or 32 per cent, could speak imperfectly; and 4,641, or 32 per cent, could not speak at all. Roughly speaking, about one-third could speak well, one-third imperfectly, and one-third not at all.

It is rather remarkable that 4,641 persons who could not speak at all should have been returned as able to read the lips. The explanation seems to lie in the fact that speech and speech-reading, though always taught together in schools for the deaf, are two separate and distinct arts, and pupils may succeed in one and fail in the other. Many good speakers are poor lip-readers and many good lip-readers are poor speakers. The persons referred to probably acquired their ability to read the lips by special instruction in school, in which case they were also taught speech; and, since they were returned as unable to speak, this means that they failed to profit by their speech instruction sufficiently to be included among those who speak imperfectly or well, while retaining a useful ability to understand the speech of others by watching the mouth.

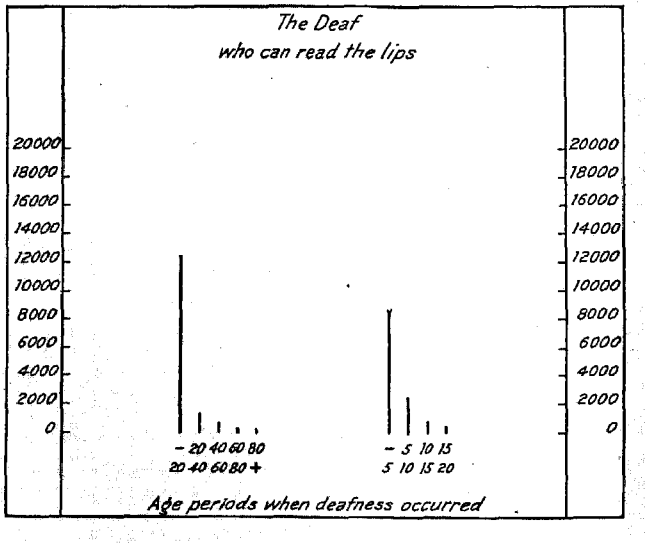
In Table XXII the deaf are analyzed by their ability to read the lips, and by age when deafness occurred.

TABLE XXII.—*The deaf, by ability to read lips, and age when deafness occurred.*

| AGE WHEN DEAFNESS OCCURRED. | Total. | ABILITY TO READ LIPS. | | |
|---|---|---|---|---|
| | | Can read lips. | Can not read lips. | Not stated. |
| All ages | 89,287 | 14,474 | 13,986 | 60,827 |
| Age when deafness occurred: | | | | |
| Unknown | 3,067 | 203 | 207 | 2,657 |
| Indefinitely stated | 4,630 | 389 | 392 | 3,849 |
| Definitely stated | 81,590 | 13,882 | 13,387 | 54,321 |
| Indefinitely stated: | | | | |
| Childhood (under 20) | 2,347 | 339 | 369 | 1,639 |
| Adult life (20 and over) | 2,283 | 50 | 23 | 2,210 |
| Definitely stated: | | | | |
| Birth | 14,474 | 3,535 | 5,802 | 5,137 |
| After birth, under 2 | 7,396 | 2,147 | 2,645 | 2,604 |
| 2 and under 5 | 10,536 | 2,877 | 3,261 | 4,398 |
| Under 5 | 32,406 | 8,559 | 11,708 | 12,139 |
| 5 and under 10 | 7,018 | 2,333 | 814 | 3,871 |
| 10 and under 15 | 4,464 | 984 | 192 | 3,288 |
| 15 and under 20 | 4,061 | 540 | 128 | 3,393 |
| Under 20 | 47,949 | 12,416 | 12,842 | 22,691 |
| 20 and under 40 | 16,588 | 1,081 | 282 | 15,225 |
| 40 and under 60 | 9,437 | 305 | 173 | 8,959 |
| 60 and under 80 | 6,595 | 73 | 78 | 6,444 |
| 80 and over | 1,021 | 7 | 12 | 1,002 |

Table XXII is illustrated by Diagram 21.

*Diagram 21.*




From Table XXII it appears that very few of the deaf who can read the lips lost hearing in adult life (Diagram 21), and that most of them (62 per cent) became deaf in early childhood, before reaching the age of 5.

The deaf who can read the lips thus belong chiefly to the class totally deaf from early childhood (under 5), all of whom are naturally deaf and dumb.

The strange anomaly is here presented, that those who are by nature the least qualified to read the lips (the deaf and dumb who are totally deaf) are most successful in acquiring the art; whereas those who are best qualified by nature (the partially deaf who speak well) are least successful.

The explanation lies in the fact that most of the partially deaf who speak well, became deaf in adult

life and have not received any special instruction in lip-reading; whereas most of the deaf and dumb who are totally deaf, lost hearing in early childhood and were sent to special schools for the deaf, where they were taught speech-reading as a regular part of their curriculum. The difference is due to instruction.

*Usual means of communication.*—Table 1 shows the usual means of communication employed by the deaf. Four methods of communication are noted: Si (sign-language); fg (finger-spelling); sp (speech); and wr (writing).

Some of the deaf use one of these methods alone, others employ two or more, and still others, all of them. It therefore becomes advisable to classify the methods of communication employed, in order to study the combinations intelligently.

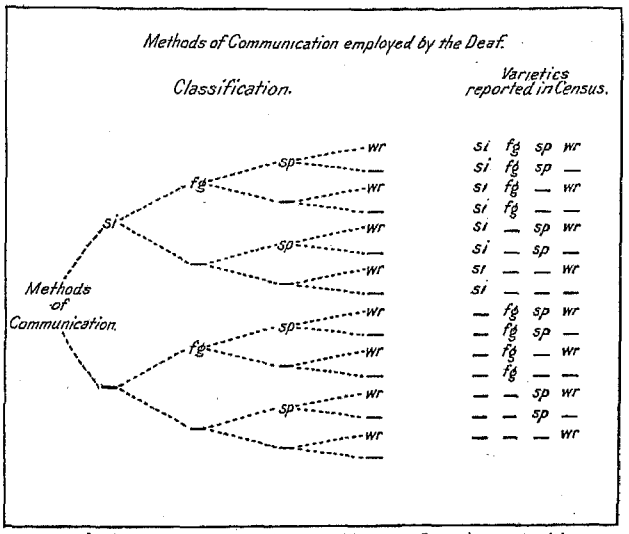
We may commence by dividing the deaf into two classes, those who employ the sign-language and those who do not.

Each of these classes may be divided into two broad groups (analogous to genera), viz, those who employ finger-spelling and those who do not.

Each of these broad groups may be divided into two subgroups (analogous to species), viz, those who employ speech and those who do not.

Each of these subgroups may be still further divided into two varieties, those who resort to writing and those who do not.

*Diagram 22.*




si-Sign Language. fg.-Finger-Spelling. sp-Speech. wr-Writing.

Diagram 22 exhibits the whole scheme of classification, after the manner of a genealogical chart, with the varieties reported in the census returns, arranged in accordance with the classification. Fifteen varieties are reported, and these include all the possible combinations of si, fg, sp, and wr.

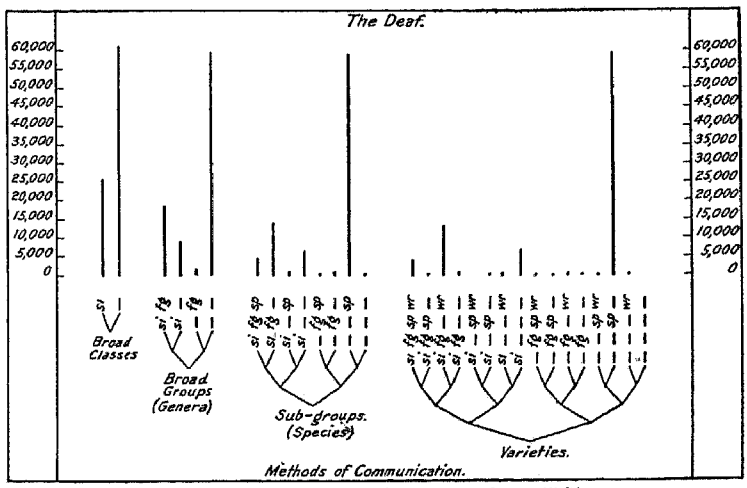
Table XXIII shows the method of communication employed, by the period of life when deafness occurred and the degree of deafness.

TABLE XXIII.—THE DEAF, BY DEGREE OF DEAFNESS, PERIOD OF LIFE WHEN DEAFNESS OCCURRED, AND METHOD OF COMMUNICATION.

| METHOD OF COMMUNICATION. | Aggregate. | PERIOD OF LIFE WHEN DEAFNESS OCCURRED. | | | | | | | | | DEGREE OF DEAFNESS. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Childhood (under 20). | | | Adult life (20 and over). | | | Unknown. | | | | |
| | | Total. | Totally deaf. | Partially deaf. | Total. | Totally deaf. | Partially deaf. | Total. | Totally deaf. | Partially deaf. | Totally deaf. | Partially deaf. |
| Total | 89,287 | 50,296 | 33,148 | 17,148 | 35,924 | 3,483 | 32,441 | 3,067 | 795 | 2,272 | 37,426 | 51,861 |
| Methods of communication: | | | | | | | | | | | | |
| Not stated | 2,652 | 2,416 | 2,184 | 232 | 63 | 34 | 29 | 173 | 147 | 26 | 2,365 | 287 |
| Stated | 86,635 | 47,880 | 30,964 | 16,916 | 35,861 | 3,449 | 32,412 | 2,894 | 648 | 2,246 | 35,061 | 51,574 |
| Si | 25,748 | 25,251 | 23,512 | 1,739 | 149 | 97 | 52 | 348 | 309 | 39 | 23,918 | 1,830 |
| — | 60,887 | 22,629 | 7,452 | 15,177 | 35,712 | 3,352 | 32,360 | 2,546 | 339 | 2,207 | 11,143 | 49,744 |
| Si fg | 18,087 | 17,880 | 16,891 | 989 | 24 | 21 | 3 | 183 | 170 | 13 | 17,082 | 1,005 |
| Si — | 7,661 | 7,371 | 6,621 | 750 | 125 | 76 | 49 | 165 | 139 | 26 | 6,836 | 825 |
| — fg | 1,483 | 1,437 | 1,347 | 90 | 24 | 18 | 6 | 22 | 19 | 3 | 1,384 | 99 |
| — — | 59,404 | 21,192 | 6,105 | 15,087 | 35,688 | 3,334 | 32,354 | 2,524 | 320 | 2,204 | 9,759 | 49,645 |
| Si fg sp | 4,254 | 4,216 | 3,455 | 761 | 10 | 7 | 3 | 28 | 20 | 8 | 3,482 | 772 |
| Si fg — | 13,833 | 13,664 | 13,436 | 228 | 14 | 14 | ..... | 155 | 150 | 5 | 13,600 | 233 |
| Si — sp | 1,070 | 1,000 | 534 | 466 | 48 | 21 | 27 | 22 | 16 | 6 | 571 | 499 |
| Si — — | 6,591 | 6,371 | 6,087 | 284 | 77 | 55 | 22 | 143 | 123 | 20 | 6,265 | 326 |
| — fg sp | 436 | 416 | 346 | 70 | 13 | 12 | 1 | 7 | 5 | 2 | 363 | 73 |
| — fg — | 1,047 | 1,021 | 1,001 | 20 | 11 | 6 | 5 | 15 | 14 | 1 | 1,021 | 26 |
| — — sp | 59,158 | 20,977 | 5,900 | 15,077 | 35,674 | 3,324 | 32,350 | 2,507 | 304 | 2,203 | 9,528 | 49,630 |
| — — — | 246 | 215 | 205 | 10 | 14 | 10 | 4 | 17 | 16 | 1 | 231 | 15 |
| Si fg sp wr | 4,049 | 4,016 | 3,317 | 699 | 7 | 4 | 3 | 26 | 19 | 7 | 3,340 | 709 |
| Si fg sp — | 205 | 200 | 138 | 62 | 3 | 3 | ..... | 2 | 1 | 1 | 142 | 63 |
| Si fg — wr | 12,826 | 12,674 | 12,470 | 204 | 12 | 12 | ..... | 140 | 135 | 5 | 12,617 | 209 |
| Si fg — — | 1,007 | 990 | 966 | 24 | 2 | 2 | ..... | 15 | 15 | ..... | 983 | 24 |
| Si — sp wr | 195 | 185 | 140 | 45 | 7 | 6 | 1 | 3 | 1 | 2 | 147 | 48 |
| Si — sp — | 875 | 815 | 394 | 421 | 41 | 15 | 26 | 19 | 15 | 4 | 424 | 451 |
| Si — — wr | 371 | 358 | 350 | 8 | 6 | 4 | 2 | 7 | 7 | ..... | 361 | 10 |
| Si — — — | 6,220 | 6,013 | 5,737 | 276 | 71 | 51 | 20 | 136 | 116 | 20 | 5,904 | 316 |
| — fg sp wr | 368 | 357 | 307 | 50 | 8 | 7 | 1 | 3 | 3 | ..... | 317 | 51 |
| — fg sp — | 68 | 59 | 39 | 20 | 5 | 5 | ..... | 4 | 2 | 2 | 46 | 22 |
| — fg — wr | 776 | 760 | 747 | 13 | 7 | 3 | 4 | 9 | 9 | ..... | 759 | 17 |
| — fg — — | 271 | 261 | 254 | 7 | 4 | 3 | 1 | 6 | 5 | 1 | 262 | 9 |
| — — sp wr | 557 | 500 | 415 | 85 | 44 | 27 | 17 | 13 | 8 | 5 | 450 | 107 |
| — — sp — | 58,601 | 20,477 | 5,485 | 14,992 | 35,630 | 3,297 | 32,333 | 2,494 | 296 | 2,198 | 9,078 | 49,523 |
| — — — wr | 246 | 215 | 205 | 10 | 14 | 10 | 4 | 17 | 16 | 1 | 231 | 15 |
| — — — — | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |

The methods of communication shown in Table XXIII are illustrated by Diagram 23.

DIAGRAM 23.




si-Sign Language; fg-Finger Spelling; sp-Speech; wr-Writing.

Out of 89,287 deaf, the usual methods of communication are stated in 86,635 cases, and not stated in 2,652. The following percentages have been calculated upon the stated cases:

THE DEAF.

BROAD CLASSES.

Si.....29.7 per cent employ the sign-language.
—.....70.3 per cent do not.

BROAD GROUPS.

Si fg.....20.9 per cent employ both sign-language and finger-spelling.
Si —..... 8.8 per cent employ sign-language but not finger-spelling.
— fg..... 1.7 per cent employ finger-spelling but not sign-language.
— — .....68.6 per cent employ neither sign-language nor finger-spelling.

PRINCIPAL SUBGROUPS.

Si fg sp..... 4.9 per cent employ sign-language, finger-spelling, and speech.
Si fg —.....16.0 per cent employ si and fg but not sp.
Si — —..... 7.6 per cent employ si but not fg or sp.
— — sp.....68.3 per cent employ sp but not si or fg.
3.2 per cent employ other combinations of si, fg, and sp.

PRINCIPAL VARIETIES.

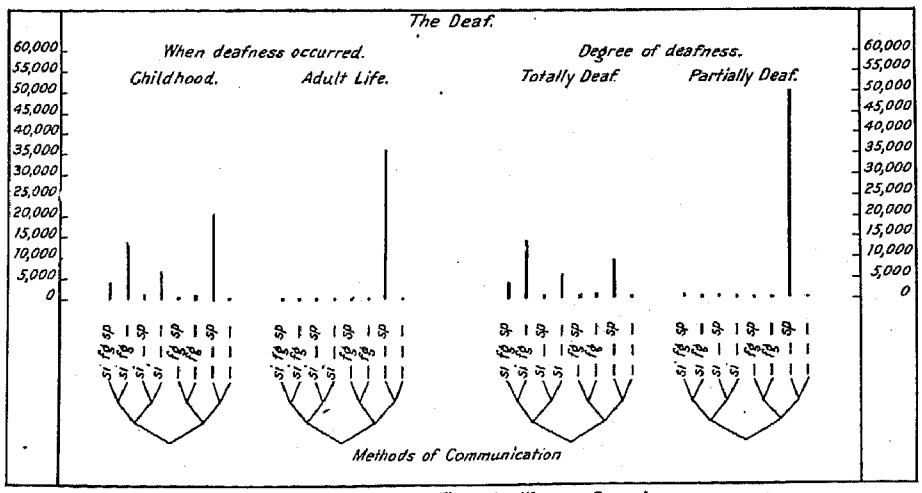
Si fg sp wr.. 4.7 per cent employ sign-language, finger-spelling, speech, and writing.
Si fg — wr..14.8 per cent employ si, fg and wr but not sp.
Si — — —... 7.2 per cent employ si but not fg, sp, or wr.
— — sp —...67.6 per cent employ sp but not si, fg, or wr.
5.7 per cent employ other varieties.

The total number employing the sign-language is 25,748, the total using finger-spelling is 19,570, the total using speech is 64,918, and the total who resort to writing is 19,388. Writing, although the clearest and most definite means of communication known to the deaf, is as a rule used only as a last resort, because it is, of all means known, the slowest and most laborious. We can not assume that those persons can not write who do not specify writing among the means they employ. This omission simply means that they can make themselves sufficiently understood by the other methods specified, and do not usually resort to writing as a means of communication.

Diagram 24 contrasts the usual means of communication employed by the deaf from childhood and deaf from adult life; and by the totally deaf and partially deaf, using "subgroups" as sufficiently detailed for the purposes of comparison.

This diagram shows that the deaf from adult life and the partially deaf employ substantially only one of the methods of communication known, viz, — — sp (speech without sign-language or finger-spelling).

DIAGRAM 24.




si-Sign Language; fg-Finger Spelling; sp-Speech.

Of the deaf from adult life, 99.5 per cent employ — — sp, and only 0.5 per cent employ other means.

Of the partially deaf, 96.2 per cent employ — — sp, and only 3.8 per cent employ other means.

The following percentages relate to the deaf from childhood (under 20) and are based upon 47,880 cases in which the usual means of communication are stated (Table XXIII).

THE DEAF FROM CHILDHOOD (UNDER 20).

BROAD CLASSES.

Si.....52.7 per cent employ the sign-language.
—.....47.3 per cent do not.

BROAD GROUPS.

Si fg.....37.3 per cent employ both sign-language and finger-spelling.
Si —.....15.4 per cent employ si but not fg.
— fg..... 3.0 per cent employ fg but not si.
— —.....44.3 per cent employ neither si nor fg.

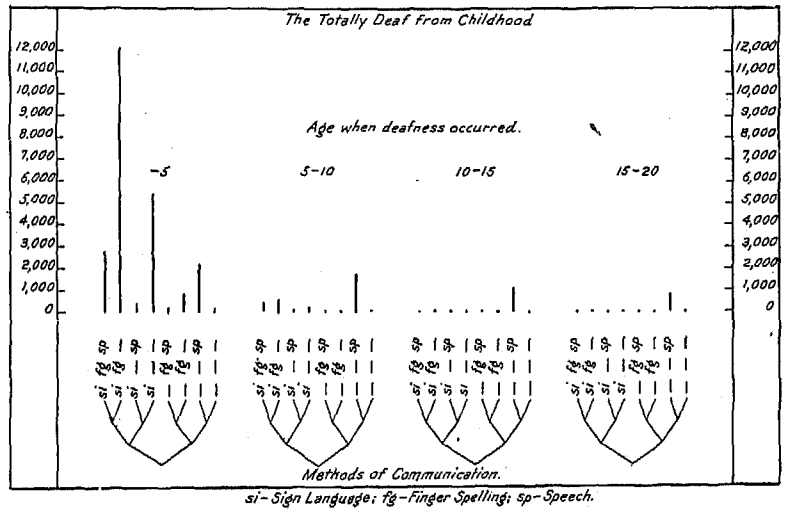
SUBGROUPS.

Si fg sp..... 8.8 per cent employ sign-language, finger-spelling, and speech.
Si fg —.....28.5 per cent employ si and fg but not sp.
Si — sp..... 2.1 per cent employ si and sp but not fg.
Si — —.....13.3 per cent employ si but not fg or sp.
— fg sp..... 0.9 per cent employ fg and sp but not si.
— fg —..... 2.1 per cent employ fg but not si or sp.
— — sp.....43.8 per cent employ sp but not si or fg.
— — —..... 0.5 per cent employ neither fg, si, nor sp (only writing).

Diagrams 25 and 26 contrast the usual means of communication employed by the totally and partially deaf from childhood (under 20), distinguishing the age when deafness occurred by five-year groups.

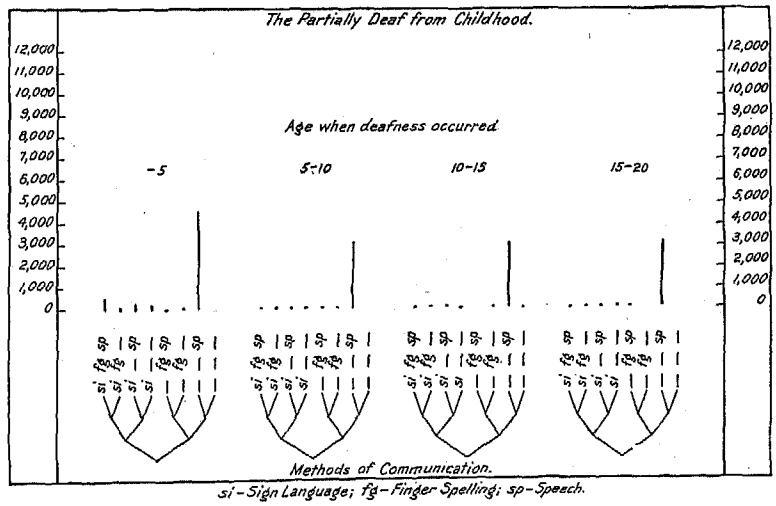
From these diagrams it appears that comparatively few of the deaf from childhood who lost hearing after reaching the age of 5, whether totally or partially deaf, employ other means of communication than — — sp (speech without sign-language or finger-spelling).

DIAGRAM 25.




si-Sign Language; fg-Finger Spelling; sp-Speech.

DIAGRAM 26.




si-Sign Language; fg-Finger Spelling; sp-Speech.

Of those who became deaf before reaching the age of 5, the partially deaf, with few exceptions, also employ — — sp (Diagram 26), so that the use of the special means of communication (sign-language and finger-spelling) seems to be confined chiefly to the totally deaf who lost hearing before reaching the age of 5 (Diagram 25). The number of persons employing sign-language or finger-spelling who do not belong to this group (the totally deaf from early childhood) is so small as to form only an insignificant fraction of the

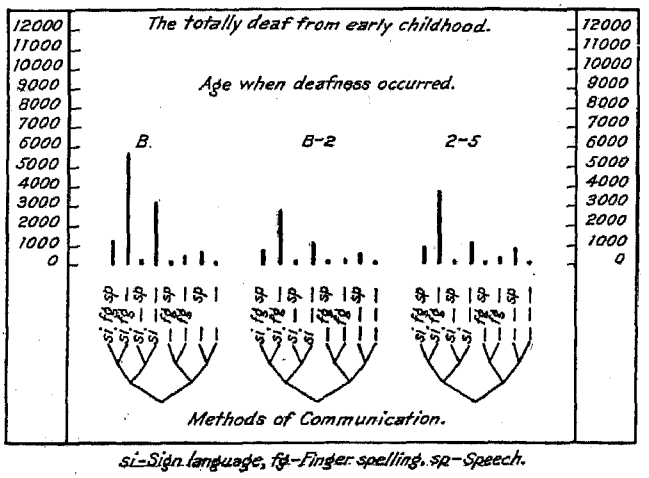
whole, excepting in case of the totally deaf who lost hearing between 5 and 10 years (Diagram 25) and the partially deaf who became deaf before 5 (Diagram 26).

Table XXIV shows, for the deaf from childhood (under 20), the usual means of communication, by degree of deafness and age when deafness occurred.

TABLE XXIV.—THE DEAF FROM CHILDHOOD (UNDER 20), BY DEGREE OF DEAFNESS, AGE WHEN DEAFNESS OCCURRED, AND METHODS OF COMMUNICATION.

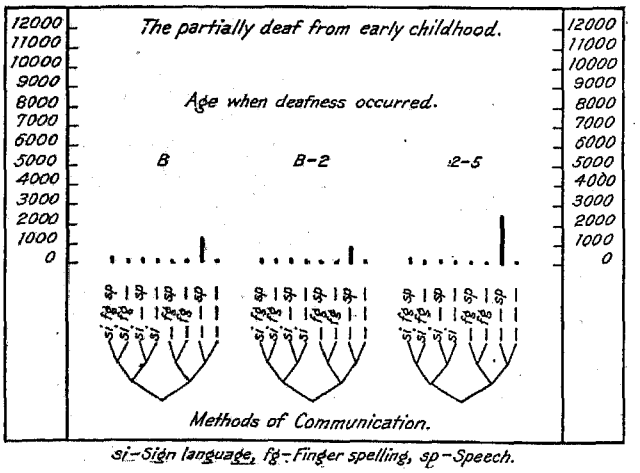
| METHOD OF COMMUNICATION. | TOTALLY DEAF. | | | | | | PARTIALLY DEAF. | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total. | Age when deafness occurred. | | | | | Total. | Age when deafness occurred. | | | | |
| | | Under 5. | 5 and under 10. | 10 and under 15. | 15 and under 20. | Not stated (under 20). | | Under 5. | 5 and under 10. | 10 and under 15. | 15 and under 20. | Not stated (under 20). |
| Total | 33,148 | 26,152 | 3,718 | 1,425 | 865 | 988 | 17,148 | 6,254 | 3,300 | 3,039 | 3,196 | 1,359 |
| Methods of communication: | | | | | | | | | | | | |
| Not stated | 2,184 | 1,956 | 116 | 24 | 8 | 80 | 232 | 183 | 13 | 5 | 3 | 28 |
| Stated | 30,964 | 24,196 | 3,602 | 1,401 | 857 | 908 | 16,916 | 6,071 | 3,287 | 3,034 | 3,193 | 1,331 |
| Si | 23,512 | 20,789 | 1,738 | 217 | 52 | 716 | 1,739 | 1,434 | 111 | 21 | 15 | 158 |
| — | 7,452 | 3,407 | 1,864 | 1,184 | 805 | 192 | 15,177 | 4,637 | 3,176 | 3,013 | 3,178 | 1,173 |
| Si fg | 16,891 | 14,978 | 1,250 | 108 | 25 | 530 | 989 | 815 | 70 | 8 | 3 | 93 |
| Si — | 6,621 | 5,811 | 488 | 109 | 27 | 186 | 750 | 619 | 41 | 13 | 12 | 65 |
| — fg | 1,347 | 1,132 | 133 | 33 | 14 | 35 | 90 | 66 | 12 | 1 | 2 | 9 |
| — — | 6,105 | 2,275 | 1,731 | 1,151 | 791 | 157 | 15,087 | 4,571 | 3,164 | 3,012 | 3,176 | 1,164 |
| Si fg sp | 3,455 | 2,805 | 465 | 49 | 9 | 127 | 761 | 622 | 58 | 7 | 1 | 73 |
| Si fg — | 13,436 | 12,173 | 785 | 59 | 16 | 403 | 228 | 193 | 12 | 1 | 2 | 20 |
| Si — sp | 534 | 361 | 104 | 36 | 9 | 24 | 466 | 387 | 22 | 10 | 4 | 43 |
| Si — — | 6,087 | 5,450 | 384 | 73 | 18 | 162 | 284 | 232 | 19 | 3 | 8 | 22 |
| — fg sp | 346 | 231 | 68 | 24 | 10 | 13 | 70 | 49 | 11 | ..... | 2 | 8 |
| — fg — | 1,001 | 901 | 65 | 9 | 4 | 22 | 20 | 17 | 1 | 1 | ..... | 1 |
| — — sp | 5,900 | 2,106 | 1,711 | 1,143 | 787 | 153 | 15,077 | 4,562 | 3,164 | 3,011 | 3,176 | 1,164 |
| — — — | 205 | 169 | 20 | 8 | 4 | 4 | 10 | 9 | ..... | 1 | ..... | ..... |
| Si fg sp wr | 3,317 | 2,700 | 443 | 46 | 8 | 120 | 699 | 570 | 54 | 7 | 1 | 67 |
| Si fg sp — | 138 | 105 | 22 | 3 | 1 | 7 | 62 | 52 | 4 | ..... | ..... | 6 |
| Si fg — wr | 12,470 | 11,300 | 734 | 52 | 13 | 371 | 204 | 174 | 10 | 1 | 2 | 17 |
| Si fg — — | 966 | 873 | 51 | 7 | 3 | 32 | 24 | 19 | 2 | ..... | ..... | 3 |
| Si — sp wr | 140 | 105 | 19 | 9 | 2 | 5 | 45 | 37 | ..... | ..... | ..... | 8 |
| Si — sp — | 394 | 256 | 85 | 27 | 7 | 19 | 421 | 350 | 22 | 10 | 4 | 35 |
| Si — — wr | 350 | 312 | 25 | 4 | ..... | 9 | 8 | 7 | ..... | ..... | ..... | 1 |
| Si — — — | 5,737 | 5,138 | 359 | 69 | 18 | 153 | 276 | 225 | 19 | 3 | 8 | 21 |
| — fg sp wr | 307 | 206 | 61 | 20 | 9 | 11 | 50 | 35 | 8 | ..... | 2 | 5 |
| — fg sp — | 39 | 25 | 7 | 4 | 1 | 2 | 20 | 14 | 3 | ..... | ..... | 3 |
| — fg — wr | 747 | 666 | 52 | 7 | 4 | 18 | 13 | 10 | 1 | 1 | ..... | 1 |
| — fg — — | 254 | 235 | 13 | 2 | ..... | 4 | 7 | 7 | ..... | ..... | ..... | ..... |
| — — sp wr | 415 | 301 | 51 | 35 | 17 | 11 | 85 | 64 | 10 | 4 | 1 | 6 |
| — — sp — | 5,485 | 1,805 | 1,660 | 1,108 | 770 | 142 | 14,992 | 4,498 | 3,154 | 3,007 | 3,175 | 1,158 |
| — — — wr | 205 | 169 | 20 | 8 | 4 | 4 | 10 | 9 | ..... | 1 | ..... | ..... |
| — — — — | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |

*Diagram 27.*




si-Sign language, fg-Finger spelling, sp-Speech.

*Diagram 28.*




si-Sign language, fg-Finger spelling, sp-Speech.

Diagrams 27 and 28 contrast the usual means of communication employed by the totally and partially deaf from early childhood (under 5), distinguishing the deaf from birth from those who became deaf in infancy (under 2) and those who lost hearing between 2 and 5. The use of the special means (sign-language and finger-spelling) is substantially confined to the totally deaf from early childhood (Diagram 27).

The following percentages relate to the totally deaf from early childhood (under 5), and are based upon 24,196 cases in which the usual means of communication are stated according to the preceding table.

THE TOTALLY DEAF FROM EARLY CHILDHOOD (UNDER 5).

BROAD CLASSES.

Si.....85.9 per cent employ the sign-language.
—.....14.1 per cent do not.

BROAD GROUPS.

Si fg.....61.9 per cent employ both sign-language and finger-spelling.
Si —.....24.0 per cent employ si but not fg.
— fg..... 4.7 per cent employ fg but not si.
— —..... 9.4 per cent employ neither si nor fg.

SUBGROUPS.

Si fg sp.....11.6 per cent employ sign-language, finger-spelling, and speech.
Si fg —.....50.3 per cent employ si and fg but not sp.
Si — sp..... 1.5 per cent employ si and sp but not fg.
Si — —.....22.5 per cent employ si but not fg or sp.
— fg sp..... 1.0 per cent employ fg and sp but not si.
— fg —..... 3.7 per cent employ fg but not si or sp.
— — sp..... 8.7 per cent employ sp but not si or fg.
— — —..... 0.7 per cent employ neither si, fg, nor sp (only writing).

Table xxv shows, for the deaf from early childhood (under 5), the usual means of communication, degree of deafness, and age when deafness occurred.

TABLE XXV.—THE DEAF FROM EARLY CHILDHOOD (UNDER 5), BY DEGREE OF DEAFNESS, AGE WHEN DEAFNESS OCCURRED, AND METHODS OF COMMUNICATION.

| METHOD OF COMMUNICATION. | TOTALLY DEAF. | | | | PARTIALLY DEAF. | | | |
|---|---|---|---|---|---|---|---|---|
| | Total. | Age when deafness occurred. | | | Total. | Age when deafness occurred. | | |
| | | Birth. | After birth, under 2. | 2 and under 5. | | Birth. | After birth, under 2. | 2 and under 5. |
| Total | 26,152 | 12,609 | 5,998 | 7,545 | 6,254 | 1,865 | 1,398 | 2,991 |
| Methods of communication: | | | | | | | | |
| Not stated | 1,956 | 1,183 | 417 | 356 | 183 | 95 | 50 | 38 |
| Stated | 24,196 | 11,426 | 5,581 | 7,189 | 6,071 | 1,770 | 1,348 | 2,953 |
| Si | 20,789 | 9,993 | 4,839 | 5,957 | 1,434 | 566 | 430 | 438 |
| — | 3,407 | 1,433 | 742 | 1,232 | 4,637 | 1,204 | 918 | 2,515 |
| Si fg | 14,978 | 6,738 | 3,609 | 4,631 | 815 | 287 | 259 | 269 |
| Si — | 5,811 | 3,255 | 1,230 | 1,326 | 619 | 279 | 171 | 169 |
| — fg | 1,132 | 564 | 252 | 316 | 66 | 20 | 15 | 31 |
| — — | 2,275 | 869 | 490 | 916 | 4,571 | 1,184 | 903 | 2,484 |
| Si fg sp | 2,805 | 1,081 | 738 | 986 | 622 | 219 | 192 | 211 |
| Si fg — | 12,173 | 5,657 | 2,871 | 3,645 | 193 | 68 | 67 | 58 |
| Si — sp | 361 | 129 | 94 | 138 | 387 | 173 | 101 | 113 |
| Si — — | 5,450 | 3,126 | 1,136 | 1,188 | 232 | 106 | 70 | 56 |
| — fg sp | 231 | 87 | 71 | 73 | 49 | 14 | 12 | 23 |
| — fg — | 901 | 477 | 181 | 243 | 17 | 6 | 3 | 8 |
| — — sp | 2,106 | 784 | 450 | 872 | 4,562 | 1,182 | 899 | 2,481 |
| — — — | 169 | 85 | 40 | 44 | 9 | 2 | 4 | 3 |
| Si fg sp wr | 2,700 | 1,043 | 710 | 947 | 570 | 198 | 178 | 194 |
| Si fg sp — | 105 | 38 | 28 | 39 | 52 | 21 | 14 | 17 |
| Si fg — wr | 11,300 | 5,159 | 2,695 | 3,446 | 174 | 60 | 61 | 53 |
| Si fg — — | 873 | 498 | 176 | 199 | 19 | 8 | 6 | 5 |
| Si — sp wr | 105 | 40 | 29 | 36 | 37 | 11 | 16 | 10 |
| Si — sp — | 256 | 89 | 65 | 102 | 350 | 162 | 85 | 103 |
| Si — — wr | 312 | 147 | 64 | 101 | 7 | 2 | 1 | 4 |
| Si — — — | 5,138 | 2,979 | 1,072 | 1,087 | 225 | 104 | 69 | 52 |
| — fg sp wr | 206 | 78 | 62 | 66 | 35 | 12 | 7 | 16 |
| — fg sp — | 25 | 9 | 9 | 7 | 14 | 2 | 5 | 7 |
| — fg — wr | 666 | 337 | 141 | 188 | 10 | 3 | 3 | 4 |
| — fg — — | 235 | 140 | 40 | 55 | 7 | 3 | ..... | 4 |
| — — sp wr | 301 | 125 | 79 | 97 | 64 | 26 | 18 | 20 |
| — — sp — | 1,805 | 659 | 371 | 775 | 4,498 | 1,156 | 881 | 2,461 |
| — — — wr | 169 | 85 | 40 | 44 | 9 | 2 | 4 | 3 |
| — — — — | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |

The following percentages relate to the totally deaf from birth, and are based upon 11,426 cases in which the usual means of communication are stated (Table xxv):

THE TOTALLY DEAF FROM BIRTH.

BROAD CLASSES.

Si..... 87.5 per cent employ the sign-language.
—..... 12.5 per cent do not.

BROAD GROUPS.

Si fg..... 59.0 per cent employ both sign-language and finger-spelling.
Si —..... 28.5 per cent employ si but not fg.
— fg..... 4.9 per cent employ fg but not si.
— —..... 7.6 per cent employ neither si nor fg.

SUBGROUPS.

Si fg sp..... 9.5 per cent employ sign-language, finger-spelling, and speech.
Si fg —..... 49.5 per cent employ si and fg but not sp.
Si — sp..... 1.1 per cent employ si and sp but not fg.
Si — —..... 27.3 per cent employ si but not fg or sp.
— fg sp..... 0.8 per cent employ fg and sp but not si.
— fg —..... 4.2 per cent employ fg but not si or sp.
— — sp..... 6.9 per cent employ sp but not si or fg.
— — —..... 0.7 per cent employ neither si, fg, nor sp (only writing).

Table xxvi shows the total number of deaf persons using sign-language, finger-spelling, speech, or writing, in connection with the age when deafness occurred.

TABLE XXVI.—THE DEAF, BY AGE WHEN DEAFNESS OCCURRED, AND METHODS OF COMMUNICATION.

| METHOD OF COMMUNICATION. | Total. | AGE WHEN DEAFNESS OCCURRED. | | | AGE WHEN DEAFNESS OCCURRED DEFINITELY STATED. | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Definitely stated. | Indefinitely stated. | Unknown. | Birth. | After birth, under 2. | 2 and under 5. | Under 5. | 5 and under 10. | 10 and under 15. | 15 and under 20. | Under 20. | 20 and under 40. | 40 and under 60. | 60 and under 80. | 80 and over. |
| Total | 89,287 | 81,590 | 4,630 | 3,067 | 14,474 | 7,396 | 10,536 | 32,406 | 7,018 | 4,464 | 4,061 | 47,949 | 16,588 | 9,437 | 6,595 | 1,021 |
| Usual means of communication: | | | | | | | | | | | | | | | | |
| Not stated | 2,652 | 2,364 | 115 | 173 | 1,278 | 467 | 394 | 2,139 | 129 | 29 | 11 | 2,308 | 26 | 13 | 13 | 4 |
| Stated | 86,635 | 79,226 | 4,515 | 2,894 | 13,196 | 6,929 | 10,142 | 30,267 | 6,889 | 4,435 | 4,050 | 45,641 | 16,562 | 9,424 | 6,582 | 1,017 |
| Stated: | | | | | | | | | | | | | | | | |
| Sign-language used | 25,748 | 24,515 | 885 | 348 | 10,559 | 5,269 | 6,395 | 22,223 | 1,849 | 238 | 67 | 24,377 | 90 | 30 | 17 | 1 |
| Sign-language not used | 60,887 | 54,711 | 3,630 | 2,546 | 2,637 | 1,660 | 3,747 | 8,044 | 5,040 | 4,197 | 3,983 | 21,264 | 16,472 | 9,394 | 6,565 | 1,016 |
| Finger-spelling used | 19,570 | 18,698 | 667 | 205 | 7,609 | 4,135 | 5,247 | 16,991 | 1,465 | 150 | 44 | 18,650 | 38 | 6 | 4 | ..... |
| Finger-spelling not used | 67,065 | 60,528 | 3,848 | 2,689 | 5,587 | 2,794 | 4,895 | 13,276 | 5,424 | 4,285 | 4,006 | 26,991 | 16,524 | 9,418 | 6,578 | 1,017 |
| Speech used | 64,918 | 58,480 | 3,874 | 2,564 | 3,669 | 2,557 | 4,897 | 11,123 | 5,603 | 4,280 | 3,998 | 25,004 | 16,498 | 9,396 | 6,566 | 1,016 |
| Speech not used | 21,717 | 20,746 | 641 | 330 | 9,527 | 4,372 | 5,245 | 19,144 | 1,286 | 155 | 52 | 20,637 | 64 | 28 | 16 | 1 |
| Writing used | 19,388 | 18,513 | 657 | 218 | 7,328 | 4,108 | 5,229 | 16,665 | 1,488 | 195 | 63 | 18,411 | 74 | 21 | 6 | 1 |
| Writing not used | 67,247 | 60,713 | 3,858 | 2,676 | 5,868 | 2,821 | 4,913 | 13,602 | 5,401 | 4,240 | 3,987 | 27,230 | 16,488 | 9,403 | 6,576 | 1,016 |

Table XXVI is illustrated by Diagrams 29 and 30.

*Diagram 29.*

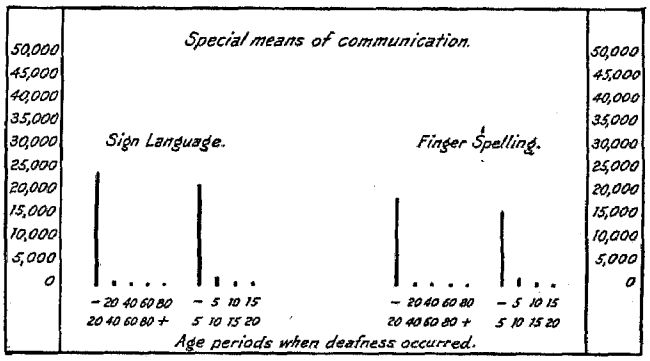
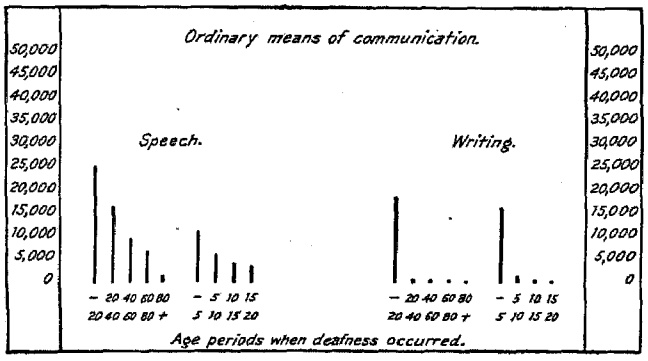



*Diagram 30.*




From Table XXVI and the diagrams it will be observed that the use of sign-language, finger-spelling, or writing is substantially confined to persons who lost hearing before they were 20 years of age; and that comparatively few who became deaf after 5 years of age employ them as means of communication.

The usual means of communication employed by the deaf throw light upon their social environment, for it is obvious that however much the deaf may mingle with people generally in pursuing their daily vocations in life, they are restricted in their social intercourse to persons who understand the means of communication they employ. It is with such persons principally that they associate upon intimate terms, and it is from among them that they choose their partners in marriage.

In considering the four means of communication employed by the deaf it will be noted that speech and writing are understood by hearing people generally, and that sign-language and finger-spelling are not. Speech and writing, therefore, are principally employed by the deaf in communicating with hearing persons; sign-language and finger-spelling principally in talking with other deaf persons.

Although the majority of the deaf can speak, speech is not readily understood by them on account of their deafness. Only those who are partially deaf or who can read the lips can understand it. Writing, therefore, is the only means of communication understood generally both by the deaf and hearing, but its use is limited to educated persons. While writing is commonly employed in communicating with others at a distance, it is comparatively rarely used in talking with people close at hand. A deaf person may converse by writing with a hearing person, or a hearing person with a deaf; but the deaf do not communicate with the deaf in this way, nor the hearing with the hearing. Writing, therefore, as a direct means of communication, is limited to the communications of the deaf with the hearing and *vice versa.*

In communicating with hearing persons, speech without writing (sp —) is used by the deaf who speak well, writing without speech (— wr) by those who do not speak at all, and both speech and writing (sp wr) by those who speak imperfectly—not necessarily both at the same time, but speech in talking with persons who can understand their imperfect articulation, and writing with those who do not. Both speech and writing (sp wr) may also be reported by persons who speak well, in which case we may interpret the returns to mean that these deaf persons were poor lip-readers,

and could not understand the speech of the persons with whom they conversed, who were therefore obliged to reply by writing.

Where speech is reported as the sole means of communication (— — sp —) we may interpret this to mean that the deaf persons can understand speech as well as use it, so that other means of communication are not resorted to. Such persons, therefore, are either partially deaf, or are persons who are able to read the lips; and their social intercourse is with hearing persons rather than deaf.

The sign-language is a special language peculiar to the deaf. It is not understood by people generally, and to the majority of the deaf themselves it is a foreign language. If, as is probable, the deaf who understand it are chiefly those who use it, then it is obvious that more than two-thirds of the deaf (70.3 per cent) do not understand it, for only 29.7 per cent employ it as a means of communication, and these consist largely of persons who are totally deaf from early childhood (under 5).

The sign-language, then, is employed chiefly by the deaf in conversing with other deaf persons who lost hearing completely in early childhood (under 5). It is intelligible to only a small section of hearing persons, who consist mainly of those, who, as children, were thrown closely into association with the deaf who employed it—chiefly the brothers, sisters, and children of persons totally deaf from early childhood (under 5). Few hearing adults acquire the language, and these consist mainly of professional instructors of the deaf.

Finger-spelling is employed incidentally by the educated deaf who use the sign-language in talking with one another, but chiefly as a means of expressing proper names, like the names of persons and places. Comparatively few of the deaf use it alone as a means of communication except in talking with hearing persons who understand it. The limitations to its use are the same as those noted for the sign-language, except that it is understood by a somewhat larger circle of hearing persons. Hearing adults easily learn to spell upon their fingers, whereas they find it as difficult to acquire the sign-language as any foreign tongue.

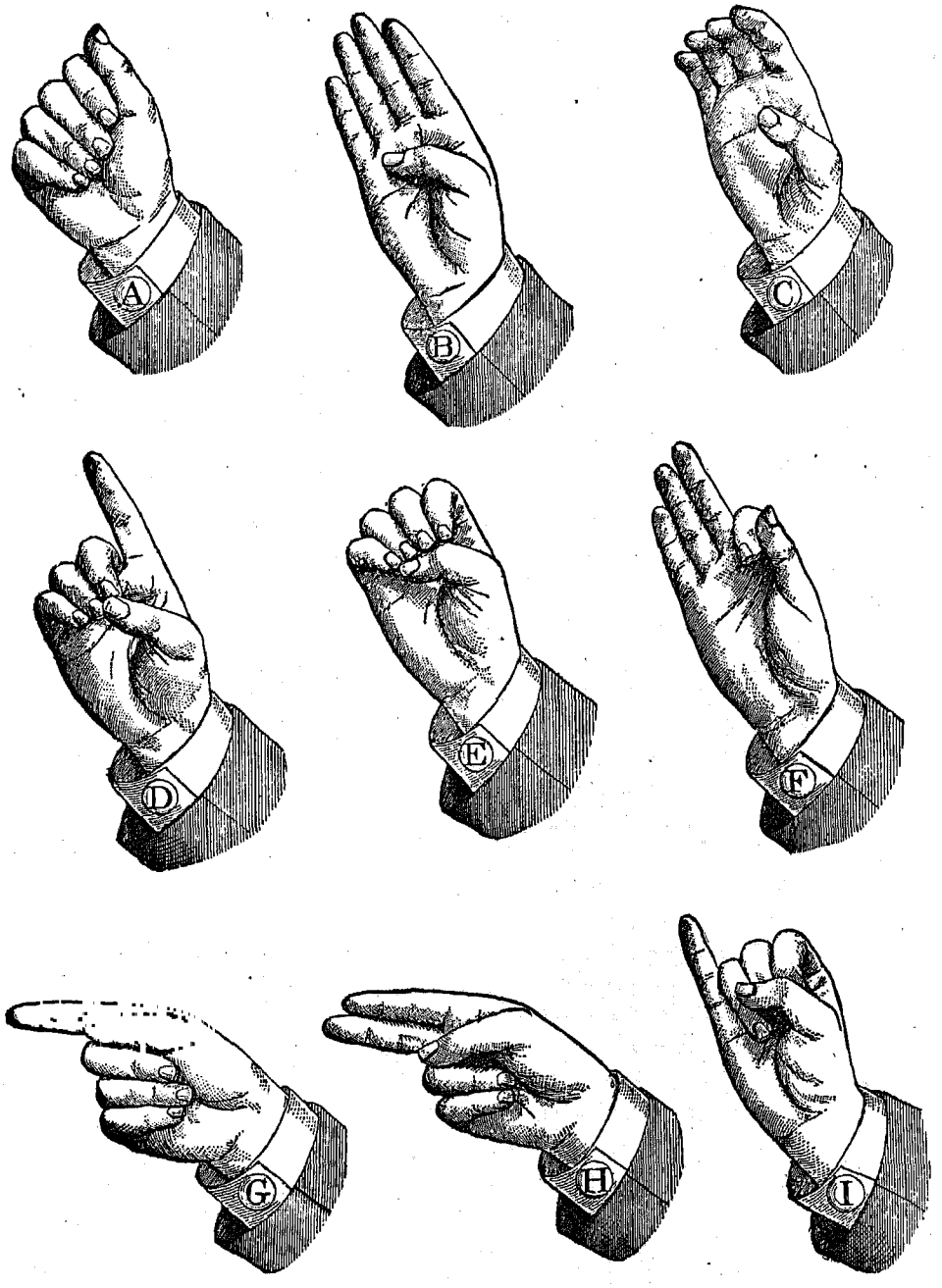
The American Manual Alphabet employed in finger-spelling by the deaf is shown in the illustrations on pages 96, 97, and 98, which have been copied from plates supplied by the Volta Bureau, which were prepared under the direction of the late Dr. Joseph C. Gordon.

In concluding this subject we may say that when the English language alone is employed in its spoken, written, or finger-spelled forms without any recourse to the sign-language (— fg sp or wr) the deaf persons associate principally, if not exclusively, with hearing persons.

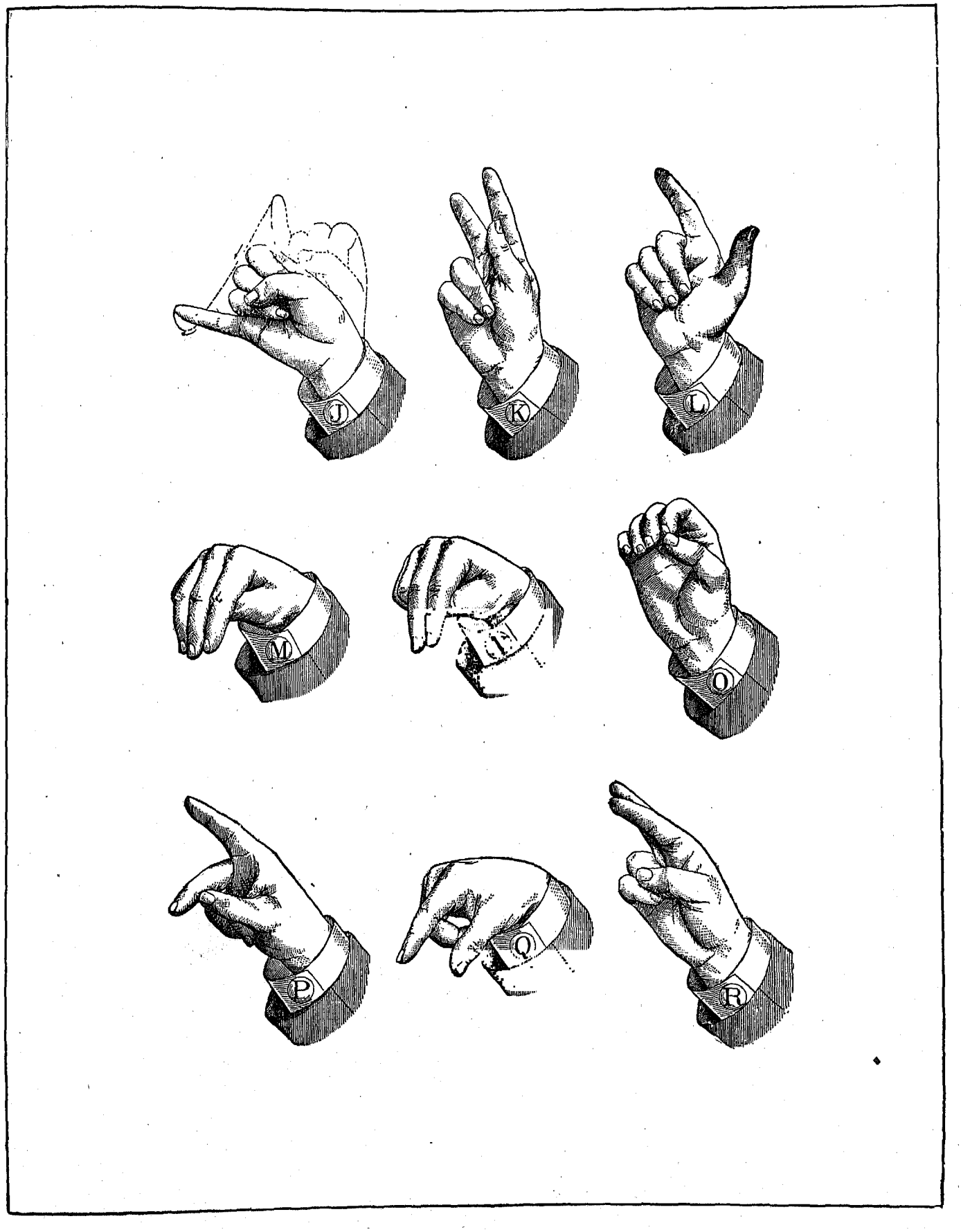
Where the sign-language (si — — —) alone is employed they associate principally, if not exclusively, with persons totally deaf from early childhood (under 5) and their hearing brothers, sisters, or children.

Where both the sign-language (si) and the English language (fg, sp, or wr) are employed, they associate with both of the classes referred to above.

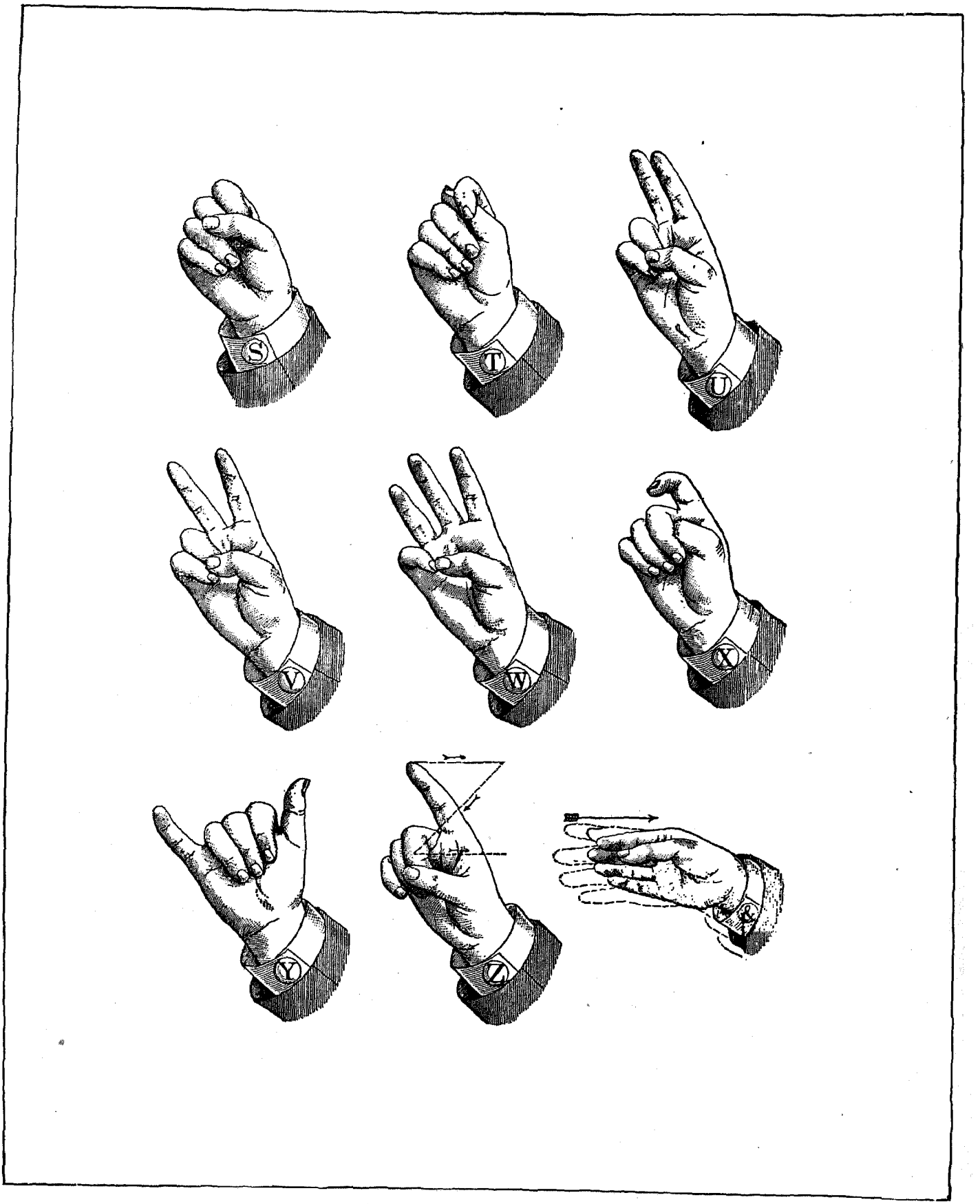
AMERICAN MANUAL ALPHABET USED IN FINGER-SPELLING.



AMERICAN MANUAL ALPHABET USED IN FINGER-SPELLING.



AMERICAN MANUAL ALPHABET USED IN FINGER-SPELLING.



*Sex.*—Out of a total of 89,287 persons returned as deaf, 46,915 were males and 42,372 were females (Table 2); the majority of the deaf are males. This fact has often been commented upon; for it is a matter of common observation that in schools for the deaf, male pupils are nearly always in the majority. The question, therefore, has often been discussed: "Why is it that there are more deaf males than females?" Various hypotheses have been adduced, such as that males are more exposed to the accidents and diseases of life than females, etc. It may be well, however, to be cautious about generalizations of this kind without sufficient evidence, for the question proposed bears a remarkable likeness to the old catch-question that has puzzled so many school boys: "Why do white sheep eat more than black sheep?" to which the answer was, "There are more of them." There are more males in the population at large than females (Table XXVII), so that there is really nothing surprising about the fact that the majority of the deaf should be males. Of the total population, 51.1 per cent are males and 48.9 per cent, females.

In the case of the deaf 52.5 per cent are males and 47.5 per cent are females (Table XXVIII). It thus appears that the proportion of males among the deaf is somewhat in excess of the proportion in the population at large, so that there may be some truth after all in the hypothesis that males are more exposed to accidents of life than females, or more susceptible to the diseases that produce deafness. It is to be noticed, however, that the predominance of males is not confined to those who lost hearing from accident or disease, but extends to the congenitally deaf. Of the deaf from birth, 53 per cent are males and only 47 per cent females (Table XXIX).

Table XXVII shows the deaf by sex, race, and nativity in relation to the time when deafness occurred, degree of deafness, and ability to speak.

TABLE XXVII.—THE DEAF, BY SEX, RACE, NATIVITY, PERIOD OF LIFE WHEN DEAFNESS OCCURRED, DEGREE OF DEAFNESS, AND ABILITY TO SPEAK, COMPARED WITH TOTAL POPULATION.

| SEX, RACE, AND NATIVITY. | Total population. | THE DEAF. | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Total. | Period of life when deafness occurred. | | | Degree of deafness. | | Ability to speak. | | |
| | | | Childhood (under 20). | Adult life (20 and over). | Unknown. | Totally deaf. | Partially deaf. | Well. | Imperfectly. | Not at all. |
| Total | 75,994,575 | 89,287 | 50,296 | 35,924 | 3,067 | 37,426 | 51,861 | 55,501 | 9,417 | 24,369 |
| Sex: | | | | | | | | | | |
| Male | 38,816,448 | 46,915 | 26,543 | 18,797 | 1,575 | 20,218 | 26,697 | 28,306 | 5,114 | 13,495 |
| Female | 37,178,127 | 42,372 | 23,753 | 17,127 | 1,492 | 17,208 | 25,164 | 27,195 | 4,303 | 10,874 |
| Race: | | | | | | | | | | |
| White | 66,809,196 | 84,361 | 46,807 | 34,655 | 2,899 | 34,590 | 49,771 | 53,449 | 8,902 | 22,010 |
| Male | 34,201,735 | 44,223 | 24,674 | 18,069 | 1,480 | 18,694 | 25,529 | 27,149 | 4,850 | 12,224 |
| Female | 32,607,461 | 40,138 | 22,133 | 16,586 | 1,419 | 15,896 | 24,242 | 26,300 | 4,052 | 9,786 |
| Colored[1] | 9,185,379 | 4,926 | 3,489 | 1,269 | 168 | 2,836 | 2,090 | 2,052 | 515 | 2,359 |
| Male | 4,614,713 | 2,692 | 1,869 | 728 | 95 | 1,524 | 1,168 | 1,157 | 264 | 1,271 |
| Female | 4,570,666 | 2,234 | 1,620 | 541 | 73 | 1,312 | 922 | 895 | 251 | 1,088 |
| White: | | | | | | | | | | |
| Native | 56,595,379 | 69,865 | 41,155 | 26,612 | 2,098 | 30,054 | 39,811 | 42,721 | 7,657 | 19,487 |
| Male | 28,686,450 | 36,338 | 21,665 | 13,604 | 1,069 | 16,199 | 20,139 | 21,366 | 4,138 | 10,834 |
| Female | 27,908,929 | 33,527 | 19,490 | 13,008 | 1,029 | 3,855 | 19,672 | 21,355 | 3,519 | 8,653 |
| Foreign born | 10,213,817 | 13,786 | 5,108 | 7,963 | 715 | 4,014 | 9,772 | 10,533 | 1,111 | 2,142 |
| Male | 5,515,285 | 7,506 | 2,704 | 4,427 | 375 | 2,215 | 5,291 | 5,686 | 637 | 1,183 |
| Female | 4,698,532 | 6,280 | 2,404 | 3,536 | 340 | 1,799 | 4,481 | 4,847 | 474 | 959 |
| Unknown nativity | ..... | 710 | 544 | 80 | 86 | 522 | 188 | 195 | 134 | 381 |
| Male | ..... | 379 | 305 | 38 | 36 | 280 | 99 | 97 | 75 | 207 |
| Female | ..... | 331 | 239 | 42 | 50 | 242 | 89 | 98 | 59 | 174 |
| Colored: | | | | | | | | | | |
| Negro | 8,833,994 | 4,649 | ..... | ..... | ..... | 2,701 | 1,948 | ..... | ..... | ..... |
| Male | 4,386,547 | 2,526 | ..... | ..... | ..... | 1,449 | 1,077 | ..... | ..... | ..... |
| Female | 4,447,447 | 2,123 | ..... | ..... | ..... | 1,252 | 871 | ..... | ..... | ..... |
| Indian | 237,196 | 273 | ..... | ..... | ..... | 132 | 141 | ..... | ..... | ..... |
| Male | 119,484 | 163 | ..... | ..... | ..... | 73 | 90 | ..... | ..... | ..... |
| Female | 117,712 | 110 | ..... | ..... | ..... | 59 | 51 | ..... | ..... | ..... |
| Mongolian | 114,189 | 4 | ..... | ..... | ..... | 3 | 1 | ..... | ..... | ..... |
| Male | 108,682 | 3 | ..... | ..... | ..... | 2 | 1 | ..... | ..... | ..... |
| Female | 5,507 | 1 | ..... | ..... | ..... | 1 | ..... | ..... | ..... | ..... |

[1] Including Indians and Mongolians.

Table XXVIII shows the number and percentage of the deaf of each sex, by period of life when deafness occurred, degree of deafness, ability to speak, race, nativity of whites, marital condition, and those having deaf relatives. Table XXIX shows the number and percentage of the deaf of each sex, by age when deafness occurred, present age, and school attendance.

TABLE XXVIII.—*Number and per cent of deaf, by degree of deafness, sex, race, marital condition, and deaf relatives.*

| SEX, RACE, MARITAL CONDITION, ETC. | NUMBER. | | | PER CENT. | |
|---|---|---|---|---|---|
| | Total. | Male. | Female. | Male. | Female. |
| Total | 89,287 | 46,915 | 42,372 | 52.5 | 47.5 |
| Period of life when deafness occurred: | | | | | |
| Childhood (under 20) | 50,296 | 26,543 | 23,753 | 52.8 | 47.2 |
| Adult life (20 and over) | 35,924 | 18,797 | 17,127 | 52.3 | 47.7 |
| Unknown | 3,067 | 1,575 | 1,492 | 51.4 | 48.6 |
| Degree of deafness: | | | | | |
| Totally deaf | 37,426 | 20,218 | 17,208 | 54.0 | 46.0 |
| Partially deaf | 51,861 | 26,697 | 25,164 | 51.5 | 48.5 |
| Ability to speak: | | | | | |
| Well | 55,501 | 28,306 | 27,195 | 51.0 | 49.0 |
| Imperfectly | 9,417 | 5,114 | 4,303 | 54.3 | 45.7 |
| Not at all | 24,369 | 13,495 | 10,874 | 55.4 | 44.6 |
| Race: | | | | | |
| White | 84,361 | 44,223 | 40,138 | 52.4 | 47.6 |
| Colored | 4,926 | 2,692 | 2,234 | 54.6 | 45.4 |
| Negro | 4,649 | 2,526 | 2,123 | 54.3 | 45.7 |
| Indian | 273 | 163 | 110 | 59.7 | 40.3 |
| Mongolian | 4 | 3 | 1 | ..... | ..... |
| Nativity of whites: | | | | | |
| Native | 69,865 | 36,338 | 33,527 | 52.0 | 48.0 |
| Foreign born | 13,786 | 7,506 | 6,280 | 54.4 | 45.6 |
| Unknown | 710 | 379 | 331 | 53.4 | 46.6 |
| Marital condition: | | | | | |
| Single | 39,070 | 21,338 | 17,732 | 54.6 | 45.4 |
| Married | 34,206 | 19,746 | 14,460 | 57.7 | 42.3 |
| Widowed | 15,331 | 5,480 | 9,851 | 35.7 | 64.3 |
| Divorced | 353 | 172 | 181 | 48.7 | 51.3 |
| Unknown | 327 | 179 | 148 | 52.9 | 47.1 |
| Deaf relatives:[1] | | | | | |
| *a* or *b* relatives | 25,851 | 12,834 | 13,017 | 49.6 | 50.4 |
| No *a* or *b* relatives | 54,630 | 29,830 | 24,800 | 54.6 | 45.4 |
| Not stated | 8,806 | 4,251 | 4,555 | 48.3 | 51.7 |

[1] Symbols for deaf relatives—*a*, deaf brothers, sisters, or ancestors; *b*, deaf uncles, aunts, cousins, or other relatives not *a*, *c*, or *d*; *c*, deaf children; *d*, deaf husbands or wives.

TABLE XXIX.—*Number and per cent of deaf, by sex, age when deafness occurred, present age, and school attendance.*

| AGE WHEN DEAFNESS OCCURRED, PRESENT AGE, AND SCHOOL ATTENDANCE. | NUMBER. | | | PER CENT. | |
|---|---|---|---|---|---|
| | Total. | Male. | Female. | Male. | Female. |
| Total | 89,287 | 46,915 | 42,372 | 52.5 | 47.5 |
| Age when deafness occurred: | | | | | |
| Unknown | 3,067 | 1,575 | 1,492 | 51.4 | 48.6 |
| Indefinitely stated | 4,630 | 2,316 | 2,314 | 50.0 | 50.0 |
| Definitely stated | 81,590 | 43,024 | 38,566 | 52.7 | 47.3 |
| Birth | 14,474 | 7,670 | 6,804 | 53.0 | 47.0 |
| After birth, under 2 | 7,396 | 4,154 | 3,242 | 56.2 | 43.8 |
| 2 and under 5 | 10,536 | 5,708 | 4,828 | 54.2 | 45.8 |
| Under 5 | 32,406 | 17,532 | 14,874 | 54.1 | 45.9 |
| 5 and under 10 | 7,018 | 3,594 | 3,424 | 51.2 | 48.8 |
| 10 and under 15 | 4,464 | 2,139 | 2,325 | 47.9 | 52.1 |
| 15 and under 20 | 4,061 | 2,088 | 1,973 | 51.4 | 48.6 |
| Under 20 | 47,949 | 25,353 | 22,596 | 52.9 | 47.1 |
| 20 and under 40 | 16,588 | 8,247 | 8,341 | 49.7 | 50.3 |
| 40 and under 60 | 9,437 | 5,072 | 4,365 | 53.7 | 46.3 |
| 60 and under 80 | 6,595 | 3,853 | 2,742 | 58.4 | 41.6 |
| 80 and over | 1,021 | 499 | 522 | 48.9 | 51.1 |
| Present age: | | | | | |
| Under 5 | 1,021 | 564 | 457 | 55.2 | 44.8 |
| 5 and under 10 | 4,551 | 2,521 | 2,030 | 55.4 | 44.6 |
| 10 and under 15 | 6,712 | 3,675 | 3,037 | 54.8 | 45.2 |
| 15 and under 20 | 6,074 | 3,238 | 2,836 | 53.3 | 46.7 |
| Under 20 | 18,358 | 9,998 | 8,360 | 54.5 | 45.5 |
| 20 and over | 70,602 | 36,741 | 33,861 | 52.0 | 48.0 |
| Unknown | 327 | 176 | 151 | 53.8 | 46.2 |
| School attendance: | | | | | |
| Attended school | 65,717 | 35,476 | 30,241 | 54.0 | 46.0 |
| Did not attend school | 13,557 | 6,987 | 6,570 | 51.5 | 48.5 |
| Not stated | 10,013 | 4,452 | 5,561 | 44.5 | 55.5 |
| Attended school: | | | | | |
| Kind of school— | | | | | |
| Special | 25,197 | 13,851 | 11,346 | 55.0 | 45.0 |
| Other | 19,664 | 10,441 | 9,223 | 53.1 | 46.9 |
| Both | 237 | 132 | 105 | 55.7 | 44.3 |
| Not stated | 20,619 | 11,052 | 9,567 | 53.6 | 46.4 |

Table XXX shows the number and percentage of the deaf of each sex, by causes of deafness.

TABLE XXX.—*Number and per cent of deaf, by sex and causes of deafness.*

| CAUSE OF DEAFNESS. | NUMBER. | | | PER CENT. | |
|---|---|---|---|---|---|
| | Total. | Male. | Female. | Male. | Female. |
| Total | 89,287 | 46,915 | 42,372 | 52.5 | 47.5 |
| Causes of deafness: | | | | | |
| Affections of external ear | 871 | 546 | 325 | 62.7 | 37.3 |
| Affections of middle ear | 34,801 | 16,241 | 18,560 | 46.7 | 53.3 |
| Affections of internal ear | 12,295 | 7,192 | 5,103 | 58.5 | 41.5 |
| Unclassified | 31,205 | 17,720 | 13,485 | 56.8 | 43.2 |
| Unknown | 10,115 | 5,216 | 4,899 | 51.6 | 48.4 |
| [illegible] | 7,424 | 3,497 | 3,927 | 47.1 | 52.9 |
| [illegible] | 4,210 | 2,063 | 2,147 | 49.0 | 51.0 |
| Measles | 2,469 | 1,098 | 1,371 | 44.5 | 55.5 |
| Influenza | 1,776 | 762 | 1,014 | 42.9 | 57.1 |
| Catarrh | 11,702 | 5,565 | 6,137 | 47.6 | 52.4 |
| Colds | 3,074 | 1,387 | 1,687 | 45.1 | 54.9 |
| Malarial fever and quinine | 1,636 | 846 | 790 | 51.7 | 48.3 |
| [illegible] | 3,991 | 2,355 | 1,636 | 59.0 | 41.0 |
| [illegible] | 2,013 | 1,189 | 824 | 59.1 | 40.9 |
| [illegible] | 2,055 | 1,054 | 1,001 | 51.3 | 48.7 |
| Congenital | 14,472 | 7,668 | 6,804 | 53.0 | 47.0 |
| Old age | 3,361 | 1,727 | 1,634 | 51.4 | 48.6 |
| Military service | 3,242 | 3,231 | 11 | 99.7 | 0.3 |
| Falls and blows | 2,243 | 1,417 | 826 | 63.2 | 36.8 |
| Sickness | 2,143 | 1,020 | 1,123 | 47.6 | 52.4 |
| Fever | 1,436 | 764 | 672 | 53.2 | 46.8 |
| Hereditary | 909 | 429 | 480 | 47.2 | 52.8 |

It appears from Table XXVIII that there is no substantial difference in the proportion of the sexes among the deaf from childhood and the deaf from adult life; but the proportion of males seems to be greater among the totally deaf than the partially deaf, among the colored than the white, and among Indians than negroes. It is also greater among the foreign born white than the native, and greater among those who have no deaf relatives (*a* or *b*) than among those who have.

In relation to acquired conditions it may also be noted that the proportion of males is greater among those who do not speak at all than among those who speak imperfectly, and greater among those who speak imperfectly than among those who speak well. The proportion male is also greater among the married than among the single, widowed, or divorced, and least of all among the widowed.

From Table XXIX it appears that there is an exceptionally large proportion of males (56.2 per cent) among those who lost hearing in infancy (after birth, under 2), and also among those who became deaf in adult life between the ages of 60 and 80 (58.4 per cent).

In regard to present age, the proportion of males is larger among those under 20 years of age than over. The proportion is also larger among those who have attended school than those who have not, and larger among those who attended special than other schools.

From Table XXX it appears that the proportion of males is exceptionally large among those who became deaf from affections of the external ear (62.7 per cent) and of the internal ear (58.5 per cent), but exceptionally small among those deaf from affections of the middle ear (46.7 per cent).

In relation to the principal assigned causes of deafness, the males are greatly in the preponderance among those deaf from meningitis (59 per cent) and brain fever (59.1 per cent).

Among the unclassified cases, those deaf from "military service" and "falls and blows" naturally stand out prominently as having an exceptionally large proportion of males—99.7 per cent in the former case and 63.2 per cent in the latter.

On examining the tables, it appears that males are so generally in the preponderance that in cases where females are in the majority we are at once struck by the fact as something exceptional and apparently abnormal.

From Table XXVIII it appears that among the widowed and divorced, females predominate (widowed, 64.3 per cent; divorced, 51.3 per cent); but females also predominate to a still greater extent among the widowed and divorced of the whole population of the United States (widowed, 69.7 per cent; divorced, 57.5 per cent). The majority of the deaf having (*a* or *b*) deaf relatives are females (50.4 per cent) and the proportion female among those having no (*a* or *b*) deaf relatives is exceptionally small (45.4 per cent).

From Table XXIX it appears that the majority are females among those who lost hearing between 10 and 15, 20 and 40, and in old age after 80—males predominating at other age periods when deafness occurred.

From Table XXX it appears that females predominate where deafness was caused by affections of the middle ear, for example, scarlet fever, disease of ear, measles, influenza, catarrh and colds; whereas in all the other cases noted males predominate, with the exception of those deaf from the indefinite cause "sickness" (52.4 per cent female) and cases noted as "hereditary" (52.8 per cent female).

In examining the ability of the deaf to speak (Table XXVIII) it is perhaps noteworthy that, while females are in the minority, the proportion of females is greatest among those who speak well, least among those who speak not at all, and intermediate among those who speak imperfectly. It is a little difficult to interpret this result, for the ability to speak is an acquired and not a natural condition, and can not therefore be directly correlated with sex. The opinion has often been expressed by teachers of the deaf that females acquire speech by instruction more readily than males; but the present figures relate to the whole of the deaf—the deaf from adult life as well as the deaf from childhood—and not simply to those who have acquired speech artificially in special schools; so that if there is any truth in this explanation, we should conclude that females, generally, acquire speech more readily than males, whether naturally or by artificial means.

In comparing Tables XXIX and XXX, it will be noted (1) that females predominate among those who became deaf at three different stages of life, namely, 10 and under 15, 20 and under 40, and after 80; and (2) that females predominate among those who are deaf from affections of the middle ear. It is therefore probable that females are more susceptible to deafness from scarlet fever, disease of ear, measles, influenza, catarrh, or colds, at these three distinct periods of life, namely, adolescence, practically all of the child-bearing period, and old age.

While males predominate among those deaf from meningitis and brain fever, and females among those deaf from affections of the middle ear, we should be cautious about basing definite conclusions upon these facts alone.

This will be obvious from the following considerations: The Indiana congestion (due largely to meningitis and brain fever) and the New England congestion (due largely to affections of the middle ear) show that geographic conditions are involved. Now males predominate in Indiana and females in the New England states among the general population, and this fact of itself would lead us to expect a preponderance of males among the deaf of Indiana and a preponderance of females among the deaf of the New England states, quite independently of any different susceptibility among the sexes to the diseases specified above.

In the present census (1900) Indiana is reported as having a population of 1,285,404 males and 1,231,058 females, so that in that state 51.1 per cent are males and 48.9 per cent are females.

In the case of the New England states, New Hampshire and Massachusetts are the only states having a larger female population than male, but if we include Maine, Vermont, Connecticut, and Rhode Island, we find a total male population of 2,763,796 and a total female population of 2,828,221. In the New England states, therefore, 49.4 per cent of the whole population are male and 50.6 per cent are female.

Both in Indiana and the New England states the sexes seem to be too nearly balanced to upset the hypothesis of greater susceptibility of males to deafness caused by meningitis and brain fever, and greater susceptibility of females to deafness caused by affections of the middle ear. It is probable, therefore, that the hypothesis is correct.

*Race.*—Out of 89,287 persons returned as deaf 84,361 belong to the white race and 4,926 to the colored races (including 273 Indians and 4 Mongolians). (Table 2 and Table XXVIII.)

Table XXXI shows the number and per cent of the white and colored deaf, by age when deafness occurred, degree of deafness, ability to speak, sex, present age, and school attendance.

Table XXXII shows the number and percentage of the white and colored deaf, by cause of deafness.

TABLE XXXI.—*Number and per cent of deaf, by race, period of life when deafness occurred, degree of deafness, ability to speak, sex, present age, and school attendance.*

| PERIOD OF LIFE WHEN DEAFNESS OCCURRED, DEGREE OF DEAFNESS, ABILITY TO SPEAK, SEX, PRESENT AGE, AND SCHOOL ATTENDANCE. | NUMBER. | | | PER CENT. | |
|---|---|---|---|---|---|
| | Total. | White. | Colored. | White. | Colored. |
| Total | 89,287 | 84,361 | 4,926 | 94.5 | 5.5 |
| Period of life when deafness occurred: | | | | | |
| Childhood (under 20) | 50,296 | 46,807 | 3,489 | 93.1 | 6.9 |
| Adult life (20 and over) | 35,924 | 34,655 | 1,269 | 96.5 | 3.5 |
| Unknown | 3,067 | 2,899 | 168 | 94.5 | 5.5 |
| Degree of deafness: | | | | | |
| Totally deaf | 57,426 | 34,590 | 2,836 | 92.4 | 7.6 |
| Partially deaf | 51,861 | 49,771 | 2,090 | 96.0 | 4.0 |
| Ability to speak: | | | | | |
| Well | 55,501 | 53,449 | 2,052 | 96.3 | 3.7 |
| Imperfectly | 9,417 | 8,902 | 515 | 94.5 | 5.5 |
| Not at all | 24,369 | 22,010 | 2,359 | 90.3 | 9.7 |
| Sex: | | | | | |
| Male | 46,915 | 44,223 | 2,692 | 94.3 | 5.7 |
| Female | 42,372 | 40,138 | 2,234 | 94.7 | 5.3 |
| Age when deafness occurred: | | | | | |
| Unknown | 3,067 | 2,899 | 168 | 94.5 | 5.5 |
| Indefinitely stated | 4,630 | 4,359 | 271 | 94.1 | 5.9 |
| Definitely stated | 81,590 | 77,103 | 4,487 | 94.5 | 5.5 |
| Birth | 14,474 | 12,791 | 1,683 | 88.4 | 11.6 |
| After birth, under 2 | 7,396 | 7,168 | 228 | 96.9 | 3.1 |
| 2 and under 5 | 10,536 | 10,083 | 453 | 95.7 | 4.3 |
| Under 5 | 32,406 | 30,042 | 2,364 | 92.7 | 7.3 |
| 5 and under 10 | 7,018 | 6,567 | 451 | 93.6 | 6.4 |
| 10 and under 15 | 4,464 | 4,152 | 312 | 93.0 | 7.0 |
| 15 and under 20 | 4,061 | 3,852 | 209 | 94.9 | 5.1 |
| Under 20 | 47,949 | 44,613 | 3,336 | 93.0 | 7.0 |
| 20 and under 40 | 16,588 | 16,066 | 522 | 96.9 | 3.1 |
| 40 and under 60 | 9,437 | 9,107 | 330 | 96.5 | 3.5 |
| 60 and under 80 | 6,595 | 6,375 | 220 | 96.7 | 3.3 |
| 80 and over | 1,021 | 942 | 79 | 92.3 | 7.7 |
| Present age: | | | | | |
| Under 5 | 1,021 | 951 | 70 | 93.1 | 6.9 |
| 5 and under 10 | 4,551 | 4,182 | 369 | 91.9 | 8.1 |
| 10 and under 15 | 6,712 | 6,054 | 658 | 90.2 | 9.8 |
| 15 and under 20 | 6,074 | 5,515 | 559 | 90.8 | 9.2 |
| Under 20 | 18,358 | 16,702 | 1,656 | 91.0 | 9.0 |
| 20 and over | 70,602 | 67,397 | 3,205 | 95.5 | 4.5 |
| Unknown | 327 | 262 | 65 | 80.1 | 19.9 |
| School attendance: | | | | | |
| Attended school | 65,717 | 63,680 | 2,037 | 96.9 | 3.1 |
| Did not attend school | 13,557 | 11,027 | 2,530 | 81.3 | 18.7 |
| Not stated | 10,013 | 9,654 | 359 | 96.4 | 3.6 |
| Kind of school attended— | | | | | |
| Special | 25,197 | 24,308 | 889 | 96.5 | 3.5 |
| Other | 19,664 | 18,974 | 690 | 96.5 | 3.5 |
| Both | 237 | 236 | 1 | 99.6 | 0.4 |
| Not stated | 20,619 | 20,162 | 457 | 97.8 | 2.2 |

TABLE XXXII.—*Number and per cent of deaf, by race and cause of deafness.*

| CAUSE OF DEAFNESS. | NUMBER. | | | PER CENT. | |
|---|---|---|---|---|---|
| | Total. | White. | Colored. | White. | Colored. |
| Total | 89,287 | 84,361 | 4,926 | 94.5 | 5.5 |
| Causes of deafness: | | | | | |
| Affections of external ear | 871 | 807 | 64 | 92.7 | 7.3 |
| Affections of middle ear | 34,801 | 33,968 | 833 | 97.6 | 2.4 |
| Affections of internal ear | 12,295 | 11,666 | 629 | 94.9 | 5.1 |
| Unclassified | 31,205 | 28,467 | 2,738 | 91.2 | 8.8 |
| Unknown | 10,115 | 9,453 | 662 | 93.5 | 6.5 |
| [illegible] | 7,424 | 7,329 | 95 | 98.7 | 1.3 |
| [illegible] | 4,210 | 3,993 | 217 | 94.8 | 5.2 |
| Measles | 2,469 | 2,397 | 72 | 97.1 | 2.9 |
| Influenza | 1,776 | 1,740 | 36 | 98.0 | 2.0 |
| Catarrh | 11,702 | 11,568 | 134 | 98.9 | 1.1 |
| Colds | 3,074 | 2,967 | 107 | 96.5 | 3.5 |
| Malarial fever and quinine | 1,636 | 1,439 | 197 | 88.0 | 12.0 |
| Meningitis | 3,991 | 3,824 | 167 | 95.8 | 4.2 |
| Brain fever | 2,013 | 1,965 | 48 | 97.6 | 2.4 |
| Typhoid fever | 2,055 | 1,961 | 94 | 95.4 | 4.6 |
| Congenital | 14,472 | 12,789 | 1,683 | 88.4 | 11.6 |
| Old age | 3,361 | 3,181 | 180 | 94.6 | 5.4 |
| Military service | 3,242 | 3,130 | 112 | 96.5 | 3.5 |
| Falls and blows | 2,243 | 2,046 | 197 | 91.2 | 8.8 |
| Sickness | 2,143 | 1,907 | 236 | 89.0 | 11.0 |
| Fever | 1,436 | 1,318 | 118 | 91.8 | 8.2 |
| Hereditary | 909 | 894 | 15 | 98.3 | 1.7 |

Table XXXIII shows, by states and territories, the number and percentage of the white and the colored deaf.

TABLE XXXIII.—*Number and per cent of deaf, by race, for states and territories.*

| STATE OR TERRITORY. | NUMBER. | | | PER CENT. | |
|---|---|---|---|---|---|
| | Total. | White. | Colored. | White. | Colored. |
| Continental United States | 89,287 | 84,361 | 4,926 | 94.5 | 5.5 |
| North Atlantic division | 28,632 | 28,459 | 173 | 99.4 | 0.6 |
| New England | 8,854 | 8,815 | 39 | 99.6 | 0.4 |
| Maine | 1,257 | 1,256 | 1 | 99.9 | 0.1 |
| New Hampshire | 762 | 762 | ..... | 100.0 | ..... |
| [illegible] | 723 | 723 | ..... | 100.0 | ..... |
| [illegible] | 4,015 | 3,994 | 21 | 99.5 | 0.5 |
| [illegible] | 583 | 573 | 10 | 98.3 | 1.7 |
| Connecticut | 1,514 | 1,507 | 7 | 99.5 | 0.5 |
| Southern North Atlantic | 19,778 | 19,644 | 134 | 99.3 | 0.7 |
| New York | 9,946 | 9,898 | 48 | 99.5 | 0.5 |
| New Jersey | 2,285 | 2,256 | 29 | 98.7 | 1.3 |
| Pennsylvania | 7,547 | 7,490 | 57 | 99.2 | 0.8 |
| South Atlantic division | 10,193 | 8,060 | 2,133 | 79.1 | 20.9 |
| Northern South Atlantic | 5,400 | 4,696 | 704 | 87.0 | 13.0 |
| [illegible] | 255 | 237 | 18 | 92.9 | 7.1 |
| [illegible] | 1,579 | 1,364 | 215 | 86.4 | 13.6 |
| [illegible] | 507 | 436 | 71 | 86.0 | 14.0 |
| Virginia | 1,913 | 1,531 | 382 | 80.0 | 20.0 |
| West Virginia | 1,146 | 1,128 | 18 | 98.4 | 1.6 |
| Southern South Atlantic | 4,793 | 3,364 | 1,429 | 70.2 | 29.8 |
| North Carolina | 1,642 | 1,304 | 338 | 79.4 | 20.6 |
| South Carolina | 952 | 520 | 432 | 54.6 | 45.4 |
| Georgia | 1,817 | 1,268 | 549 | 69.8 | 30.2 |
| Florida | 382 | 272 | 110 | 71.2 | 28.8 |
| North Central division | 34,076 | 33,661 | 415 | 98.8 | 1.2 |
| Eastern North Central | 21,618 | 21,469 | 149 | 99.3 | 0.7 |
| Ohio | 6,080 | 6,021 | 59 | 99.0 | 1.0 |
| Indiana | 3,607 | 3,584 | 23 | 99.4 | 0.6 |
| [illegible] | 6,053 | 6,014 | 39 | 99.4 | 0.6 |
| [illegible] | 3,402 | 3,386 | 16 | 99.5 | 0.5 |
| [illegible] | 2,476 | 2,464 | 12 | 99.5 | 0.5 |
| Western North Central | 12,458 | 12,192 | 266 | 97.9 | 2.1 |
| Minnesota | 1,738 | 1,733 | 5 | 99.7 | 0.3 |
| Iowa | 2,952 | 2,944 | 8 | 99.7 | 0.3 |
| Missouri | 3,766 | 3,651 | 115 | 96.9 | 3.1 |
| North Dakota | 256 | 240 | 16 | 93.8 | 6.2 |
| South Dakota | 430 | 368 | 62 | 85.6 | 14.4 |
| Nebraska | 1,220 | 1,208 | 12 | 99.0 | 1.0 |
| Kansas | 2,096 | 2,048 | 48 | 97.7 | 2.3 |
| South Central division | 12,322 | 10,227 | 2,095 | 83.0 | 17.0 |
| Eastern South Central | 6,968 | 5,716 | 1,252 | 82.0 | 18.0 |
| Kentucky | 2,619 | 2,387 | 232 | 91.1 | 8.9 |
| Tennessee | 2,026 | 1,760 | 266 | 86.9 | 13.1 |
| Alabama | 1,333 | 957 | 376 | 71.8 | 28.2 |
| Mississippi | 990 | 612 | 378 | 61.8 | 38.2 |
| Western South Central | 5,354 | 4,511 | 843 | 84.3 | 15.7 |
| Louisiana | 1,211 | 878 | 333 | 72.5 | 27.5 |
| Arkansas | 1,317 | 1,102 | 215 | 83.7 | 16.3 |
| Indian Territory | 228 | 184 | 44 | 80.7 | 19.3 |
| Oklahoma | 282 | 260 | 22 | 92.2 | 7.8 |
| Texas | 2,316 | 2,087 | 229 | 90.1 | 9.9 |
| Western division | 4,064 | 3,954 | 110 | 97.3 | 2.7 |
| Rocky Mountain | 1,076 | 1,023 | 53 | 95.1 | 4.9 |
| Montana | 126 | 115 | 11 | 91.3 | 8.7 |
| Idaho | 146 | 129 | 17 | 88.4 | 11.6 |
| Wyoming | 29 | 26 | 3 | (1) | (1) |
| Colorado | 472 | 471 | 1 | 99.8 | 0.2 |
| New Mexico | 303 | 282 | 21 | 93.1 | 6.9 |
| Basin and Plateau | 455 | 430 | 25 | 94.5 | 5.5 |
| Arizona | 51 | 41 | 10 | (1) | (1) |
| Utah | 343 | 340 | 3 | 99.1 | 0.9 |
| Nevada | 61 | 49 | 12 | (1) | (1) |
| Pacific | 2,533 | 2,501 | 32 | 98.7 | 1.3 |
| Washington | 374 | 368 | 6 | 98.4 | 1.6 |
| Oregon | 410 | 402 | 8 | 98.0 | 2.0 |
| California | 1,749 | 1,731 | 18 | 99.0 | 1.0 |

[1] Per cent not shown where base is less than 100.

From Table XXVII it appears that of the whole population of the United States, 87.9 per cent belong to the

white race and 12.1 per cent to the colored races (including Indians and Mongolians). In the case of the deaf (Table XXXI), 94.5 per cent are white and 5.5 per cent colored, so that the proportion colored is less among the deaf than among the general population.

Of the general population, 11.6 per cent belong to the negro race, 0.3 per cent to the Indian, and 0.2 per cent to the Mongolian (including Chinese and Japanese). Among the deaf (Table XXVII), 5.2 per cent are of negro extraction, 0.3 per cent are Indians, but the total number of Mongolians (only 4) is too small to afford a basis for a percentage.

The comparatively small proportion of colored persons among the deaf may indicate that colored persons are less liable to deafness than white, or that the returns of the colored are less complete than those of the white population. Both hypotheses are probably correct.

From Table XXXI it appears that the proportion colored is larger among those deaf from childhood than adult life. It is also larger among the totally than among the partially deaf. The proportion colored is substantially the same among males and females. In relation to age when deafness occurred, it will be noted that the proportion colored is twice as large among the deaf from birth (11.6 per cent) as the average for the whole of the deaf (5.5 per cent); but among those who lost hearing after birth and under 2, the proportion is abnormally small (3.1 per cent), and it may be possible that many of the colored were unable to decide correctly whether deafness occurred at birth or in infancy (after birth, under 2). The proportion colored is larger among those who lost hearing before reaching the age of 20 (7 per cent), and larger among those who lost hearing in old age after 80 (7.7 per cent) than in the intervening age periods.

In relation to present age the proportion colored is larger among those who are under 20 years of age (9 per cent) than over 20 (4.5 per cent).

In relation to acquired conditions the proportion colored is least among those who speak well, greatest among those who speak not at all, and intermediate among those who speak imperfectly. Among those who attended school only 3.1 per cent were colored, while among those who did not attend school 18.7 per cent were colored, from which it is obvious that the education of the colored deaf is neglected to a much greater degree than in the case of the white. There is no difference in the proportion of the colored among those who attended special or other schools.

From Table XXXII it appears that the proportion colored is greater among those who became deaf from affections of the external ear than among those who lost hearing from affections of the middle ear, and intermediate among those who lost hearing from affections of the internal ear. It is still greater, however, among the unclassified cases.

In considering the classified causes of deafness, the greatest proportion colored is found among those deaf from malarial fever and quinine (12 per cent); whereas catarrh and scarlet fever, which are known to be among the principal causes of deafness in the country as a whole, show the smallest percentages of colored (catarrh, 1.1 per cent colored; scarlet fever, 1.3 per cent).

In relation to the unclassified causes of deafness, the largest percentages colored appear among the congenital cases (11.6 per cent) and among those deaf from the indefinite cause "sickness" (11 per cent). The proportion colored is also large among those deaf from indefinite "fever" (8.2 per cent) and among those deaf from falls and blows (8.8 per cent).

Table XXXIII shows the geographic distribution of the white and colored races. The largest proportion of colored appears, of course, in the Southern states, and especially in those states composing the South Atlantic division.

The statistics contained in Tables XXXI, XXXII, and XXXIII are suggestive of a racial difference in susceptibility to deafness. It appears at first sight that the colored population is almost immune, so far as deafness is concerned, to diseases of the middle ear, which are known to be predominant causes of deafness. There are, however, many qualifying circumstances that should be taken into consideration:

1. In general, the largest ratios deaf from affections of the middle ear are found in the New England states and in those parts of the country bordering upon the Great Lakes. It may be possible, therefore, that the comparative freedom of the colored people from deafness caused by these diseases (catarrh, scarlet fever, etc.) may be due to the fact that they do not reside in localities favorable to the occurrence of the diseases mentioned. It may be equally true that geographic conditions account for the comparative prevalence of malarial fever and quinine as a cause of deafness among the colored.

2. Among those who lost hearing from affections of the middle ear, the proportion colored may not be as small as it appears from the returns; for the proportion colored is comparatively large among those deaf from indefinite causes, like sickness and fever. These, if definitely specified, might prove to be diseases affecting the middle ear. It is probable that a large proportion of the colored people could not discriminate between these diseases as causes of deafness, on account of illiteracy and lack of medical attention at the time deafness occurred. They might even be unable to discriminate certainly between congenital and noncongenital deafness, for the same reasons.

3. Several thousand letters of inquiry sent out to deaf persons by the Census Office brought no reply; these doubtless were letters principally addressed to illiterates unable to respond by mail. The proportion illiterate is known to be very much greater among the colored than the white in the general population (col-

ored, 44.5 per cent; white, 6.2 per cent). Illiteracy is also more common among the colored deaf than the white, as is shown by the small percentage colored who have attended school, and the large proportion colored who did not know their present ages (19.9 per cent).

In short, we can not rely upon the hypothesis that there is a racial difference in the susceptibility to deafness. While the census returns seem to support this hypothesis, the factors of uncertainty are so large as to deprive the results of value, and it is probable that the returns themselves are defective regarding the colored races.

*Nativity of whites.*—Out of a total of 89,287 persons returned as deaf, 84,361 were white; and of these, 69,865 were native, 13,786 were foreign born, and in 710 cases the nativity was unknown (Table 2).

Table XXVII relates to the sex, race, and nativity of the deaf, as compared with the whole population of the United States; and Tables XXXIV, XXXV, and XXXVI relate more particularly to nativity, and show the proportion native and foreign born among the white deaf, as follows:

Table XXXIV shows, for the white deaf, the number and percentage of native and foreign born, by age when deafness occurred, degree of deafness, ability to speak, sex, and present age.

TABLE XXXIV.—NUMBER AND PER CENT OF WHITE DEAF, BY NATIVITY, AGE WHEN DEAFNESS OCCURRED, DEGREE OF DEAFNESS, ABILITY TO SPEAK, SEX, AND PRESENT AGE.

| AGE WHEN DEAFNESS OCCURRED, DEGREE OF DEAFNESS, ABILITY TO SPEAK, SEX, AND PRESENT AGE. | NUMBER. | | | | PER CENT. | | |
|---|---|---|---|---|---|---|---|
| | Total. | Native. | Foreign born. | Unknown. | Native. | Foreign born. | Unknown. |
| Total | 84,361 | 69,865 | 13,786 | 710 | 82.8 | 16.4 | 0.8 |
| Period of life when deafness occurred: | | | | | | | |
| Childhood (under 20) | 46,807 | 41,155 | 5,108 | 544 | 87.9 | 10.9 | 1.2 |
| Adult life (20 and over) | 34,655 | 26,612 | 7,963 | 80 | 76.8 | 23.0 | 0.2 |
| Unknown | 2,899 | 2,098 | 715 | 86 | 72.4 | 24.6 | 3.0 |
| Degree of deafness: | | | | | | | |
| Totally deaf | 34,590 | 30,054 | 4,014 | 522 | 86.9 | 11.6 | 1.5 |
| Partially deaf | 49,771 | 39,811 | 9,772 | 188 | 80.0 | 19.6 | 0.4 |
| Ability to speak: | | | | | | | |
| Well | 53,449 | 42,721 | 10,533 | 195 | 79.9 | 19.7 | 0.4 |
| Imperfectly | 8,902 | 7,657 | 1,111 | 134 | 86.0 | 12.5 | 1.5 |
| Not at all | 22,010 | 19,487 | 2,142 | 381 | 88.6 | 9.7 | 1.7 |
| Sex: | | | | | | | |
| Male | 44,223 | 36,338 | 7,506 | 379 | 82.2 | 17.0 | 0.8 |
| Female | 40,138 | 33,527 | 6,280 | 331 | 83.5 | 15.7 | 0.8 |
| Age when deafness occurred: | | | | | | | |
| Unknown | 2,899 | 2,098 | 715 | 86 | 72.4 | 24.6 | 3.0 |
| Indefinitely stated | 4,359 | 3,424 | 882 | 53 | 78.6 | 20.2 | 1.2 |
| Definitely stated | 77,103 | 64,343 | 12,189 | 571 | 83.5 | 15.8 | 0.7 |
| Birth | 12,791 | 11,373 | 1,180 | 238 | 88.9 | 9.2 | 1.9 |
| After birth, under 2 | 7,168 | 6,547 | 532 | 89 | 91.3 | 7.4 | 1.3 |
| 2 and under 5 | 10,083 | 8,853 | 1,114 | 116 | 87.8 | 11.0 | 1.2 |
| Under 5 | 30,042 | 26,773 | 2,826 | 443 | 89.1 | 9.4 | 1.5 |
| 5 and under 10 | 6,567 | 5,559 | 972 | 36 | 84.7 | 14.8 | 0.5 |
| 10 and under 15 | 4,152 | 3,550 | 591 | 11 | 85.5 | 14.2 | 0.3 |
| 15 and under 20 | 3,852 | 3,348 | 492 | 12 | 86.9 | 12.8 | 0.3 |
| Under 20 | 44,613 | 39,230 | 4,881 | 502 | 87.9 | 11.0 | 1.1 |
| 20 and under 40 | 16,066 | 13,162 | 2,868 | 36 | 81.9 | 17.9 | 0.2 |
| 40 and under 60 | 9,107 | 6,831 | 2,255 | 21 | 75.0 | 24.8 | 0.2 |
| 60 and under 80 | 6,375 | 4,454 | 1,912 | 9 | 69.9 | 30.0 | 0.1 |
| 80 and over | 942 | 666 | 273 | 3 | 70.7 | 29.0 | 0.3 |
| Present age: | | | | | | | |
| Under 20 | 16,702 | 15,507 | 835 | 360 | 92.8 | 5.0 | 2.2 |
| 20 and over | 67,397 | 54,183 | 12,910 | 304 | 80.4 | 19.2 | 0.4 |
| Unknown | 262 | 175 | 41 | 46 | 66.8 | 15.6 | 17.6 |

Table XXXV shows, for the white deaf, the number and percentage of native and foreign born, by causes of deafness.

TABLE XXXV.—NUMBER AND PER CENT OF WHITE DEAF, BY NATIVITY AND CAUSES OF DEAFNESS.

| CAUSE OF DEAFNESS. | NUMBER. | | | | PER CENT. | | |
|---|---|---|---|---|---|---|---|
| | Total. | Native. | Foreign born. | Unknown. | Native. | Foreign born. | Unknown. |
| Total | 84,361 | 69,865 | 13,786 | 710 | 82.8 | 16.4 | 0.8 |
| Causes of deafness: | | | | | | | |
| Affections of external ear | 807 | 638 | 165 | 4 | 79.1 | 20.4 | 0.5 |
| Affections of middle ear | 33,968 | 29,033 | 4,768 | 167 | 85.5 | 14.0 | 0.5 |
| Affections of internal ear | 11,666 | 10,106 | 1,467 | 93 | 86.6 | 12.6 | 0.8 |
| Unclassified | 28,467 | 23,104 | 5,055 | 308 | 81.2 | 17.7 | 1.1 |
| Unknown | 9,453 | 6,984 | 2,331 | 138 | 73.9 | 24.6 | 1.5 |
| Principal assigned causes: | | | | | | | |
| Scarlet fever | 7,329 | 6,389 | 887 | 53 | 87.2 | 12.1 | 0.7 |
| Disease of ear | 3,993 | 3,625 | 345 | 23 | 90.8 | 8.6 | 0.6 |
| Measles | 2,397 | 2,135 | 242 | 20 | 89.1 | 10.1 | 0.8 |
| Influenza | 1,740 | 1,417 | 314 | 9 | 81.4 | 18.1 | 0.5 |
| Catarrh | 11,568 | 10,047 | 1,496 | 25 | 86.9 | 12.9 | 0.2 |
| Colds | 2,967 | 1,954 | 1,007 | 6 | 65.9 | 33.9 | 0.2 |
| Malarial fever and quinine | 1,439 | 1,296 | 139 | 4 | 90.1 | 9.6 | 0.3 |
| Meningitis | 3,824 | 3,648 | 118 | 58 | 95.4 | 3.1 | 1.5 |
| Brain fever | 1,965 | 1,703 | 251 | 11 | 86.7 | 12.8 | 0.5 |
| Typhoid fever | 1,961 | 1,516 | 432 | 13 | 77.3 | 22.0 | 0.7 |
| Congenital | 12,789 | 11,371 | 1,180 | 238 | 88.9 | 9.2 | 1.9 |
| Old age | 3,181 | 2,081 | 1,094 | 6 | 65.4 | 34.4 | 0.2 |
| Military service | 3,130 | 2,517 | 609 | 4 | 80.4 | 19.5 | 0.1 |
| Falls and blows | 2,046 | 1,473 | 558 | 15 | 72.0 | 27.3 | 0.7 |
| Sickness | 1,907 | 1,348 | 543 | 16 | 70.7 | 28.5 | 0.8 |
| Fever | 1,318 | 1,087 | 219 | 12 | 82.5 | 16.6 | 0.9 |
| Hereditary | 894 | 791 | 98 | 5 | 88.5 | 11.0 | 0.5 |

Table XXXVI shows, for the white deaf, the number and percentage of native and foreign born, by states and territories.

TABLE XXXVI.—NUMBER AND PER CENT OF WHITE DEAF, BY NATIVITY, FOR STATES AND TERRITORIES.

| STATE OR TERRITORY. | WHITE DEAF. | | | | | | |
|---|---|---|---|---|---|---|---|
| | Number. | | | | Per cent. | | |
| | Total. | Native. | Foreign born. | Unknown. | Native. | Foreign born. | Unknown. |
| Continental United States | 84,361 | 69,865 | 13,786 | 710 | 82.8 | 16.4 | 0.8 |
| North Atlantic division | 28,459 | 23,222 | 5,114 | 123 | 81.6 | 18.0 | 0.4 |
| New England | 8,815 | 7,291 | 1,493 | 31 | 82.7 | 16.9 | 0.4 |
| Maine | 1,256 | 1,140 | 114 | 2 | 90.8 | 9.1 | 0.1 |
| New Hampshire | 762 | 665 | 91 | 6 | 87.3 | 11.9 | 0.8 |
| Vermont | 723 | 613 | 106 | 4 | 84.8 | 14.7 | 0.5 |
| Massachusetts | 3,994 | 3,165 | 817 | 12 | 79.2 | 20.5 | 0.3 |
| Rhode Island | 573 | 447 | 126 | ..... | 78.0 | 22.0 | ..... |
| Connecticut | 1,507 | 1,261 | 239 | 7 | 83.7 | 15.8 | 0.5 |
| Southern North Atlantic | 19,644 | 15,931 | 3,621 | 92 | 81.1 | 18.4 | 0.5 |
| New York | 9,898 | 7,656 | 2,202 | 40 | 77.4 | 22.2 | 0.4 |
| New Jersey | 2,256 | 1,855 | 394 | 7 | 82.2 | 17.5 | 0.3 |
| Pennsylvania | 7,490 | 6,420 | 1,025 | 45 | 85.7 | 13.7 | 0.6 |
| South Atlantic division | 8,060 | 7,514 | 406 | 140 | 93.2 | 5.1 | 1.7 |
| Northern South Atlantic | 4,696 | 4,300 | 339 | 57 | 91.6 | 7.2 | 1.2 |
| Delaware | 237 | 217 | 19 | 1 | 91.6 | 8.0 | 0.4 |
| Maryland | 1,364 | 1,194 | 142 | 28 | 87.5 | 10.4 | 2.1 |
| District of Columbia | 436 | 343 | 92 | 1 | 78.7 | 21.1 | 0.2 |
| Virginia | 1,531 | 1,473 | 49 | 9 | 96.2 | 3.2 | 0.6 |
| West Virginia | 1,128 | 1,073 | 37 | 18 | 95.1 | 3.3 | 1.6 |
| Southern South Atlantic | 3,364 | 3,214 | 67 | 83 | 95.5 | 2.0 | 2.5 |
| North Carolina | 1,304 | 1,215 | 14 | 75 | 93.2 | 1.1 | 5.7 |
| South Carolina | 520 | 506 | 12 | 2 | 97.3 | 2.3 | 0.4 |
| Georgia | 1,268 | 1,245 | 20 | 3 | 98.2 | 1.6 | 0.2 |
| Florida | 272 | 248 | 21 | 3 | 91.2 | 7.7 | 1.1 |
| North Central division | 33,661 | 26,579 | 6,807 | 275 | 79.0 | 20.2 | 0.8 |
| Eastern North Central | 21,469 | 16,984 | 4,315 | 170 | 79.1 | 20.1 | 0.8 |
| Ohio | 6,021 | 5,026 | 955 | 40 | 83.5 | 15.8 | 0.7 |
| Indiana | 3,584 | 3,222 | 345 | 17 | 89.9 | 9.6 | 0.5 |
| Illinois | 6,014 | 4,587 | 1,335 | 92 | 76.3 | 22.2 | 1.5 |
| Michigan | 3,386 | 2,551 | 820 | 15 | 75.3 | 24.2 | 0.5 |
| Wisconsin | 2,464 | 1,598 | 860 | 6 | 64.9 | 34.9 | 0.2 |

TABLE XXXVI.—NUMBER AND PER CENT OF WHITE DEAF, BY NATIVITY, FOR STATES AND TERRITORIES—Continued.

| STATE OR TERRITORY. | WHITE DEAF. | | | | | | |
|---|---|---|---|---|---|---|---|
| | Number. | | | | Per cent. | | |
| | Total. | Native. | Foreign born. | Unknown. | Native. | Foreign born. | Unknown. |
| Western North Central | 12,192 | 9,595 | 2,492 | 105 | 78.7 | 20.4 | 0.9 |
| Minnesota | 1,733 | 1,063 | 660 | 10 | 61.3 | 38.1 | 0.6 |
| Iowa | 2,944 | 2,312 | 614 | 18 | 78.5 | 20.9 | 0.6 |
| Missouri | 3,651 | 3,205 | 393 | 53 | 87.8 | 10.8 | 1.4 |
| North Dakota | 240 | 125 | 115 | ..... | 52.1 | 47.9 | ..... |
| South Dakota | 368 | 229 | 127 | 12 | 62.2 | 34.5 | 3.3 |
| Nebraska | 1,208 | 938 | 265 | 5 | 77.7 | 21.9 | 0.4 |
| Kansas | 2,048 | 1,723 | 318 | 7 | 84.1 | 15.5 | 0.4 |
| South Central division | 10,227 | 9,568 | 556 | 103 | 93.6 | 5.4 | 1.0 |
| Eastern South Central | 5,716 | 5,494 | 201 | 21 | 96.1 | 3.5 | 0.4 |
| Kentucky | 2,387 | 2,247 | 136 | 4 | 94.1 | 5.7 | 0.2 |
| Tennessee | 1,760 | 1,712 | 41 | 7 | 97.3 | 2.3 | 0.4 |
| Alabama | 957 | 939 | 15 | 3 | 98.1 | 1.6 | 0.3 |
| Mississippi | 612 | 596 | 9 | 7 | 97.4 | 1.5 | 1.1 |
| Western South Central | 4,511 | 4,074 | 355 | 82 | 90.3 | 7.9 | 1.8 |
| Louisiana | 878 | 749 | 110 | 19 | 85.3 | 12.5 | 2.2 |
| Arkansas | 1,102 | 1,077 | 19 | 6 | 97.7 | 1.7 | 0.6 |
| Indian Territory | 184 | 175 | 9 | ..... | 95.1 | 4.9 | ..... |
| Oklahoma | 260 | 190 | 24 | 46 | 73.1 | 9.2 | 17.7 |
| Texas | 2,087 | 1,883 | 193 | 11 | 90.2 | 9.3 | 0.5 |
| Western division | 3,954 | 2,982 | 903 | 69 | 75.4 | 22.8 | 1.8 |
| Rocky Mountain | 1,023 | 841 | 144 | 38 | 82.2 | 14.1 | 3.7 |
| Montana | 115 | 91 | 23 | 1 | 79.1 | 20.0 | 0.9 |
| Idaho | 129 | 100 | 29 | ..... | 77.5 | 22.5 | ..... |
| Wyoming | 26 | 20 | 6 | ..... | (1) | (1) | ..... |
| Colorado | 471 | 364 | 70 | 37 | 77.3 | 14.9 | 7.8 |
| New Mexico | 282 | 266 | 16 | ..... | 94.3 | 5.7 | ..... |
| Basin and Plateau | 430 | 254 | 175 | 1 | 59.1 | 40.7 | 0.2 |
| Arizona | 41 | 34 | 6 | 1 | (1) | (1) | (1) |
| Utah | 340 | 192 | 148 | ..... | 56.5 | 43.5 | ..... |
| Nevada | 49 | 28 | 21 | ..... | (1) | (1) | ..... |
| Pacific | 2,501 | 1,887 | 584 | 30 | 75.4 | 23.4 | 1.2 |
| Washington | 368 | 285 | 82 | 1 | 77.4 | 22.3 | 0.3 |
| Oregon | 402 | 323 | 63 | 16 | 80.3 | 15.7 | 4.0 |
| California | 1,731 | 1,279 | 439 | 13 | 73.9 | 25.4 | 0.7 |

[1] Per cent not shown where base is less than 100.

The statistics of Table XXVII indicate that out of the total white population of the United States, 84.7 per cent were native and 15.3 per cent foreign born.

Table XXXIV shows that of the white deaf, 82.8 per cent were native and 16.4 per cent foreign born, so that it appears that the proportion foreign born among the white deaf is slightly in excess of the proportion foreign born in the total white population.

In the case of the white deaf, the proportion foreign born is greater among those deaf from adult life than among those deaf from childhood. It is also greater among the partially than the totally deaf, and slightly greater among males than females. In regard to age when deafness occurred, the proportion foreign born is greatest among those who lost hearing between 60 and 80 years of age and after, least among those who became deaf before 20, and intermediate in the intervening age periods when deafness occurred.

In regard to present age, the proportion foreign born is greater among those over 20 years of age than under. In relation to ability to speak, the proportion foreign born is greatest among those who speak well, least among those who speak not at all, and intermediate among those who speak imperfectly.

In regard to classified causes of deafness (Table XXXV), the proportion foreign born is greatest among those deaf from colds (33.9 per cent), and it is also great among those deaf from typhoid fever (22 per cent) and influenza (18.1 per cent), and least among those deaf from meningitis.

In relation to unclassified causes of deafness, the proportion foreign born is greatest among those deaf from old age (34.4 per cent), and large among those deaf from falls and blows, and from the indefinite cause sickness.

Table XXXVI relates to the geographic distribution of the white deaf, distinguishing the native from the foreign born. The proportion foreign born is of course greatest in those parts of the country which have the largest foreign born population.

The majority of the foreign born deaf became deaf in adult life, and it is therefore probable that in most cases the deafness occurred after they reached this country. This also accounts for the fact of the small

proportion of foreign born among the deaf from meningitis and scarlet fever, for these are diseases characteristic of childhood rather than adult life.

*The process of audition, and the mechanism whereby it is effected.*—Diagram 31 presents a sectional view of the human ear, and Diagram 32 an enlarged plan of the organ of hearing.

A source of sound may be considered as consisting essentially of an oscillating body immersed in air.

Considering the to and fro movements which take place toward or from the listener's ear, we may note that each time the movement is toward the ear the air particles in the immediate vicinity are struck a blow in the direction of the ear, much as a billiard ball might be struck by a cue. They shoot off under the impulse in the direction of the ear, but can go only a very little way before they are arrested by collision with other air particles which take up the movement. Much as an impulse may be transmitted through a line of billiard balls by successive collisions of ball with ball, so the aerial impulse is transmitted through the free air by successive collisions of air particles with air particles. When the impulse finally reaches the listener's ear the air particles in the external ear are crowded together by the shock and are thus condensed in the passageway, or meatus, causing increased pressure upon the drum membrane of the ear, pushing it in a little way (Diagrams 31 and 32).

When the motion of the oscillating body is from the ear an opposite effect is produced, resulting in rarefaction of the air in the external ear, causing a lessening of pressure upon the drum membrane.

A source of sound thus operates to produce alternate condensations and rarefactions of the air in the external ear, causing vibratory movements of the tympanic membrane. The membrane moves inward when the air pressure is increased and outward when it is diminished.

*Diagram 31.*

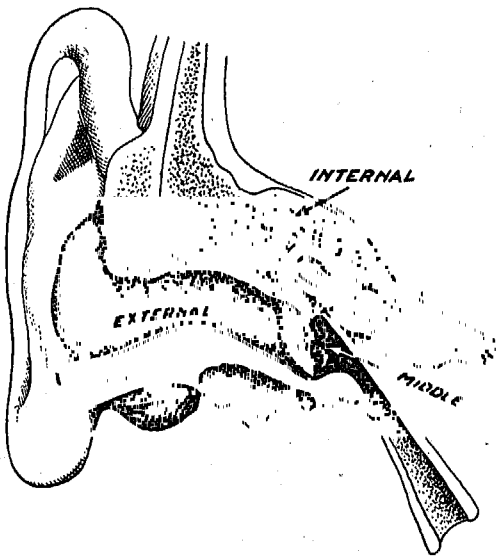
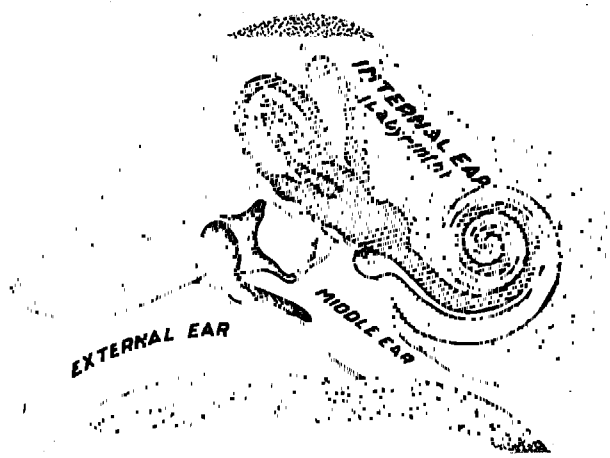



*Diagram 32.*




The middle ear contains a mechanism for transmitting the vibrations of the membrane to the liquid contained in the internal ear (Diagram 32). This consists of a series of small bones, or ossicles, of which the malleus, or hammerhead, is attached directly to the tympanic membrane. The stapes, or stirrup-shaped bone, at the other end of the series acts somewhat like a piston. Its flat end is attached to a membrane covering the oval opening into the labyrinth. The transmitting mechanism of the middle ear thus consists essentially of a piston operated by a stretched membrane. When the tympanic membrane moves inward, the stapes, or piston, is also pushed inward, thus exerting increased pressure on the liquid in the labyrinth. When the tympanic membrane moves outward the pressure on the liquid is relaxed.

The liquid contained in the internal ear is thus subjected to changes of statical pressure; but in the coiled-up portion of the labyrinth known as the cochlea, or snail shell, there is also a to and fro movement of the fluid itself, resulting from the elasticity of the membrane covering the second opening into the labyrinth (the round window). The passageway of the cochlea is divided longitudinally into two distinct channels communicating only at the tip—shaded differently in the drawing (Diagram 32). When, therefore, the stapes, or piston, is pushed in at the oval window, an actual displacement of the fluid in the cochlea takes place, traveling up one channel and down the other and bulging out the membrane of the round window. The to and fro movement of the liquid in the cochlea causes a corresponding movement of the hairs, or rods, that line the passageways, and which are connected with the terminals of the auditory nerve.

There can be little question that the true organ of hearing is located within this coiled-up portion of the labyrinth (Diagram 32), but its exact nature and mode of operation are obscure.

The organ of Corti, which is found here, bears a curious resemblance to a musical instrument contain-

ing multitudes of rods of different lengths, which are supposed to be tuned to respond to different pitches of sound—a sort of harp in miniature within the ear. The single vibration which alone is transmitted to the internal ear—the resultant of all the sonorous vibrations that exist in the air outside of the ear—is supposed to be here analyzed into its constituent musical elements by the sympathetic vibration of those rods of Corti which correspond to them in pitch. The organ of Corti, however, may not be so essential to hearing as is commonly supposed, for it seems to be totally wanting in parrots and other birds that imitate, and therefore perceive, the sounds of human speech.

At the other end of the labyrinth from the cochlea, the curious arrangement of the three semicircular canals is worthy of note (Diagram 32)—an arrangement in which the plane of each canal is substantially at right angles to the planes of the other two, thus reminding us of the three planes used by mathematicians in coordinating directions in space.

The semicircular canals do not seem to be concerned in the process of hearing, although it is obvious that they constitute a sense organ of some kind, because they are plentifully supplied with nerve filaments connected with hairs, or rods, as in the case of the cochlea. Under the influence of sound vibrations transmitted to the liquid of the internal ear by the to and fro movement of the stapes at the oval window, the liquid in the semicircular canals is subjected to changes of statical pressure, but without the to and fro displacement of the fluid, as in the case of the cochlea. If, however, the head should be moved in any direction, displacements would be produced by the inertia of the fluid. These displacements would differ in the three canals, according to the direction and extent of the movement. It is probable that the semicircular canals constitute a special sense organ, whereby we perceive the direction and extent of bodily movements. After waltzing continuously a sensation of dizziness is usually experienced for some time after stopping, which is probably due to the continued movements of the liquid in one of the canals. Many totally deaf persons fail to experience any sensation of dizziness under such circumstances; and they experience a difficulty in walking steadily in the dark. It is probable that in such cases the injury to the ear has extended to the semicircular canals, so that the persons have lost the use of an organ intimately connected with the instinctive balancing of the body while in motion.

The true organ of hearing seems to be hidden away in the convolutions of the cochlea; but, as it is immersed in a liquid, it is not directly accessible to sound vibrations. The capacity for hearing may exist, and yet the person may be deaf on account of some defect in the transmitting apparatus. Perfection of hearing, therefore, depends upon the proper functioning of the tympanic membrane and the transmitting mechanism of the middle ear.

The tympanic membrane must be suitably stretched in order to be sensitive to delicate changes of air pressure in the external ear. It differs from an ordinary stretched membrane in not being flat. It is somewhat conical in shape with the concavity outward, thus resembling, to a certain extent, the under surface of an open umbrella. It can be stretched to a greater or less degree by movements of the malleus, to which it is attached. A very slight movement inward of the end of the malleus increases the tension; and the act of listening consists in the adjustment of certain muscles attached to the malleus, whereby the proper tension of the membrane is secured. There is thus an accommodation of the ear to feeble sounds comparable to the accommodation of the eye for near vision—an adjustment of the focus, so to speak.

A stretched membrane is most sensitive to transitory impulses when the normal pressure of the air is the same on both sides of it. The pressure of the air within the middle ear tends to push the tympanic membrane outward, and the pressure of the air in the external ear tends to push it inward. When these opposite pressures just balance one another the membrane is free to be acted upon by the transitory impulses of sound without being impeded by an unbalanced pressure from within or without. The external pressure of the atmosphere is subject to change; and without some means of introducing air into the middle ear or removing air from it when necessary, the tympanic membrane would constantly be working at a mechanical disadvantage on account of unbalanced pressures. The Eustachian tube affords the means. Through its agency, a communication is established between the middle ear and the back part of the mouth (the pharynx). During the act of swallowing saliva the end of the Eustachian tube in the pharynx is opened, thus permitting free communication between the external air and the cavity of the middle ear, resulting in equilibrium of pressure on both sides of the tympanic membrane. The Eustachian tube also serves as a drainage tube for the middle ear, preventing secretions from accumulating there.

*Causes of deafness.*—In the Twelfth Census 89,287 persons were returned as deaf, and in 10,115 cases the causes of deafness were unknown (Table 5). In the remaining 79,172 cases the supposed causes were specified.

In many cases, however, the assigned causes are vague and unsatisfactory. For example, "military service, 3,242 cases; sickness, 2,143; fever, 1,436; medicine, 205; headache, 136; hard work, 101; diarrhea and cholera infantum, 90"; etc.

To these may be added the following as examples of the curious and fanciful causes of deafness sometimes assigned in individual cases: "Caused by milk of diseased cow; chewing paper and speaking loud in my ear; bitten by a rat; holding nose and mouth shut and blowing until head would buzz; driving Govern-

ment teams on the plains; eating caustic potash; going with hay shockers; ran a piece of shingle down throat; worms; worry"; etc. No less than 1,514 cases of this character were reported. (See footnotes to Table XXXVIII.) Such causes as these—even if they are connected with the production of the deafness, which is often doubtful—are very remote causes indeed.

We may smile at the idea of driving Government teams on the plains as a cause of deafness; but we can readily trace a remote connection between the supposed cause and the effect. The driver speeding the Government teams across the plains was exposed to the weather and may have taken cold, resulting in catarrh of the middle ear, which may ultimately have caused his deafness.

It seems more satisfactory to say that deafness was caused by some specific disease—say scarlet fever, for instance—than by driving Government teams, yet really the one is no more a cause of deafness than the other. Both act indirectly by producing effects that become causes for other effects; and they differ simply in the degree of their remoteness from the ultimate effect produced—deafness. It is a matter for serious consideration that all the assigned causes of deafness, even the most plausible, are of this same indirect character, and are not in themselves true causes of deafness at all. It will readily be recognized that military service is not in itself a cause of deafness; for out of the vast number of persons who have been engaged in military service only a very small fraction are deaf. All of the other causes, however, fall into the same category; for out of the millions of people who have had scarlet fever, for example, a very small fraction indeed are deaf. Like driving Government teams on the plains, the specific diseases usually assigned may indirectly be causes of deafness, but are not so of themselves alone.

The concussion of the air due to the discharge of heavy artillery may rupture the membrane of the ear of one near at hand, and the internal ear may be so affected by the shock as to have its usefulness impaired; but in this case the true cause of the deafness is the injury to the ear, and not directly the concussion of the air, far less the cannon that produced it, or the still more remote cause—military service.

Military service may be the cause of a person being present when a cannon is fired; the firing of the cannon may be the cause of a concussion of the air; the concussion of the air may be the cause of an injury to the person's ear; and the injury to the ear may be a cause of deafness. After the manner of "The House that Jack Built," the cause of deafness may be made anything you choose, if you only carry back the chain of causation far enough. Scarlet fever and other diseases, usually accepted as legitimate causes of deafness, belong to this same class, for they only act indirectly through intermediate agencies. Scarlet fever, for example, differs from military service simply in the fact that in the chain of causation it is nearer the ultimate effect produced.

Scarlet fever may be the proximate cause of an abscess in the middle ear; the suppurative process in the middle ear may cause serious injury and even total destruction of necessary parts of the delicate machinery of the ear; and the injury to the ear may thus cause deafness. There are many other diseases, however, that produce a similar injury to the ear and in a similar manner. For example, measles, influenza, diphtheria, pneumonia, erysipelas, smallpox, tonsilitis, bronchitis, etc. In the present report, therefore, all these diseases are grouped together and the deafness is attributed to "a suppurative affection of the middle ear."

The principle has been adopted of classifying the assigned causes by their effect upon the ear, grouping together in one class all those diseases or proximate causes that produce the same effect upon the ear. Accordingly causes of deafness are divided into three broad groups, as follows: Affections of the external ear, affections of the middle ear, affections of the internal ear.

Each group is divided into subgroups, as follows: External ear—impacted cerumen (earwax), foreign bodies in ear, miscellaneous (external ear). Middle ear—suppurative affections (inflammation and abscess), nonsuppurative (or catarrhal) affections, miscellaneous (middle ear). Internal ear—affections of labyrinth, affections of auditory nerve, affections of brain center for hearing, miscellaneous (internal ear).

Table XXXVII shows the number of the deaf, by the classes specified.

TABLE XXXVII.—*The deaf, by causes of deafness.*

| CAUSE OF DEAFNESS. | Total. |
|---|---|
| All causes | 89,287 |
| Classified | 47,967 |
| Unclassified | 31,205 |
| Unknown | 10,115 |
| Classified: | |
| Affections of external ear | 871 |
| Affections of middle ear | 34,801 |
| Affections of internal ear | 12,295 |
| External ear: | |
| Impacted cerumen | 357 |
| Foreign bodies in ear | 297 |
| Miscellaneous (external ear) | 217 |
| Middle ear: | |
| Suppurative affections | 17,533 |
| Nonsuppurative, or catarrhal, affections | 17,260 |
| Miscellaneous (middle ear) | 8 |
| Internal ear: | |
| Affections of labyrinth | 2,726 |
| Affections of auditory nerve | 9,361 |
| Affections of brain center for hearing | 129 |
| Miscellaneous (internal ear) | 79 |

Out of 89,287 deaf, the causes of deafness have been classified in 47,967 cases, or a majority of the whole; 31,205 cases remain unclassified; and in 10,115 cases the causes are unknown.

*Broad groups.*—Among the classified cases, affec-

tions of the middle ear are the predominating causes. Comparatively few lost hearing from affections of the external ear. The percentage of cases in each class is as follows: External ear, 1.8 per cent; middle ear, 72.6 per cent; internal ear, 25.6 per cent—total classified, 100 per cent.

*Subgroups.*—The principal subgroups seem to be four in number; these, with the percentage of cases included in each, are shown as follows: Middle ear—suppurative affections, 36.5 per cent; nonsuppurative (or catarrhal), 36 per cent. Internal ear—affections of labyrinth, 5.7 per cent; affections of nerve, 19.5 per cent. Other subgroups, 2.3 per cent. Aggregate classified, 100 per cent.

Table XXXVIII shows the classification of causes of deafness adopted, with the subdivision into broad groups and subgroups, and the number of cases compiled under each assigned cause.

TABLE XXXVIII.—NUMBER OF CASES OF DEAFNESS, BY CAUSES.

[The detailed causes of deafness reported and classified as "other" causes belonging to the subgroups specified in this table are given in the footnotes hereto.]

| CAUSE OF DEAFNESS. | | | | Number of cases. |
|---|---|---|---|---|
| | Broad groups. | Subgroups. | Assigned causes. | |
| Classified | External ear | Impacted cerumen | Water in ear, swimming, diving, bathing | 290 |
| | | | Wax in ear | 67 |
| | | Foreign bodies in ear | Foreign bodies in ear | 297 |
| | | Miscellaneous | Cancer and tumor | 82 |
| | | | Burns and scalds | 57 |
| | | | Eczema | 51 |
| | | | Other (external ear) [1] | 27 |
| | Middle ear | Suppurative | Scarlet fever | 7,424 |
| | | | Disease of ear | 4,210 |
| | | | [illegible] | 2,469 |
| | | | [illegible] | 1,776 |
| | | | [illegible] | 593 |
| | | | Pneumonia | 308 |
| | | | Erysipelas | 228 |
| | | | Smallpox | 147 |
| | | | Tonsilitis | 139 |
| | | | Teething | 117 |
| | | | Bronchitis | 68 |
| | | | Consumption | 8 |
| | | | Other (suppurative) [2] | 46 |
| | | Nonsuppurative | Catarrh | 11,702 |
| | | | Colds | 3,074 |
| | | | Whooping cough | 675 |
| | | | Scrofula | 553 |
| | | | Exposure and cold | 446 |
| | | | Disease of throat | 327 |
| | | | Thickening and hardening of eardrum | 157 |
| | | | Croup | 57 |
| | | | Other (nonsuppurative) [3] | 269 |
| | | Miscellaneous | Miscellaneous (middle ear) [4] | 8 |
| | Internal ear | Labyrinth | Malarial fever and quinine | 1,636 |
| | | | Noise and concussion | 820 |
| | | | Mumps | 243 |
| | | | Syphilis | 27 |
| | | Nerve | Meningitis | 3,991 |
| | | | Brain fever | 2,013 |
| | | | Typhoid fever | 2,055 |
| | | | Paralysis | 571 |
| | | | Convulsions | 402 |
| | | | Sunstroke | 162 |
| | | | [illegible] | 93 |
| | | | [illegible] | 74 |
| | | Brain center | Hydrocephalus | 88 |
| | | | Epilepsy | 41 |
| | | Miscellaneous | Miscellaneous (internal ear) [5] | 79 |
| Unclassified | | | Congenital | 14,472 |
| | | | Old age | 3,361 |
| | | | Military service | 3,242 |
| | | | Falls and blows | 2,243 |
| | | | Sickness | 2,143 |
| | | | Fever | 1,436 |
| | | | Hereditary | 909 |
| | | | Neuralgia | 418 |
| | | | Childbirth | 398 |
| | | | Accident | 335 |
| | | | Medicine | 205 |
| | | | Heat | 186 |
| | | | Rheumatism | 167 |
| | | | Headache | 136 |
| | | | Fright, shock, excitement | 119 |
| | | | Hard work, overwork | 101 |
| | | | Lightning | 93 |
| | | | Diarrhea and cholera infantum | 90 |
| | | | Chickenpox | 39 |
| | | | Operation | 27 |
| | | | Other (unclassified) [6] | 1,085 |
| Unknown | | | Unknown | 10,115 |
| Aggregate | | | | 89,287 |

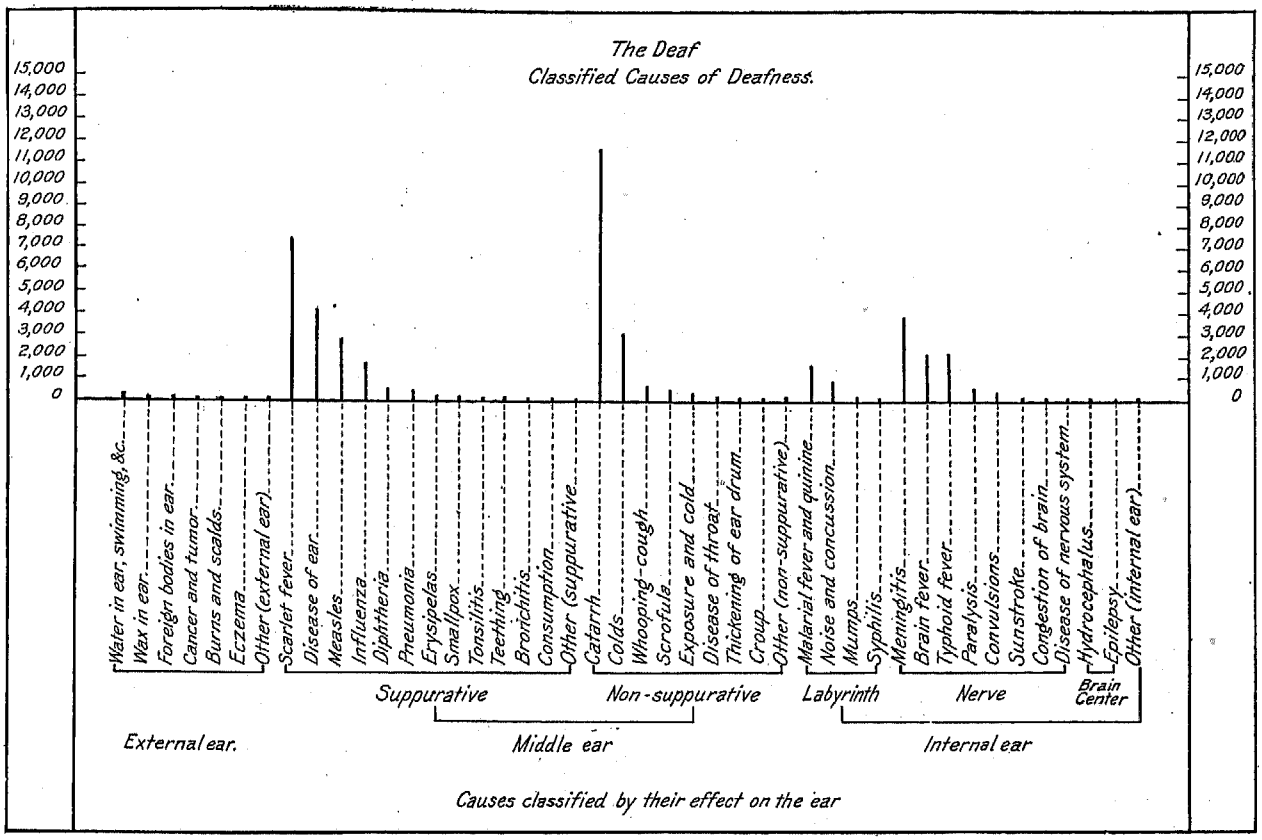
[1] *Other (external ear).*—Includes bathing and vaccination; cold and dust getting in ear; corrugated growth on ear passages; ears filled up; ears pulled; exostosis; filling up of [illegible] right ear; formation on inside of ear; growth about ears; hardening of wax and snuff; old age, and ears grown together; salt rheum [illegible] tetter; skin disease; substance growing on drum; too frequent syringing.

[2] *Other* [illegible]).—Includes boil behind ear; broken eardrums; corrosion mastoid bone; defective eardrums; disease of bone; disease of mastoid bone; drum of ear gone; eardrum of right ear gone, left one closed; ear trumpets are gone; perforated eardrum; perforated eardrums, inherited; pleurisy; sore eyes (doctor kept blister back of ears for three weeks); ulceration of membrane.

[3] *Other (nonsuppurative affections of middle ear).*—Includes adenoid growth; adenoid of posterior nerve; air in ear; air on the head; air tubes closed; asthma; asthma and coughing; asthma and nervousness; asthma and old age; bent eardrum; bronchial affection; bronchial and catarrhal trouble; bronchial trouble; buzzing noises in head; chronic catarrh; chronic rheumatic pharyngitis; chronic laryngitis; chronic nonsuppurative inflammation; closing of tube; collapse of Eustachian

The results given in Table XXXVIII are shown graphically in Diagrams 33 (classified causes) and 34 (unclassified causes).

DIAGRAM 33.



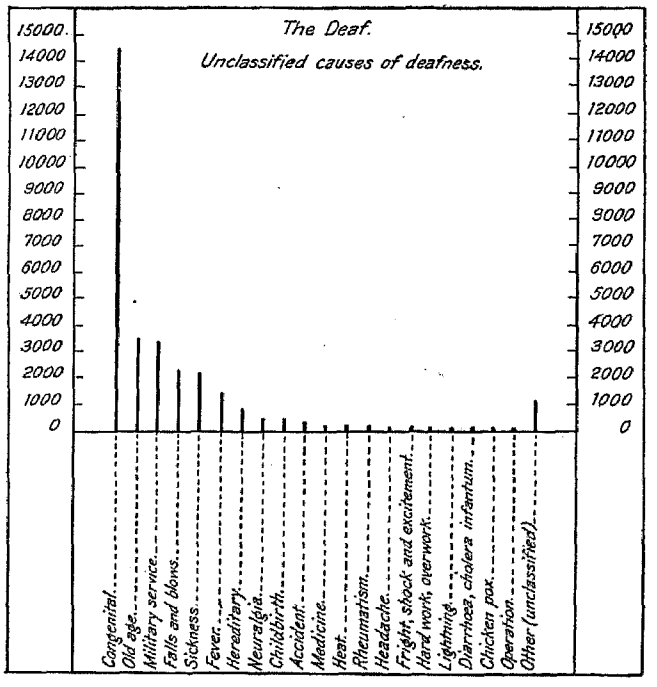

tube; concavity of tympanum; congestion; congestion of the eardrum; contraction of eardrums; drum of ear closed; drum of ear down; drum of ear not straight; drums became inactive; dry ears; drying up of earwax; eardrums affected; eardrums grown fast to something; ears [illegible] drum of ear; enlargement of [illegible] r glands; enlargement of glands; Eu[illegible] on tube leading to ear; growth [illegible] tonsil in throat; hard study, dry ear [illegible] of the glands from throat to e[illegible] le; head disease; head noises; head t[illegible] blowing until head would buzz; noise in head; obstruction of Eustachian tube; obstruction of [illegible] pressure of adenoids in pharynx; quinsy; rising on her neck; ringing in head; ro[illegible] throat; stoppage of Eustachian tube; thickening of eardrums and ulcers in throat [illegible] lining of cavity back of eardrum [illegible] ear; t[illegible]

[4] *Miscellaneous (middle ear).* [illegible] drums [illegible]

[5] *Miscellaneous (internal ear* [illegible] nerve [illegible] the brain; brain affected; brain lesion; brain trouble; blood clot at base of brain; bursting of blood [illegible] l air; compressed air mining machines; defective ear, internal ear; disease of brain; dizziness; gonorr[illegible] rdening of nerve; hemorrhage of brain; loss of force and vitality in auditory nerve; loss of power, audi[illegible] ar; prostration of aural nerve; ruptured blood vessel; rush of blood to brain; rush of blood to the hea[illegible] nerve.

[6] *Other causes (unclassified).*—Abscess around neck and throat; abscess in neck, [illegible] lung; absence of partitions of eardrums; abuse; acute poliomyelitis, anterior; age, and work in factory; anesthesia; anemia and ne[illegible] on face for toothache; bad blood; bean in nose; bean lodged in windpipe; bee stings; bite of rattlesnake; bitten by a rat; bitten b[illegible] vomit; bleeding at nose; bleeding of lung; blood d[illegible] lood rushing to head; blood sickness; blood trouble; boil [illegible] oil on neck; boils; bowel trouble; breaking down [illegible] on face; Bright's disease; burning sensation in head; calomel; camp itch and scurvy; canker in mouth and stomach; [illegible] neck; carbuncle on top of head; careless midwife; carelessness of drug clerk; carrying sack of dirt; caused by milk of [illegible] chewing paper and speaking loud in my ear; chloroform; cholera; cloth in nostril; cocai[illegible] cottonseed in nose; cruelty; damp climate; dampness; deformity; degeneracy; disease [illegible] tobacco; dormant state of drum; drank coal oil; drank hot coffee; d[illegible] ng warm; driving Government teams on plains; dropsy; dysentery; dyspepsia; eardrum crushed; eating caustic potas[illegible] mn; English sickness; ether; excessive navel hemorrhage; feather in throat caused throat to rise; feeble; felon; female [illegible] of head; gas poison; gas used in extracting teeth; gastric fever; gastritis; gathering in neck; general debility; ger[illegible] nervous system; going with hay shockers; goiter; gout; growth in right side; growth over inner drum; hardships; h[illegible] fting; hemorrhage; hemorrhage, change of life; hemorrhage of throat; hip-joint disease; hot water and working on [illegible] ead; ice water, when heated; ill treatment; improper care in childhood; infant dropsy; inflammation of bladder and [illegible] n of bowels, and medicine; inflammation of stomach; injection for sore eyes; intense mental strain; dys- [illegible] irritation of brain; itch; kidney and bladder troub[illegible] and water c[illegible] locomotor [illegible] and heart trouble; lung trouble; lupus; male[illegible] atment; medicine dropsy; menses stopped; [illegible] al trouble; mercury; mining; morphine; muscles grew around drum; muscular atrophy; muscular nervousness; nearly drowned; neglect; nerve and uterine trouble; nerve trouble; nerves of ear gave away; nervous affection of brain; nervous complications; nervous deafness; nervous debility; nervous female disorders; nervous prostration; nervous weakness, age; nervousness; nervousness and rheumatism; neuralgia, sciatica, quinine, and morphine; noncirculation of blood through head; nosebleed; old age and vertigo; one ear hole larger than the other; organic disease of the brain; overdose of turpentine; ovary; ovary and womb trouble; pains; partly inherited and neglect; partly inherited general nervousness; pemphigus; physics; poison; poison ivy eruption; poison shrubbery; poison by eating colored paper; poisonous salve; police service; poor health at critical age, severe treatment; pulling ear until blood ran; put powder up nose; rachitis; ran a piece of shingle down throat; rickets; rickets and acanodros in t[illegible] neck; roots of teeth punched out and false teeth pu[illegible] ood vessel; salivate for gravel; salivation fro[illegible] on drum; sokerosis; seasickness; self-abuse; seni[illegible] uscles of ears; sick wet nurse with ill milk; [illegible] sickness and gathering on neck; sickness, brain af[illegible] sickness of lungs; sickness of stomach; sickness, womb complaint; [illegible] affection, stopping growth of back brain; spinal curvature; spinal t[illegible] trouble; stomach trouble and constipation; strain of head; strained [illegible] ation of throat; stung by bee; swallowed concentrated lye; swelling [illegible] tickled under arms; tobacco; tobacco smoking and chewing; tooth; [illegible] uble; use of china root tea for worms; use of cocaine for catarrh, atro[illegible] using calking material; vaccination; vaccination, calomel; varicose veins; vertigo; violent pain; violent storm; [illegible] ves; weakness; weakness of aural nerve; weakness of spine; while drunk something broke in head, causing pain; [illegible] owing in ear; working at ship calkers' trade; working in cellar; working in dust; working in mine; working in we[illegible] low fever; yellow jaundice.

*Diagram 34.*




From Table XXXVIII and Diagram 33 it appears that among the classified cases the principal assigned causes are:

| | | |
|---|---|---|
| Scarlet fever | 7,424 | |
| Disease of ear | 4,210 | |
| Measles | 2,469 | |
| Influenza | 1,776 | |
| Catarrh | 11,702 | |
| Colds | 3,074 | |
| Malarial fever and quinine | 1,636 | |
| Meningitis | 3,991 | |
| Brain fever | 2,013 | |
| Typhoid fever | 2,055 | |
| | | 40,350 |
| Minor causes | | 7,617 |
| Aggregate classified | | 47,967 |

Malarial fever is given as a cause of deafness in some cases, and quinine in others. In large doses quinine is known to affect the hearing; but it is doubtful whether malarial fever, without quinine, produces deafness. As it is probable that all of the malarial fever cases were dosed with quinine, and that most of the quinine cases had malarial fever or were threatened with it, the best disposition of these causes seems to be to group them together and attribute the deafness to an affection of the internal ear, for quinine is known to have a specific effect upon the labyrinth.

Meningitis includes all persons returned as deaf from cerebro-spinal meningitis, meningitis (simply), or spotted fever. It is probable that brain fever is the same thing under another name; but the number of cases returned under this head seems to be sufficiently large to justify the retention of brain fever as a specific cause.

Catarrh and colds probably constitute one and the same disease; but the number of cases of deafness due to colds seems to be large enough to demand separate recognition.

Among the assigned causes of deafness in the classified cases, the following are specially predominant: Catarrh and colds, 14,776; scarlet fever, 7,424; meningitis and brain fever, 6,004. These three causes alone include the majority of the classified cases (58.8 per cent).

From Diagram 34 it appears that among the unclassified cases the principal assigned causes are:

| | | |
|---|---|---|
| Congenital | 14,472 | |
| Old age | 3,361 | |
| Military service | 3,242 | |
| Falls and blows | 2,243 | |
| Sickness | 2,143 | |
| Fever | 1,436 | |
| Hereditary | 909 | |
| | | 27,806 |
| Minor causes | | 3,399 |
| Aggregate unclassified | | 31,205 |

First in importance and overshadowing all of the others are the congenital cases—14,472 in number. These, with two others, tabulated under the head of "other causes unclassified," constitute the "deaf from birth"—14,474 cases.

It is unfortunate, considering the large numbers involved, that the assigned causes of deafness referred to in Diagram 34 are too vague to enable us to decide definitely the location or nature of the defect in the hearing apparatus.

Congenital deafness probably involves the internal ear, for the deaf from birth as a class are totally deaf. Falls and blows also are apt to produce injury to the internal ear. Those deaf from old age are, as a class, only partially deaf, so that in their case the internal ear is not incapacitated. It is probable that the defect relates chiefly to the external ear, resulting from impacted cerumen or thickening of the drum membrane. Military service may mean almost anything. Deafness due to the discharge of artillery would affect the internal ear; so would typhoid fever and malarial fever accompanied by quinine. Other diseases incident to military service, like catarrh and colds arising from exposure to the weather, might involve the middle ear. Sickness, fever, and hereditary causes would probably not involve the external ear, but might refer either to the middle ear or the internal ear.

If all the causes of deafness could be classified by their effect on the ear, it is probable that the proportions deaf from affections of the external ear and of the internal ear would be considerably increased, leading to a corresponding diminution in the proportion deaf from affections of the middle ear.

In Tables XXXIX and XL the classified causes of deafness, and the principal assigned causes, are presented in connection with their geographic distribution.

Table XXXIX shows, by geographic divisions and states and territories, the deaf from the classified causes, grouped according to the effect of the causes upon the ear.

TABLE XXXIX.—THE DEAF FROM CLASSIFIED CAUSES, BY EFFECT OF CAUSES UPON THE EAR, FOR STATES AND TERRITORIES.

| STATE OR TERRITORY. | ALL CLASSIFIED CAUSES. | | | | EXTERNAL EAR. | | | MIDDLE EAR. | | | INTERNAL EAR. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total. | External ear. | Middle ear. | Internal ear. | Impacted cerumen. | Foreign bodies in ear. | Miscellaneous. | Suppurative. | Nonsuppurative. | Miscellaneous. | Labyrinth. | Nerve. | Brain. | Miscellaneous. |
| Continental United States | 47,967 | 871 | 34,801 | 12,295 | 357 | 297 | 217 | 17,533 | 17,260 | 8 | 2,726 | 9,361 | 129 | 79 |
| North Atlantic division | 15,821 | 280 | 12,473 | 3,068 | 150 | 74 | 56 | 6,593 | 5,875 | 5 | 623 | 2,356 | 52 | 37 |
| New England | 4,979 | 80 | 4,182 | 717 | 43 | 16 | 21 | 2,127 | 2,054 | 1 | 176 | 520 | 17 | 4 |
| Maine | 693 | 11 | 613 | 69 | 3 | 1 | 7 | 316 | 297 | ..... | 21 | 47 | 1 | ..... |
| New Hampshire | 451 | 6 | 389 | 56 | 2 | ..... | 4 | 201 | 188 | ..... | 15 | 40 | ..... | 1 |
| [illegible] | 434 | 10 | 387 | 37 | 5 | 4 | 1 | 182 | 205 | ..... | 16 | 18 | 2 | 1 |
| [illegible] | 2,225 | 39 | 1,830 | 356 | 22 | 10 | 7 | 931 | 898 | 1 | 75 | 273 | 7 | 1 |
| [illegible] | 329 | 4 | 278 | 47 | 3 | ..... | 1 | 151 | 127 | ..... | 13 | 31 | 3 | ..... |
| Connecticut | 847 | 10 | 685 | 152 | 8 | 1 | 1 | 346 | 339 | ..... | 36 | 111 | 4 | 1 |
| Southern North Atlantic | 10,842 | 200 | 8,291 | 2,351 | 107 | 58 | 35 | 4,466 | 3,821 | 4 | 447 | 1,836 | 35 | 33 |
| New York | 5,511 | 94 | 4,187 | 1,230 | 49 | 31 | 14 | 2,161 | 2,023 | 3 | 235 | 951 | 23 | 21 |
| New Jersey | 1,278 | 36 | 1,023 | 219 | 21 | 7 | 8 | 562 | 461 | ..... | 62 | 154 | 2 | 1 |
| Pennsylvania | 4,053 | 70 | 3,081 | 902 | 37 | 20 | 13 | 1,743 | 1,337 | 1 | 150 | 731 | 10 | 11 |
| South Atlantic division | 4,534 | 118 | 3,245 | 1,171 | 42 | 44 | 32 | 1,738 | 1,506 | 1 | 383 | 778 | 8 | 2 |
| Northern South Atlantic | 2,603 | 62 | 1,923 | 618 | 27 | 23 | 12 | 1,059 | 864 | ..... | 171 | 443 | 3 | 1 |
| Delaware | 127 | 4 | 104 | 19 | 2 | 1 | 1 | 49 | 55 | ..... | 8 | 11 | ..... | ..... |
| [illegible] | 792 | 22 | 577 | 193 | 9 | 10 | 3 | 320 | 257 | ..... | 40 | 150 | 2 | 1 |
| [illegible] | 265 | 1 | 178 | 86 | 1 | ..... | ..... | 84 | 94 | ..... | 9 | 77 | ..... | ..... |
| Virginia | 832 | 24 | 604 | 204 | 13 | 7 | 4 | 332 | 272 | ..... | 82 | 121 | 1 | ..... |
| West Virginia | 587 | 11 | 460 | 116 | 2 | 5 | 4 | 274 | 186 | ..... | 32 | 84 | ..... | ..... |
| Southern South Atlantic | 1,931 | 56 | 1,322 | 553 | 15 | 21 | 20 | 679 | 642 | 1 | 212 | 335 | 5 | 1 |
| North Carolina | 588 | 12 | 421 | 155 | 3 | 5 | 4 | 238 | 183 | ..... | 53 | 98 | 4 | ..... |
| South Carolina | 333 | 21 | 205 | 107 | 6 | 9 | 6 | 99 | 106 | ..... | 48 | 58 | 1 | ..... |
| Georgia | 820 | 20 | 557 | 243 | 6 | 7 | 7 | 271 | 286 | ..... | 90 | 152 | ..... | 1 |
| Florida | 190 | 3 | 139 | 48 | ..... | ..... | 3 | 71 | 67 | 1 | 21 | 27 | ..... | ..... |
| North Central division | 19,553 | 293 | 13,519 | 5,741 | 105 | 109 | 79 | 6,474 | 7,043 | 2 | 906 | 4,760 | 47 | 28 |
| Eastern North Central | 12,511 | 160 | 8,688 | 3,663 | 50 | 57 | 53 | 4,139 | 4,547 | 2 | 555 | 3,059 | 27 | 22 |
| Ohio | 3,470 | 45 | 2,536 | 889 | 21 | 10 | 14 | 1,266 | 1,270 | ..... | 157 | 712 | 6 | 14 |
| Indiana | 2,205 | 28 | 1,371 | 806 | 9 | 7 | 12 | 628 | 743 | ..... | 118 | 680 | 6 | 2 |
| Illinois | 3,490 | 41 | 2,375 | 1,080 | 5 | 22 | 14 | 1,080 | 1,293 | 2 | 165 | 904 | 9 | 2 |
| [illegible] | 2,069 | 23 | 1,495 | 551 | 9 | 6 | 8 | 712 | 783 | ..... | 97 | 448 | 4 | 2 |
| [illegible] | 1,271 | 23 | 911 | 337 | 6 | 12 | 5 | 453 | 458 | ..... | 18 | 315 | 2 | 2 |
| Western North Central | 7,042 | 133 | 4,831 | 2,078 | 55 | 52 | 26 | 2,335 | 2,496 | ..... | 351 | 1,701 | 20 | 6 |
| Minnesota | 891 | 12 | 617 | 262 | 5 | 5 | 2 | 297 | 320 | ..... | 21 | 236 | 4 | 1 |
| Iowa | 1,795 | 36 | 1,275 | 484 | 14 | 18 | 4 | 574 | 701 | ..... | 78 | 402 | 2 | 2 |
| [illegible] | 2,128 | 43 | 1,354 | 731 | 17 | 15 | 11 | 680 | 674 | ..... | 139 | 585 | 4 | 3 |
| [illegible] | 128 | 6 | 88 | 34 | 6 | ..... | ..... | 46 | 42 | ..... | 3 | 30 | 1 | ..... |
| South Dakota | 232 | 5 | 168 | 59 | 1 | 1 | 3 | 85 | 83 | ..... | 6 | 50 | 3 | ..... |
| Nebraska | 694 | 15 | 514 | 165 | 8 | 6 | 1 | 271 | 243 | ..... | 24 | 138 | 3 | ..... |
| Kansas | 1,174 | 16 | 815 | 343 | 4 | 7 | 5 | 382 | 433 | ..... | 80 | 260 | 3 | ..... |
| South Central division | 5,664 | 129 | 3,861 | 1,674 | 40 | 51 | 38 | 2,002 | 1,859 | ..... | 648 | 1,009 | 13 | 4 |
| Eastern South Central | 3,110 | 61 | 2,155 | 894 | 15 | 28 | 18 | 1,141 | 1,014 | ..... | 327 | 558 | 7 | 2 |
| Kentucky | 1,242 | 25 | 835 | 382 | 11 | 7 | 7 | 447 | 388 | ..... | 93 | 285 | 3 | 1 |
| Tennessee | 895 | 15 | 665 | 215 | 2 | 9 | 4 | 352 | 313 | ..... | 83 | 128 | 3 | 1 |
| Alabama | 578 | 15 | 403 | 160 | 1 | 8 | 6 | 223 | 180 | ..... | 80 | 80 | ..... | ..... |
| Mississippi | 395 | 6 | 252 | 137 | 1 | 4 | 1 | 119 | 133 | ..... | 71 | 65 | 1 | ..... |
| Western South Central | 2,554 | 68 | 1,706 | 780 | 25 | 23 | 20 | 861 | 845 | ..... | 321 | 451 | 6 | 2 |
| Louisiana | 469 | 22 | 305 | 142 | 11 | 7 | 4 | 141 | 164 | ..... | 74 | 67 | 1 | ..... |
| Arkansas | 643 | 9 | 409 | 225 | ..... | 7 | 2 | 213 | 196 | ..... | 84 | 140 | 1 | ..... |
| Indian Territory | 135 | 3 | 86 | 46 | ..... | 1 | 2 | 44 | 42 | ..... | 18 | 26 | 1 | 1 |
| Oklahoma | 171 | 2 | 118 | 51 | 1 | ..... | 1 | 63 | 55 | ..... | 11 | 37 | 3 | ..... |
| Texas | 1,136 | 32 | 788 | 316 | 13 | 8 | 11 | 400 | 388 | ..... | 134 | 181 | ..... | 1 |
| Western division | 2,395 | 51 | 1,703 | 641 | 20 | 19 | 12 | 726 | 977 | ..... | 166 | 458 | 9 | 8 |
| Rocky Mountain | 589 | 25 | 423 | 141 | 11 | 11 | 3 | 178 | 245 | ..... | 30 | 104 | 2 | 5 |
| Montana | 80 | 2 | 55 | 23 | ..... | 2 | ..... | 29 | 26 | ..... | 5 | 13 | ..... | 5 |
| Idaho | 93 | 3 | 68 | 22 | 1 | 2 | ..... | 29 | 39 | ..... | 7 | 15 | ..... | ..... |
| Wyoming | 18 | ..... | 12 | 6 | ..... | ..... | ..... | 3 | 9 | ..... | 1 | 5 | ..... | ..... |
| Colorado | 307 | 10 | 228 | 69 | 5 | 2 | 3 | 88 | 140 | ..... | 10 | 59 | ..... | ..... |
| New Mexico | 91 | 10 | 60 | 21 | 5 | 5 | ..... | 29 | 31 | ..... | 7 | 12 | 2 | ..... |
| Basin and Plateau | 258 | 4 | 179 | 75 | 2 | 1 | 1 | 98 | 81 | ..... | 15 | 59 | 1 | ..... |
| Arizona | 28 | 2 | 17 | 9 | 1 | 1 | ..... | 11 | 6 | ..... | 1 | 7 | 1 | ..... |
| Utah | 194 | 1 | 136 | 57 | 1 | ..... | ..... | 77 | 59 | ..... | 10 | 47 | ..... | ..... |
| Nevada | 36 | 1 | 26 | 9 | ..... | ..... | 1 | 10 | 16 | ..... | 4 | 5 | ..... | ..... |
| Pacific | 1,548 | 22 | 1,101 | 425 | 7 | 7 | 8 | 450 | 651 | ..... | 121 | 295 | 6 | 3 |
| Washington | 252 | 5 | 160 | 87 | 1 | 1 | 3 | 64 | 96 | ..... | 10 | 73 | 4 | ..... |
| Oregon | 259 | 2 | 180 | 77 | ..... | 1 | 1 | 96 | 84 | ..... | 18 | 58 | ..... | 1 |
| California | 1,037 | 15 | 761 | 261 | 6 | 5 | 4 | 290 | 471 | ..... | 93 | 164 | 2 | 2 |

Table XL shows, by states and territories and geographic divisions, the deaf from the principal assigned causes, classified and unclassified.

TABLE XL.—THE DEAF, BY PRINCIPAL ASSIGNED CAUSES, FOR STATES AND TERRITORIES.

| STATE OR TERRITORY. | CLASSIFIED CAUSES. | | | | | | | | | | UNCLASSIFIED CAUSES. | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Scarlet fever. | Disease of ear. | Measles. | Influenza. | Catarrh. | Colds. | Malarial fever and quinine. | Meningitis. | Brain fever. | Typhoid fever. | Congenital. | Old age. | Military service. | Falls and blows. | Sickness. | Fever. | Hereditary. |
| Continental United States | 7,424 | 4,210 | 2,469 | 1,776 | 11,702 | 3,074 | 1,636 | 3,991 | 2,013 | 2,055 | 14,472 | 3,361 | 3,242 | 2,243 | 2,143 | 1,436 | 909 |
| North Atlantic division | 3,483 | 1,095 | 761 | 637 | 4,020 | 1,132 | 221 | 882 | 549 | 516 | 3,466 | 1,392 | 919 | 822 | 533 | 315 | 387 |
| New England | 1,077 | 409 | 241 | 202 | 1,440 | 355 | 57 | 168 | 104 | 130 | 950 | 527 | 254 | 255 | 126 | 116 | 146 |
| Maine | 137 | 84 | 44 | 29 | 213 | 37 | 6 | 9 | 15 | 10 | 186 | 51 | 50 | 36 | 14 | 20 | 19 |
| New Hampshire | 100 | 57 | 12 | 19 | 137 | 28 | 7 | 6 | 8 | 13 | 57 | 51 | 22 | 12 | 14 | 9 | 12 |
| Vermont | 88 | 31 | 18 | 24 | 153 | 33 | ..... | 3 | ..... | 9 | 29 | 52 | 41 | 20 | 8 | 12 | 15 |
| [illegible] | 464 | 175 | 99 | 93 | 597 | 180 | 15 | 103 | 49 | 64 | 432 | 256 | 109 | 127 | 55 | 46 | 70 |
| [illegible] | 85 | 25 | 22 | 7 | 94 | 19 | 4 | 9 | 8 | 5 | 56 | 28 | 16 | 16 | 9 | 8 | 10 |
| [illegible] | 203 | 37 | 46 | 30 | 246 | 58 | 25 | 38 | 24 | 29 | 190 | 89 | 16 | 44 | 26 | 21 | 20 |
| Southern North Atlantic | 2,406 | 686 | 520 | 435 | 2,580 | 777 | 164 | 714 | 445 | 386 | 2,516 | 865 | 665 | 567 | 407 | 199 | 241 |
| New York | 1,179 | 328 | 233 | 194 | 1,402 | 390 | 79 | 386 | 241 | 170 | 1,178 | 482 | 285 | 316 | 195 | 84 | 127 |
| New Jersey | 289 | 108 | 62 | 54 | 313 | 94 | 33 | 45 | 39 | 43 | 228 | 114 | 62 | 59 | 38 | 12 | 38 |
| Pennsylvania | 938 | 250 | 225 | 187 | 865 | 293 | 52 | 283 | 165 | 173 | 1,110 | 269 | 318 | 192 | 174 | 103 | 76 |
| South Atlantic division | 599 | 561 | 249 | 153 | 863 | 342 | 256 | 313 | 99 | 241 | 2,721 | 327 | 313 | 229 | 243 | 196 | 105 |
| Northern South Atlantic | 444 | 260 | 145 | 93 | 497 | 206 | 87 | 160 | 66 | 154 | 1,152 | 205 | 199 | 130 | 127 | 77 | 65 |
| Delaware | 20 | 5 | 10 | 6 | 35 | 14 | 4 | 1 | 3 | 5 | 36 | 7 | 9 | 7 | 7 | 1 | 5 |
| Maryland | 148 | 62 | 40 | 36 | 157 | 65 | 19 | 32 | 20 | 76 | 291 | 60 | 45 | 44 | 31 | 11 | 15 |
| District of Columbia | 49 | 11 | 8 | 8 | 58 | 27 | 6 | 40 | 11 | 17 | 51 | 58 | 28 | 17 | 13 | 7 | 2 |
| Virginia | 103 | 116 | 47 | 29 | 147 | 63 | 44 | 51 | 11 | 36 | 527 | 63 | 73 | 39 | 55 | 26 | 29 |
| West Virginia | 124 | 66 | 40 | 14 | 100 | 37 | 14 | 36 | 21 | 20 | 247 | 17 | 44 | 23 | 21 | 32 | 14 |
| Southern South Atlantic | 155 | 301 | 104 | 60 | 366 | 136 | 169 | 153 | 33 | 87 | 1,569 | 122 | 114 | 99 | 116 | 119 | 40 |
| North Carolina | 57 | 110 | 31 | 22 | 93 | 41 | 41 | 39 | 12 | 27 | 646 | 31 | 41 | 28 | 30 | 47 | 13 |
| South Carolina | 13 | 39 | 22 | 9 | 56 | 25 | 42 | 29 | 6 | 12 | 333 | 34 | 12 | 24 | 32 | 25 | 11 |
| Georgia | 66 | 115 | 44 | 25 | 183 | 50 | 68 | 74 | 14 | 39 | 502 | 49 | 49 | 40 | 46 | 38 | 16 |
| Florida | 19 | 37 | 7 | 4 | 34 | 20 | 18 | 11 | 1 | 9 | 88 | 8 | 12 | 7 | 8 | 9 | ..... |
| North Central division | 2,604 | 1,452 | 1,067 | 744 | 5,021 | 1,094 | 566 | 2,133 | 1,086 | 976 | 4,603 | 1,141 | 1,501 | 822 | 956 | 492 | 307 |
| Eastern North Central | 1,735 | 864 | 692 | 468 | 3,234 | 724 | 324 | 1,276 | 761 | 645 | 2,823 | 784 | 918 | 522 | 583 | 275 | 212 |
| Ohio | 529 | 248 | 207 | 143 | 900 | 183 | 86 | 243 | 197 | 178 | 790 | 236 | 314 | 142 | 112 | 76 | 68 |
| Indiana | 232 | 134 | 123 | 77 | 526 | 95 | 70 | 313 | 191 | 115 | 447 | 130 | 162 | 67 | 86 | 57 | 35 |
| Illinois | 415 | 261 | 181 | 125 | 918 | 227 | 108 | 400 | 220 | 168 | 706 | 229 | 215 | 172 | 197 | 81 | 57 |
| Michigan | 332 | 147 | 110 | 77 | 591 | 109 | 53 | 192 | 86 | 106 | 413 | 95 | 144 | 90 | 77 | 37 | 36 |
| Wisconsin | 227 | 74 | 71 | 46 | 299 | 110 | 7 | 128 | 67 | 78 | 467 | 94 | 83 | 51 | 111 | 24 | 16 |
| Western North Central | 869 | 588 | 375 | 276 | 1,787 | 370 | 242 | 857 | 325 | 331 | 1,780 | 357 | 583 | 300 | 373 | 217 | 95 |
| Minnesota | 140 | 54 | 32 | 39 | 213 | 72 | 9 | 85 | 59 | 69 | 325 | 40 | 51 | 43 | 85 | 15 | 13 |
| Iowa | 240 | 127 | 91 | 56 | 529 | 94 | 51 | 201 | 80 | 73 | 336 | 99 | 106 | 66 | 64 | 41 | 21 |
| Missouri | 197 | 232 | 109 | 87 | 477 | 85 | 105 | 353 | 92 | 92 | 578 | 111 | 185 | 81 | 95 | 84 | 32 |
| North Dakota | 18 | 10 | 9 | 4 | 28 | 10 | ..... | 9 | 11 | 4 | 48 | 3 | 8 | 8 | 15 | 4 | ..... |
| South Dakota | 38 | 22 | 8 | 8 | 53 | 17 | 2 | 18 | 6 | 16 | 52 | 8 | 11 | 19 | 27 | 7 | 5 |
| Nebraska | 110 | 51 | 51 | 31 | 165 | 45 | 10 | 62 | 31 | 28 | 161 | 45 | 65 | 30 | 36 | 21 | 10 |
| Kansas | 126 | 92 | 75 | 51 | 322 | 47 | 65 | 129 | 46 | 49 | 280 | 51 | 157 | 53 | 51 | 45 | 14 |
| South Central division | 431 | 931 | 303 | 171 | 1,155 | 288 | 504 | 460 | 192 | 217 | 3,164 | 339 | 394 | 243 | 326 | 357 | 85 |
| Eastern South Central | 274 | 500 | 177 | 100 | 585 | 159 | 252 | 241 | 111 | 134 | 1,832 | 216 | 234 | 125 | 155 | 201 | 55 |
| Kentucky | 140 | 164 | 73 | 35 | 216 | 58 | 73 | 105 | 64 | 78 | 630 | 91 | 90 | 46 | 48 | 91 | 20 |
| Tennessee | 88 | 146 | 50 | 35 | 180 | 45 | 54 | 64 | 24 | 25 | 554 | 42 | 78 | 22 | 42 | 67 | 20 |
| Alabama | 30 | 127 | 32 | 21 | 107 | 34 | 67 | 34 | 14 | 22 | 370 | 53 | 35 | 28 | 28 | 24 | 8 |
| Mississippi | 16 | 63 | 22 | 9 | 82 | 22 | 58 | 38 | 9 | 9 | 278 | 30 | 31 | 29 | 37 | 19 | 7 |
| Western South Central | 157 | 431 | 126 | 71 | 570 | 129 | 252 | 219 | 81 | 83 | 1,332 | 123 | 160 | 118 | 171 | 156 | 30 |
| Louisiana | 44 | 65 | 11 | 7 | 90 | 50 | 52 | 15 | 14 | 18 | 363 | 44 | 40 | 27 | 53 | 29 | 8 |
| Arkansas | 30 | 119 | 29 | 16 | 128 | 27 | 68 | 72 | 33 | 17 | 328 | 26 | 42 | 29 | 39 | 34 | 5 |
| Indian Territory | 7 | 25 | 6 | 3 | 28 | 4 | 15 | 14 | 8 | 2 | 43 | 1 | 3 | 3 | 5 | 10 | 1 |
| Oklahoma | 17 | 16 | 17 | 6 | 37 | 9 | 7 | 23 | 7 | 5 | 51 | 3 | 14 | 4 | 5 | 8 | 2 |
| Texas | 59 | 206 | 63 | 39 | 287 | 39 | 110 | 95 | 19 | 41 | 547 | 49 | 61 | 55 | 69 | 75 | 14 |
| Western division | 307 | 171 | 89 | 71 | 643 | 218 | 89 | 203 | 87 | 105 | 518 | 162 | 115 | 127 | 85 | 76 | 25 |
| Rocky Mountain | 72 | 40 | 23 | 19 | 161 | 47 | 16 | 55 | 12 | 23 | 149 | 49 | 37 | 40 | 17 | 27 | 3 |
| Montana | 14 | 4 | 3 | 6 | 17 | 5 | 4 | 7 | 2 | 1 | 16 | 1 | 4 | 3 | 3 | 6 | ..... |
| Idaho | 13 | 7 | 3 | 2 | 25 | 10 | 3 | 8 | 1 | 6 | 17 | 2 | 5 | 5 | 3 | 2 | ..... |
| Wyoming | 1 | ..... | ..... | 1 | 6 | 1 | ..... | 1 | 3 | 1 | 2 | ..... | 3 | ..... | ..... | ..... | 1 |
| Colorado | 37 | 13 | 16 | 10 | 97 | 26 | 6 | 34 | 6 | 12 | 52 | 11 | 17 | 15 | 7 | 8 | ..... |
| New Mexico | 7 | 16 | 1 | ..... | 16 | 5 | 3 | 5 | ..... | 3 | 62 | 35 | 8 | 17 | 4 | 11 | 2 |
| Basin and Plateau | 43 | 22 | 10 | 8 | 48 | 19 | 7 | 32 | 7 | 19 | 64 | 16 | 13 | 13 | 16 | 13 | 2 |
| Arizona | 4 | 7 | ..... | ..... | 4 | ..... | 1 | 3 | 3 | 1 | 5 | 2 | 5 | 2 | 2 | 1 | ..... |
| Utah | 35 | 12 | 9 | 7 | 35 | 15 | 4 | 27 | 3 | 16 | 54 | 10 | 6 | 11 | 10 | 12 | 2 |
| Nevada | 4 | 3 | 1 | 1 | 9 | 4 | 2 | 2 | 1 | 2 | 5 | 4 | 2 | ..... | 4 | ..... | ..... |
| Pacific | 192 | 109 | 56 | 44 | 434 | 152 | 66 | 116 | 68 | 63 | 305 | 97 | 65 | 74 | 52 | 36 | 20 |
| Washington | 26 | 17 | 8 | 5 | 70 | 14 | 5 | 35 | 20 | 14 | 48 | 9 | 8 | 4 | 7 | 4 | 5 |
| Oregon | 42 | 18 | 20 | 8 | 55 | 18 | 8 | 24 | 13 | 13 | 52 | 7 | 16 | 18 | 13 | 7 | 1 |
| California | 124 | 74 | 28 | 31 | 309 | 120 | 53 | 57 | 35 | 36 | 205 | 81 | 41 | 52 | 32 | 25 | 14 |

Table XLI gives the ratio per million of total population for certain classes of deaf shown in Tables XXXIX and XL.

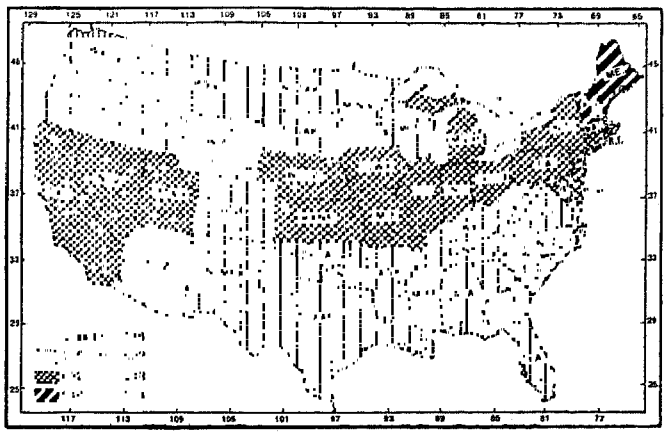
TABLE XLI.—NUMBER OF DEAF FROM SPECIFIED CAUSES PER MILLION OF TOTAL POPULATION, BY STATES AND TERRITORIES.

| STATE OR TERRITORY. | NUMBER OF DEAF FROM SPECIFIED CAUSE PER 1,000,000 POPULATION. | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | All classified causes. | Middle ear. | Middle ear: Suppurative. | Scarlet fever. | Middle ear: Non-suppurative. | Catarrh and colds. | Internal ear. | Labyrinth. | Nerve. | Meningitis and brain fever. | Congenital. |
| Continental United States | 631 | 458 | 231 | 98 | 227 | 194 | 162 | 36 | 123 | 79 | 190 |
| North Atlantic division | 752 | 593 | 313 | 165 | 279 | 245 | 146 | 30 | 112 | 68 | 165 |
| New England | 890 | 748 | 380 | 193 | 367 | 321 | 128 | 31 | 93 | 49 | 170 |
| Maine | 998 | 883 | 455 | 197 | 428 | 360 | 99 | 30 | 68 | 34 | 267 |
| New Hampshire | 1,096 | 945 | 488 | 245 | 457 | 400 | 136 | 36 | 97 | 35 | 140 |
| Vermont | 1,263 | 1,126 | 530 | 256 | 597 | 540 | 108 | 47 | 52 | 9 | 86 |
| Massachusetts | 793 | 652 | 332 | 165 | 320 | 277 | 127 | 27 | 97 | 54 | 154 |
| Rhode Island | 768 | 649 | 352 | 197 | 296 | 262 | 110 | 30 | 72 | 39 | 130 |
| Connecticut | 932 | 754 | 381 | 223 | 373 | 334 | 167 | 40 | 122 | 68 | 209 |
| Southern North Atlantic | 702 | 536 | 289 | 156 | 247 | 217 | 152 | 29 | 119 | 75 | 163 |
| New York | 758 | 576 | 297 | 162 | 278 | 246 | 169 | 32 | 131 | 86 | 162 |
| New Jersey | 678 | 543 | 298 | 154 | 245 | 216 | 116 | 33 | 82 | 45 | 121 |
| Pennsylvania | 643 | 489 | 277 | 149 | 212 | 184 | 143 | 24 | 116 | 71 | 176 |
| South Atlantic division | 434 | 311 | 166 | 57 | 144 | 115 | 112 | 37 | 74 | 39 | 261 |
| Northern South Atlantic | 583 | 431 | 237 | 99 | 194 | 157 | 138 | 38 | 99 | 51 | 258 |
| Delaware | 687 | 563 | 265 | 111 | 298 | 265 | 103 | 43 | 60 | 22 | 196 |
| Maryland | 667 | 486 | 269 | 124 | 216 | 187 | 162 | 34 | 126 | 43 | 244 |
| District of Columbia | 951 | 639 | 301 | 174 | 337 | 304 | 309 | 32 | 276 | 184 | 184 |
| Virginia | 449 | 326 | 179 | 55 | 147 | 113 | 110 | 44 | 65 | 33 | 284 |
| West Virginia | 612 | 480 | 286 | 129 | 194 | 143 | 121 | 33 | 83 | 59 | 257 |
| Southern South Atlantic | 323 | 221 | 114 | 26 | 107 | 84 | 92 | 35 | 56 | 31 | 262 |
| North Carolina | 310 | 222 | 126 | 30 | 97 | 71 | 82 | 28 | 52 | 27 | 341 |
| South Carolina | 248 | 153 | 74 | 10 | 79 | 61 | 80 | 36 | 43 | 26 | 248 |
| Georgia | 370 | 251 | 122 | 30 | 129 | 105 | 110 | 41 | 69 | 40 | 227 |
| Florida | 359 | 263 | 134 | 36 | 127 | 102 | 91 | 40 | 51 | 22 | 166 |
| North Central division | 743 | 513 | 246 | 99 | 267 | 232 | 218 | 34 | 181 | 122 | 175 |
| Eastern North Central | 783 | 543 | 259 | 109 | 284 | 248 | 229 | 35 | 191 | 127 | 177 |
| Ohio | 835 | 610 | 305 | 127 | 305 | 261 | 214 | 38 | 171 | 106 | 190 |
| Indiana | 876 | 545 | 250 | 92 | 295 | 243 | 320 | 47 | 270 | 200 | 178 |
| Illinois | 725 | 493 | 224 | 86 | 268 | 237 | 224 | 34 | 187 | 128 | 146 |
| Michigan | 855 | 618 | 294 | 137 | 323 | 289 | 228 | 40 | 185 | 115 | 170 |
| Wisconsin | 614 | 440 | 219 | 110 | 221 | 198 | 103 | 9 | 152 | 94 | 226 |
| Western North Central | 681 | 467 | 226 | 84 | 241 | 208 | 201 | 34 | 164 | 114 | 172 |
| Minnesota | 509 | 352 | 170 | 80 | 183 | 163 | 150 | 12 | 135 | 82 | 186 |
| Iowa | 804 | 571 | 257 | 108 | 314 | 275 | 217 | 35 | 180 | 125 | 154 |
| Missouri | 685 | 436 | 219 | 64 | 217 | 363 | 235 | 45 | 188 | 143 | 186 |
| North Dakota | 401 | 276 | 144 | 56 | 132 | 119 | 107 | 9 | 94 | 63 | 150 |
| South Dakota | 578 | 418 | 212 | 92 | 207 | 170 | 147 | 15 | 125 | 57 | 127 |
| Nebraska | 651 | 482 | 254 | 103 | 228 | 197 | 155 | 23 | 129 | 87 | 151 |
| Kansas | 798 | 554 | 260 | 85 | 294 | 251 | 233 | 54 | 177 | 119 | 191 |
| South Central division | 402 | 274 | 142 | 31 | 132 | 102 | 119 | 46 | 72 | 46 | 225 |
| Eastern South Central | 412 | 286 | 151 | 36 | 134 | 99 | 118 | 43 | 74 | 47 | 243 |
| Kentucky | 578 | 389 | 208 | 65 | 181 | 127 | 178 | 43 | 133 | 79 | 294 |
| Tennessee | 443 | 329 | 174 | 43 | 155 | 111 | 106 | 41 | 63 | 43 | 274 |
| Alabama | 316 | 220 | 122 | 17 | 98 | 77 | 87 | 44 | 44 | 26 | 202 |
| Mississippi | 255 | 162 | 77 | 11 | 86 | 67 | 88 | 46 | 42 | 30 | 179 |
| Western South Central | 391 | 261 | 132 | 24 | 129 | 107 | 119 | 49 | 69 | 46 | 204 |
| Louisiana | 339 | 221 | 102 | 32 | 119 | 101 | 103 | 54 | 48 | 21 | 163 |
| Arkansas | 490 | 312 | 162 | 23 | 149 | 118 | 172 | 64 | 107 | 80 | 250 |
| Indian Territory | 344 | 219 | 112 | 18 | 107 | 83 | 117 | 46 | 66 | 55 | 110 |
| Oklahoma | 429 | 296 | 158 | 43 | 138 | 115 | 128 | 28 | 93 | 75 | 128 |
| Texas | 373 | 258 | 131 | 20 | 127 | 107 | 104 | 44 | 59 | 38 | 180 |
| Western division | 585 | 416 | 177 | 75 | 239 | 210 | 157 | 41 | 112 | 71 | 127 |
| Rocky Mountain | 478 | 343 | 144 | 58 | 199 | 169 | 114 | 24 | 84 | 54 | 121 |
| Montana | 329 | 226 | 119 | 58 | 107 | 90 | 95 | 21 | 53 | 38 | 64 |
| Idaho | 575 | 420 | 179 | 80 | 241 | 217 | 136 | 43 | 93 | 56 | 106 |
| Wyoming | 195 | 130 | 32 | 10 | 97 | 80 | 65 | 11 | 54 | 40 | 20 |
| Colorado | 569 | 422 | 163 | 69 | 259 | 227 | 128 | 19 | 109 | 74 | 96 |
| New Mexico | 466 | 307 | 148 | 35 | 159 | 105 | 108 | 36 | 61 | 25 | 315 |
| Basin and Plateau | 584 | 405 | 222 | 97 | 183 | 152 | 170 | 34 | 133 | 88 | 145 |
| Arizona | 228 | 138 | 80 | 32 | 49 | 30 | 73 | 8 | 57 | 48 | 41 |
| Utah | 701 | 491 | 278 | 127 | 213 | 180 | 206 | 36 | 170 | 107 | 194 |
| Nevada | 850 | 614 | 236 | 95 | 378 | 300 | 213 | 94 | 118 | 70 | 120 |
| Pacific | 641 | 456 | 186 | 79 | 269 | 242 | 176 | 50 | 122 | 76 | 126 |
| Washington | 486 | 309 | 124 | 50 | 185 | 162 | 168 | 19 | 141 | 106 | 92 |
| Oregon | 626 | 435 | 232 | 102 | 203 | 177 | 186 | 44 | 140 | 90 | 127 |
| California | 698 | 512 | 195 | 83 | 317 | 289 | 176 | 63 | 110 | 62 | 137 |

Table XLI is illustrated by the series of shaded maps constituting Maps 4 to 9, inclusive, showing the ratio per million of population in each state and territory reported as deaf from the specified causes.

In 47,967 cases the assigned causes of deafness have been classified by their effect upon the ear, and Map 4 shows approximately the proportion of the population in each state or territory who lost hearing from the classified causes.

MAP 4.—*Number of deaf from classified causes per million of population, by states and territories.*



Four grades of shading are employed: The second indicates a proportion double that shown by the first; the third, three times that proportion; and the fourth, four times—at least approximately. The largest proportion deaf from the classified causes, indicated by the fourth or heaviest shading, is found in the territory covered by Maine, New Hampshire, and Vermont. The territory covered by the third grade of shading abuts upon this and extends westward as a narrow tongue as far as Nebraska and Kansas—including these states. The next, or second, shading extends pretty uniformly over the rest of the country (excluding the Western division), except in the states of North Carolina, South Carolina, and Mississippi. The states composing the Western division, with the exception of California, have very small populations, so that the ratios deaf have not the same significance as in the case of the older and more thickly settled states, since the addition or subtraction of a mere handful of deaf would make an appreciable change in the ratios.

*Broad groups.*—It appears that the states having the largest ratios deaf from affections of the middle ear compose a territory covering the New England states and the states bordering on the Great Lakes (New York, Ohio, and Michigan), with an outlying territory in Iowa. The largest ratios of all are found in Maine, New Hampshire, and Vermont, and the smallest in the Southern states.

The largest ratios deaf from affections of the internal ear are found in a territory covering the North Central division of the United States (except Minnesota, North Dakota, South Dakota, and Nebraska), with outlying extensions in New York, Maryland, Kentucky, and Arkansas. The largest ratio of all is found in Indiana, and the smallest, if Arizona be disregarded, in South Carolina.

*Subgroups.*—Maps 5 and 6 show, in contrast, the geographic distribution of the deaf who lost hearing from suppurative and nonsuppurative (or catarrhal) affections of the middle ear; and Maps 7 and 8 relate to deafness caused by affections of the labyrinth and auditory nerve.

*Principal assigned causes.*—Map 9 shows the geographic distribution of the congenital (unclassified) deaf.

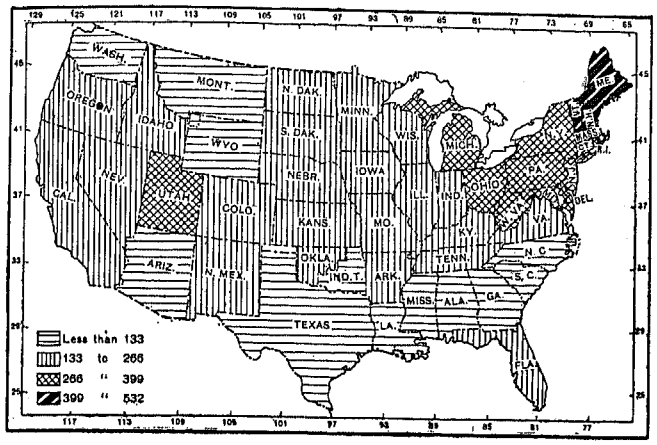
The larger ratios, congenitally deaf, prevail over the greater portion of the country (excluding the Western division); and the largest ratios are found in a group of states comprising Kentucky, Tennessee, Virginia, and North Carolina, with a detached area in Maine. The largest ratio of all is found in North Carolina.

Map 10 shows the average percentage of sunshine in the states and territories during a period of 31 years (1870 to 1901), from records compiled by the United States Weather Bureau under the direction of Prof. Willis L. Moore.

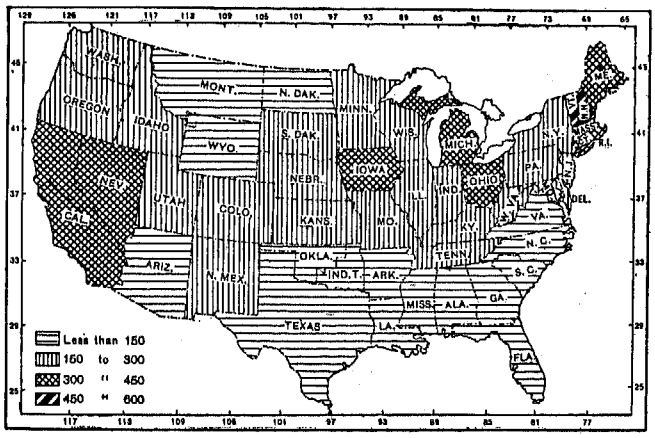
It is noteworthy that the area of country having the least percentage of sunshine corresponds very closely to the area showing the largest ratios deaf from affections of the middle ear. We would naturally expect that a cold, damp climate would favor the production of catarrhal affections of the middle ear (Map 6), but the sunshine map corresponds more closely with the map showing the geographic distribution of affections of the suppurative variety (Map 5) caused principally by scarlet fever.

Maps 11 and 12 relate to the geographic distribution of the totally deaf from early childhood (under 5), all of whom naturally are deaf and dumb, distinguishing the congenital cases (Map 11) from the noncongenital (Map 12).

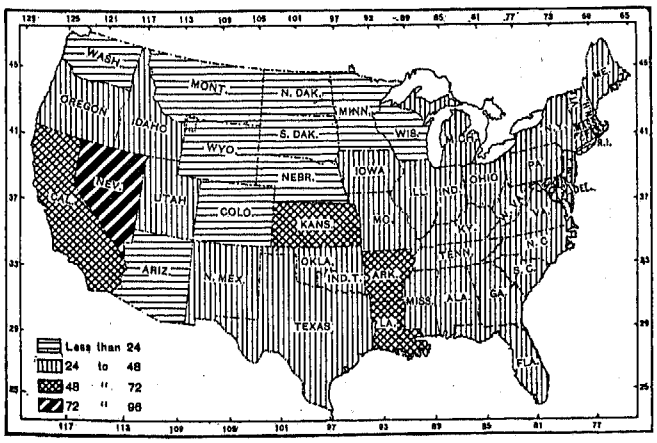
MAP 5.—*Number of deaf from suppurative affections of middle ear per million of population, by states and territories.*



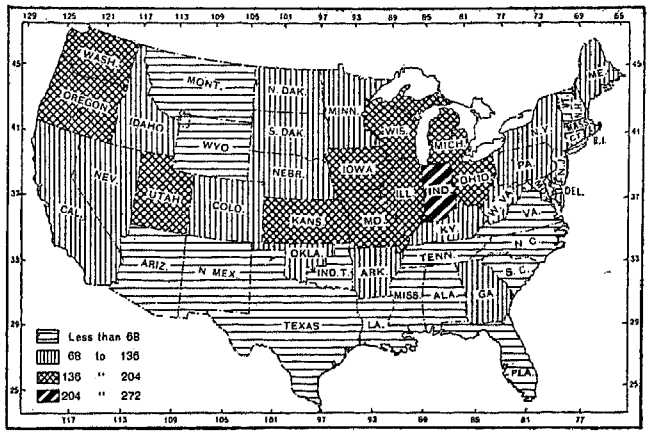

MAP 6.—*Number of deaf from catarrhal affections of middle ear per million of population, by states and territories.*



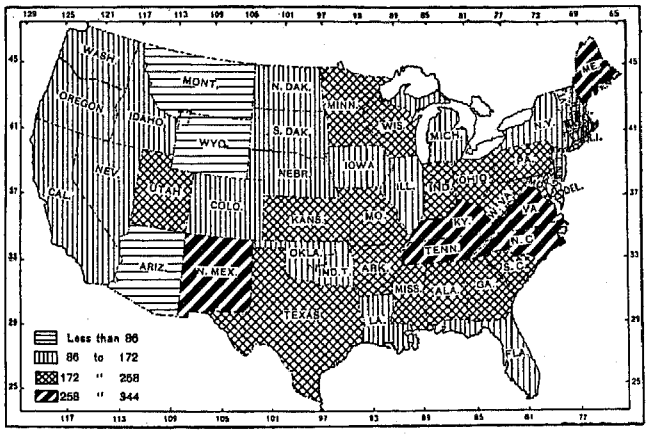

MAP 7.—*Number of deaf from affections of the labyrinth per million of population, by states and territories.*



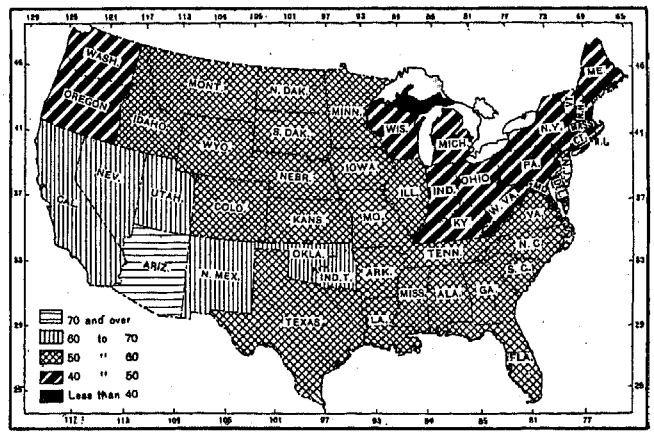

MAP 8.—*Number of deaf from affections of the auditory nerve per million of population, by states and territories.*



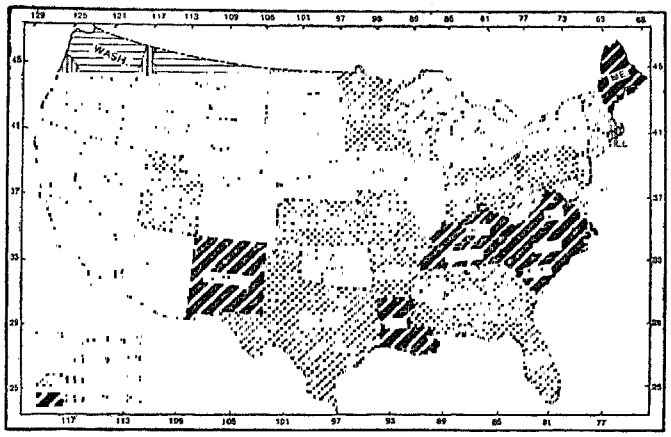

MAP 9.—*Number of congenital deaf per million of population, by states and territories.*




MAP 10.—*Per cent of sunshine in each state and territory, 1870 to 1891, inclusive.*



MAP 11.—*Number of totally deaf from birth (congenital) per million of population, by states and territories.*



MAP 12.—*Number of totally deaf from early childhood under 5, (non-congenital) per million of population, by states and territories.*

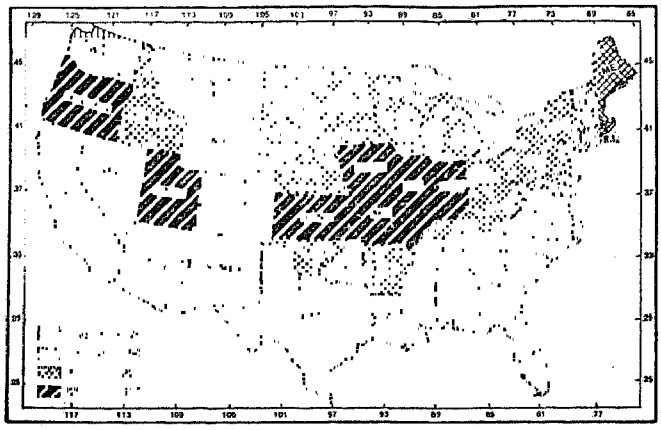


Table XLII shows the deaf from the specified causes, by the age and period of life when deafness occurred.

TABLE XLII.—THE DEAF, BY PERIOD OF LIFE AND AGE WHEN DEAFNESS OCCURRED AND CAUSES OF DEAFNESS.

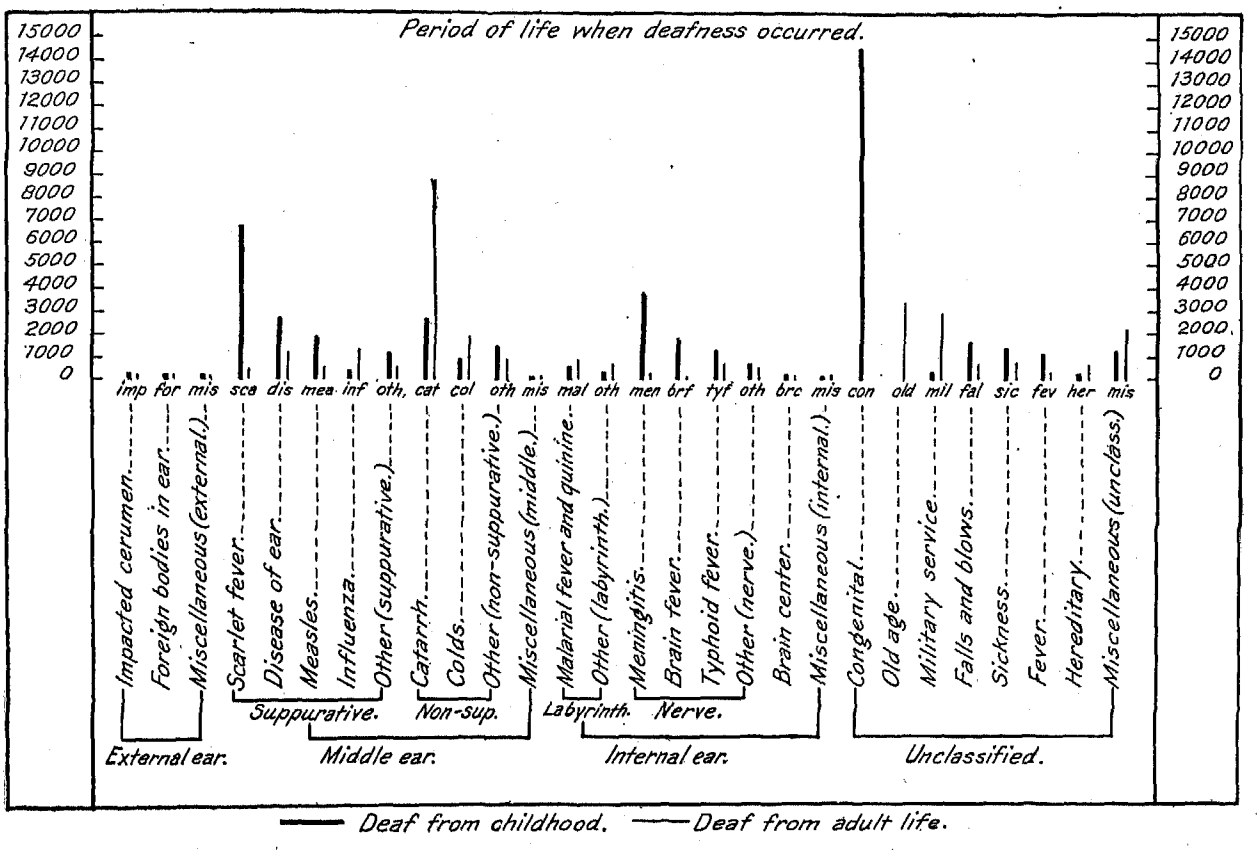
| CAUSE OF DEAFNESS. | Total. | PERIOD OF LIFE WHEN DEAFNESS OCCURRED. | | | AGE WHEN DEAFNESS OCCURRED. | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Under 20. | | | | | | | 20 and over. | | | | |
| | | Childhood (under 20). | Adult life (20 and over). | Unknown. | Birth. | After birth, under 2. | 2 and under 5. | 5 and under 10. | 10 and under 15. | 15 and under 20. | Not stated. | 20 and under 40. | 40 and under 60. | 60 and under 80. | 80 and over. | Not stated. |
| All causes | 89,287 | 50,296 | 35,924 | 3,067 | 14,474 | 7,396 | 10,536 | 7,018 | 4,464 | 4,061 | 2,347 | 16,588 | 9,437 | 6,595 | 1,021 | 2,283 |
| Classified | | | | | | | | | | | | | | | | |
| Unclassified | | | | | | | | | | | | | | | | |
| Unknown | 10,115 | 2,749 | 5,649 | 1,717 | ..... | 347 | 560 | 374 | 382 | 373 | 713 | 1,845 | 1,929 | 1,323 | 93 | 459 |
| Classified: | | | | | | | | | | | | | | | | |
| External ear | 871 | 484 | 364 | 23 | ..... | 73 | 89 | 93 | 111 | 96 | 22 | 185 | 110 | 54 | 1 | 14 |
| Impacted cerumen | 357 | 200 | 147 | 10 | ..... | 10 | 17 | 32 | 68 | 65 | 8 | 89 | 34 | 17 | ..... | 7 |
| Foreign bodies in ear | 297 | 149 | 142 | 6 | ..... | 15 | 34 | 40 | 25 | 27 | 8 | 69 | 55 | 15 | ..... | 3 |
| Miscellaneous (external ear) | 217 | 135 | 75 | 7 | ..... | 48 | 38 | 21 | 18 | 4 | 6 | 27 | 21 | 22 | 1 | 4 |
| Middle ear | 34,801 | 18,205 | 15,787 | 809 | ..... | 3,479 | 5,204 | 3,798 | 2,496 | 2,159 | 1,069 | 8,229 | 4,534 | 2,405 | 171 | 448 |
| Suppurative | 17,533 | 13,054 | 4,159 | 320 | ..... | 2,632 | 4,289 | 3,045 | 1,490 | 872 | 726 | 2,072 | 1,107 | 791 | 81 | 108 |
| Scarlet fever | 7,424 | 6,851 | 454 | 119 | ..... | 928 | 2,633 | 2,017 | 719 | 249 | 305 | 344 | 74 | 13 | ..... | 23 |
| Disease of ear | 4,210 | 2,834 | 1,278 | 98 | ..... | 864 | 724 | 388 | 334 | 241 | 283 | 666 | 373 | 183 | 19 | 37 |
| Measles | 2,469 | 1,925 | 511 | 33 | ..... | 424 | 508 | 405 | 279 | 234 | 75 | 412 | 76 | 10 | 1 | 12 |
| Influenza | 1,776 | 388 | 1,344 | 44 | ..... | 116 | 91 | 74 | 51 | 41 | 15 | 320 | 413 | 525 | 57 | 29 |
| Other (suppurative) | 1,654 | 1,056 | 572 | 26 | ..... | 300 | 333 | 161 | 107 | 107 | 48 | 330 | 171 | 60 | 4 | 7 |
| Nonsuppurative | 17,260 | 5,149 | 11,623 | 488 | ..... | 847 | 914 | 753 | 1,006 | 1,287 | 342 | 6,156 | 3,424 | 1,614 | 90 | 339 |
| Catarrh | 11,702 | 2,718 | 8,646 | 338 | ..... | 234 | 308 | 404 | 676 | 899 | 197 | 4,668 | 2,515 | 1,149 | 60 | 254 |
| Colds | 3,074 | 984 | 1,989 | 101 | ..... | 181 | 195 | 123 | 176 | 240 | 69 | 990 | 588 | 337 | 21 | 53 |
| Other (nonsuppurative) | 2,484 | 1,447 | 988 | 49 | ..... | 432 | 411 | 226 | 154 | 148 | 76 | 498 | 321 | 128 | 9 | 32 |
| Miscellaneous (middle ear) | 8 | 2 | 5 | 1 | ..... | ..... | 1 | ..... | ..... | ..... | 1 | 1 | 3 | ..... | ..... | 1 |
| Internal ear | 12,295 | 8,825 | 3,286 | 184 | ..... | 2,196 | 3,104 | 1,865 | 852 | 615 | 193 | 1,828 | 933 | 422 | 33 | 70 |
| Labyrinth | 2,726 | 971 | 1,669 | 86 | ..... | 154 | 232 | 172 | 171 | 201 | 41 | 881 | 514 | 226 | 11 | 37 |
| Malarial fever and quinine | 1,636 | 665 | 944 | 27 | ..... | 133 | 174 | 102 | 103 | 124 | 29 | 530 | 281 | 113 | 8 | 12 |
| Other (labyrinth) | 1,090 | 306 | 725 | 59 | ..... | 21 | 58 | 70 | 68 | 77 | 12 | 351 | 233 | 113 | 3 | 25 |
| Nerve | 9,361 | 7,712 | 1,567 | 82 | ..... | 1,989 | 2,830 | 1,679 | 672 | 405 | 137 | 926 | 404 | 187 | 19 | 31 |
| Meningitis | 3,991 | 3,868 | 106 | 17 | ..... | 958 | 1,566 | 848 | 317 | 120 | 59 | 86 | 16 | 3 | ..... | 1 |
| Brain fever | 2,013 | 1,933 | 69 | 11 | ..... | 609 | 723 | 402 | 127 | 50 | 22 | 48 | 18 | 2 | 1 | ..... |
| Typhoid fever | 2,055 | 1,211 | 823 | 21 | ..... | 129 | 327 | 340 | 192 | 199 | 24 | 600 | 172 | 43 | 1 | 7 |
| Other (nerve) | 1,302 | 700 | 569 | 33 | ..... | 293 | 214 | 89 | 36 | 36 | 32 | 192 | 198 | 139 | 17 | 23 |
| Brain center for hearing | 129 | 111 | 13 | 5 | ..... | 45 | 33 | 12 | 5 | 5 | 11 | 6 | 3 | 2 | ..... | 2 |
| Miscellaneous (internal ear) | 79 | 31 | 37 | 11 | ..... | 8 | 9 | 2 | 4 | 4 | 4 | 15 | 12 | 7 | 3 | ..... |
| Unclassified: | | | | | | | | | | | | | | | | |
| Congenital | 14,472 | 14,472 | ..... | | 14,472 | | | | | | | | | | | |
| Old age | 3,361 | ..... | 3,361 | | | | | | | | | | | | | |
| Military service | 3,242 | 292 | 2,864 | | | | | | | | | | | | | |
| Falls and blows | 2,243 | 1,528 | 671 | | | | | | | | | | | | | |
| Sickness | 2,143 | 1,339 | 715 | | | | | | | | | | | | | |
| Fever | 1,436 | 1,050 | 363 | | | | | | | | | | | | | |
| Hereditary | 909 | 209 | 676 | | | | | | | | | | | | | |
| Miscellaneous (unclassified) | 3,399 | 1,143 | 2,188 | | | | | | | | | | | | | |

It will be seen from Table XLII that the number deaf from childhood exceeds the number deaf from adult life in each of the three broad groups—external ear, middle ear, and internal ear. This predominance is especially marked where deafness resulted from affections of the internal ear.

The deaf from childhood predominate among those deaf from suppurative affections of the middle ear and affections of the auditory nerve, and the deaf from adult life predominate in the case of nonsuppurative affections of the middle ear and affections of the labyrinth.

In Diagram 35 the principal assigned causes are considered in connection with the period of life when deafness occurred.

DIAGRAM 35.



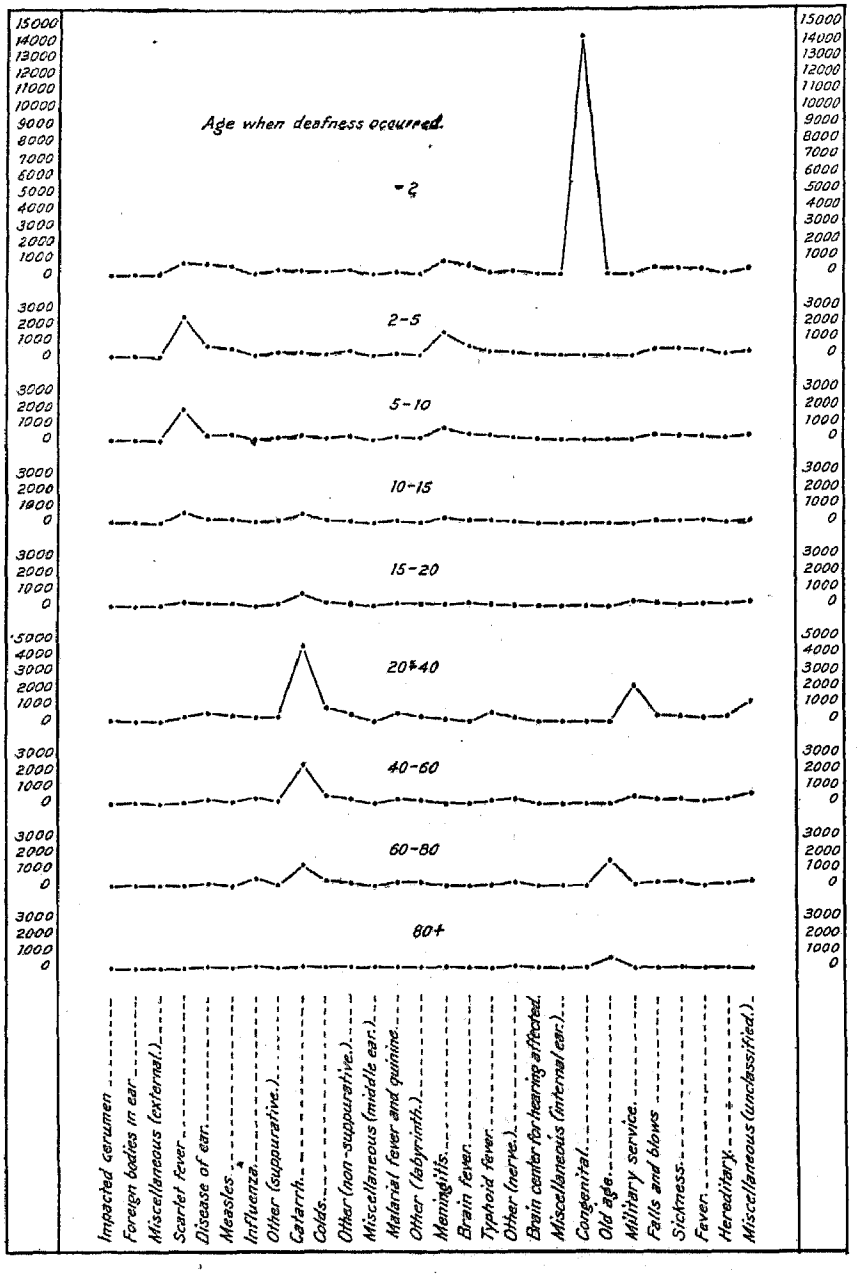

From Diagram 35 it is clearly seen that the predominant causes of deafness are different in the case of deaf from childhood and the deaf from adult life. Scarlet fever, meningitis, and brain fever, which are among the leading causes of deafness occurring in childhood, are comparatively insignificant as causes of deafness occurring in adult life. On the other hand, catarrh, colds, and influenza, which are the leading causes of deafness occurring in adult life, are of lesser importance as causes of deafness in childhood. Catarrh is reported as the cause (of deafness) in over 35 per cent (35.1) of the assigned causes of deafness occurring in adult life. Among the unclassified causes it is somewhat noteworthy that most of the "hereditary" cases lost hearing in adult life, and that none of them were born deaf.

The difference between the deaf from childhood and the deaf from adult life may be illustrated by giving in each case the principal assigned causes among the classified cases, in the order of their importance, as follows:

| | |
|---|---|
| Deaf from childhood: | |
| Scarlet fever | 6,857 |
| Meningitis and brain fever | 5,801 |
| Catarrh and colds | 3,702 |
| Disease of ear | 2,834 |
| Measles | 1,925 |
| Typhoid fever | 1,211 |
| Malarial fever and quinine | 665 |
| Influenza | 388 |
| Deaf from adult life: | |
| Catarrh and colds | 10,635 |
| Influenza | 1,344 |
| Disease of ear | 1,278 |
| Malarial fever and quinine | 944 |
| Typhoid fever | 823 |
| Measles | 511 |
| Scarlet fever | 454 |
| Meningitis and brain fever | 175 |

In Diagram 36 the principal assigned causes are considered in connection with the age when deafness occurred.

DIAGRAM 36.




*Under 2.*—The congenitally deaf form the mass of those who lost hearing before the age of 2, and among the noncongenital cases scarlet fever, disease of ear, measles, meningitis, and brain fever seem to predominate slightly over the other causes assigned.

*2 and under 5.*—Scarlet fever and meningitis stand out prominently as causes of deafness occurring at this period. Disease of the ear and brain fever are next in importance. It is interesting to note that over 65 per cent of the cases due to brain fever occur before the age of 5.

*5 and under 10.*—Where deafness occurred between 5 and 10 years of age, scarlet fever is markedly the leading cause, and meningitis only slightly predominates over the other causes.

*10 and under 15.*—No single cause seems to be predominant in a marked degree. Scarlet fever and catarrh are slightly conspicuous. Meningitis is less conspicuous than in the preceding groups.

*15 and under 20.*—Catarrh now takes the lead, but only slightly, and scarlet fever and meningitis no longer appear as conspicuous causes.

*20 and under 40.*—Deafness occurring in adult life between the ages of 20 and 40 seems to be due chiefly to catarrh. A considerable number, however, report deafness as caused by military service. Malarial fever and quinine, and typhoid fever, which are also slightly conspicuous, are more prominent at this period than at any other.

*40 and under 60.*—The only conspicuous cause is catarrh, but it is less conspicuous than in the preceding age period.

*60 and under 80.*—Deafness occurring between the ages of 60 and 80 is chiefly recorded as due to old age, although catarrh still shows conspicuously, but in a much less marked degree than in the two preceding age periods.

*80 and over.*—The only conspicuous cause assigned for deafness occurring at this period is old age. Two-thirds of the cases occurring after 80 years of age are due to this cause.

In relation to the four principal assigned causes of deafness it may be noted that congenital deafness occurs exclusively at birth, and deafness due to catarrh almost exclusively in adult life. Meningitis produces deafness chiefly before the age of 5 and scarlet fever before the age of 10.

Table XLIII shows the percentage deaf from childhood and from adult life for each of the principal assigned causes.

From Table XLIII it is seen that in affections of the middle ear the proportion deaf from adult life more nearly approaches the proportion deaf from childhood than in either of the other two broad groups, although the proportions in the several causes under affections of the middle ear vary greatly. The proportion deaf from childhood is largest in affections of the internal ear, being over 70 per cent of the total number of such cases. In only one of the leading causes under this group does the proportion deaf from adult life exceed that of the deaf from childhood, namely, in malarial fever and quinine.

TABLE XLIII.—*Per cent distribution of the deaf, by degree of deafness, period of life when deafness occurred, and principal causes.*

| CAUSE. | PER CENT DISTRIBUTION OF THE DEAF BY— | | | | |
|---|---|---|---|---|---|
| | Degree of deafness. | | Period of life when deafness occurred. | | |
| | Totally deaf. | Partially deaf. | Deaf from childhood. | Deaf from adult life. | Unknown. |
| All causes | 41.9 | 58.1 | 56.3 | 40.2 | 3.5 |
| Affections of external ear | 23.8 | 76.2 | 55.6 | 41.8 | 2.6 |
| Affections of middle ear | 29.4 | 70.6 | 52.3 | 45.4 | 2.3 |
| Scarlet fever | 55.8 | 44.2 | 92.3 | 6.1 | 1.6 |
| Disease of ear | 32.4 | 67.6 | 67.3 | 30.4 | 2.3 |
| Measles | 38.6 | 61.4 | 78.0 | 20.7 | 1.3 |
| Influenza | 15.4 | 84.6 | 21.8 | 75.7 | 2.5 |
| Catarrh | 11.6 | 88.4 | 23.2 | 73.9 | 2.9 |
| Colds | 18.9 | 81.1 | 32.0 | 64.7 | 3.3 |
| Affections of internal ear | 62.9 | 37.1 | 71.8 | 26.7 | 1.5 |
| Malarial fever and quinine | 26.8 | 73.2 | 40.6 | 57.7 | 1.7 |
| | 90.4 | 9.6 | 96.9 | 2.7 | 0.4 |
| | 86.6 | 13.4 | 96.0 | 3.4 | 0.6 |
| | 44.2 | 55.8 | 58.9 | 40.1 | 1.0 |
| Unclassified | 54.3 | 45.7 | 64.2 | 34.7 | 1.1 |
| Congenital | 87.1 | 12.9 | 100.0 | ..... | ..... |
| Old age | 3.4 | 96.6 | ..... | 100.0 | ..... |
| Military service | 11.6 | 88.4 | 9.0 | 88.3 | 2.7 |
| Falls and blows | 46.8 | 53.2 | 68.1 | 29.9 | 2.0 |
| Sickness | 46.8 | 53.2 | 62.5 | 33.4 | 4.1 |
| Fever | 52.8 | 47.2 | 73.1 | 25.3 | 1.6 |
| Hereditary | 13.4 | 86.6 | 23.0 | 74.4 | 2.6 |

More than 90 per cent of the deafness from scarlet fever, meningitis, and brain fever, more than 75 per cent of the deafness due to measles, and over 65 per cent of the deafness due to disease of the ear occurred in childhood; on the other hand, more than 60 per cent of the deafness from influenza, catarrh, and colds occurred in adult life.

Among the unclassified cases about 75 per cent of the "hereditary" cases lost hearing in adult life. It is noteworthy that over 70 per cent of the deafness due to fever, over 65 per cent of the cases due to falls and blows, and over 60 per cent of the cases due to sickness occurred in childhood. It is interesting also to note that 9 per cent of the deafness due to military service occurred in childhood (under 20 years).

In Table XLIV the deaf are considered by causes of deafness in relation to degree of deafness, deaf relatives, and consanguinity of parents.

TABLE XLIV.—THE DEAF, BY DEGREE OF DEAFNESS, DEAF RELATIVES, CONSANGUINITY OF PARENTS, AND CAUSES OF DEAFNESS.

| CAUSE OF DEAFNESS. | Total. | DEGREE OF DEAFNESS. | | DEAF RELATIVES.[1] | | | CONSANGUINITY OF PARENTS. | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Totally deaf. | Partially deaf. | *a*, *b*, or *c* relatives. | No *a*, *b*, or *c* relatives. | Not stated. | Parents cousins. | Parents notcousins. | Not stated. |
| All causes | 89,287 | 37,426 | 51,861 | 26,221 | 54,260 | 8,806 | 4,065 | 75,530 | 9,692 |
| Classified | 47,967 | 18,164 | 29,803 | 13,389 | 31,212 | 3,366 | 1,610 | 42,705 | 3,652 |
| Unclassified | 31,205 | 16,950 | 14,255 | 9,998 | 18,031 | 3,176 | 2,183 | 25,281 | 3,741 |
| Unknown | 10,115 | 2,312 | 7,803 | 2,834 | 5,017 | 2,264 | 272 | 7,544 | 2,299 |
| Classified: | | | | | | | | | |
| External ear | 871 | 207 | 664 | 237 | 559 | 75 | 29 | 760 | 82 |
| Impacted cerumen | 357 | 71 | 286 | 105 | 226 | 26 | 3 | 324 | 30 |
| Foreign bodies in ear | 297 | 50 | 247 | 79 | 191 | 27 | 9 | 256 | 32 |
| Miscellaneous (external ear) | 217 | 86 | 131 | 53 | 142 | 22 | 17 | 180 | 20 |
| Middle ear | 34,801 | 10,227 | 24,574 | 10,950 | 21,285 | 2,566 | 1,238 | 30,824 | 2,739 |
| [illegible] | 17,533 | 7,390 | 10,143 | 4,551 | 11,809 | 1,173 | 738 | 15,510 | 1,285 |
| [illegible] | 7,424 | 4,145 | 3,279 | 1,608 | 5,394 | 422 | 285 | 6,647 | 492 |
| [illegible] | 4,210 | 1,365 | 2,845 | 1,316 | 2,601 | 293 | 222 | 3,683 | 305 |
| Measles | 2,469 | 953 | 1,516 | 682 | 1,642 | 145 | 101 | 2,194 | 174 |
| Influenza | 1,776 | 273 | 1,503 | 468 | 1,099 | 209 | 45 | 1,524 | 207 |
| Other (suppurative) | 1,654 | 654 | 1,000 | 477 | 1,073 | 104 | 85 | 1,462 | 107 |
| Nonsuppurative | 17,260 | 2,836 | 14,424 | 6,397 | 9,474 | 1,389 | 500 | 15,309 | 1,451 |
| Catarrh | 11,702 | 1,354 | 10,348 | 4,701 | 6,050 | 951 | 304 | 10,450 | 948 |
| Colds | 3,074 | 580 | 2,494 | 860 | 1,926 | 288 | 81 | 2,666 | 327 |
| Other (nonsuppurative) | 2,484 | 902 | 1,582 | 836 | 1,498 | 150 | 115 | 2,193 | 176 |
| Miscellaneous (middle ear) | 8 | 1 | 7 | 2 | 2 | 4 | ..... | 5 | 3 |
| [illegible] | 12,295 | 7,730 | 4,565 | 2,202 | 9,368 | 725 | 343 | 11,121 | 831 |
| [illegible] | 2,726 | 661 | 2,065 | 721 | 1,783 | 222 | 88 | 2,365 | 273 |
| [illegible] | 1,636 | 439 | 1,197 | 456 | 1,061 | 119 | 67 | 1,427 | 142 |
| [illegible] | 1,090 | 222 | 868 | 265 | 722 | 103 | 21 | 938 | 131 |
| Nerve | 9,361 | 6,931 | 2,430 | 1,457 | 7,432 | 472 | 251 | 8,582 | 528 |
| Meningitis | 3,991 | 3,609 | 382 | 446 | 3,400 | 145 | 83 | 3,741 | 167 |
| Brain fever | 2,013 | 1,744 | 269 | 260 | 1,670 | 83 | 59 | 1,859 | 95 |
| Typhoid fever | 2,055 | 908 | 1,147 | 515 | 1,410 | 130 | 60 | 1,839 | 156 |
| Other (nerve) | 1,302 | 670 | 632 | 236 | 952 | 114 | 49 | 1,143 | 110 |
| Brain center for hearing | 129 | 96 | 33 | 13 | 103 | 13 | 4 | 112 | 13 |
| Miscellaneous (internal ear) | 79 | 42 | 37 | 11 | 50 | 18 | ..... | 62 | 17 |
| Unclassified: | | | | | | | | | |
| Congenital | 14,472 | 12,607 | 1,865 | 6,155 | 7,273 | 1,044 | 1,710 | 11,322 | 1,440 |
| Old age | 3,361 | 115 | 3,246 | 399 | 1,934 | 1,028 | 38 | 2,369 | 954 |
| Military service | 3,242 | 375 | 2,867 | 536 | 2,440 | 266 | 40 | 2,897 | 305 |
| Falls and blows | 2,243 | 1,050 | 1,193 | 449 | 1,626 | 168 | 95 | 1,933 | 215 |
| Sickness | 2,143 | 1,002 | 1,141 | 418 | 1,511 | 214 | 80 | 1,786 | 277 |
| Fever | 1,436 | 758 | 678 | 292 | 1,051 | 93 | 62 | 1,257 | 117 |
| Hereditary | 909 | 122 | 787 | 850 | 19 | 40 | 57 | 799 | 53 |
| Miscellaneous (unclassified) | 3,399 | 921 | 2,478 | 899 | 2,177 | 323 | 101 | 2,918 | 380 |

[1] Symbols for deaf relatives—*a*, deaf brothers, sisters, or ancestors; *b*, deaf uncles, aunts, cousins, or other relatives not *a*, *c*, or *d*; *c*, deaf children (sons or daughters); *d*, deaf husbands or wives.

The results contained in Table XLIV relating to total and partial deafness are shown graphically in Diagram 37 (page 123).

*Broad groups.*—It appears that affections of the middle ear result chiefly in partial deafness, and affections of the internal ear chiefly in total deafness.

*Subgroups.*—Suppurative affections of the middle ear appear to be much more productive of total deafness than nonsuppurative, or catarrhal, affections. Affections of the labyrinth result chiefly in partial deafness and affections of the auditory nerve in total deafness.

*Principal assigned causes.*—From Diagram 37 it appears that of the diseases affecting the middle ear, scarlet fever seems to be the only one producing total deafness in a majority of the cases. Catarrh produces chiefly partial deafness. Of the diseases affecting the internal ear, meningitis and brain fever produce chiefly total deafness.

In regard to the unclassified causes, the deafness is chiefly total among the congenital cases and partial among those deaf from old age, military service, or hereditary causes.

More than 80 per cent of those deaf from influenza, catarrh, or colds were only partially deaf, and more than 80 per cent were totally deaf among those deaf from meningitis, brain fever, and among the congenital cases. More than 85 per cent were only partially deaf among those deaf from old age, military service, or hereditary causes.

In Table XLV the deaf are shown by causes of deafness, in relation to sex, race, and nativity of the whites.

DIAGRAM 37.

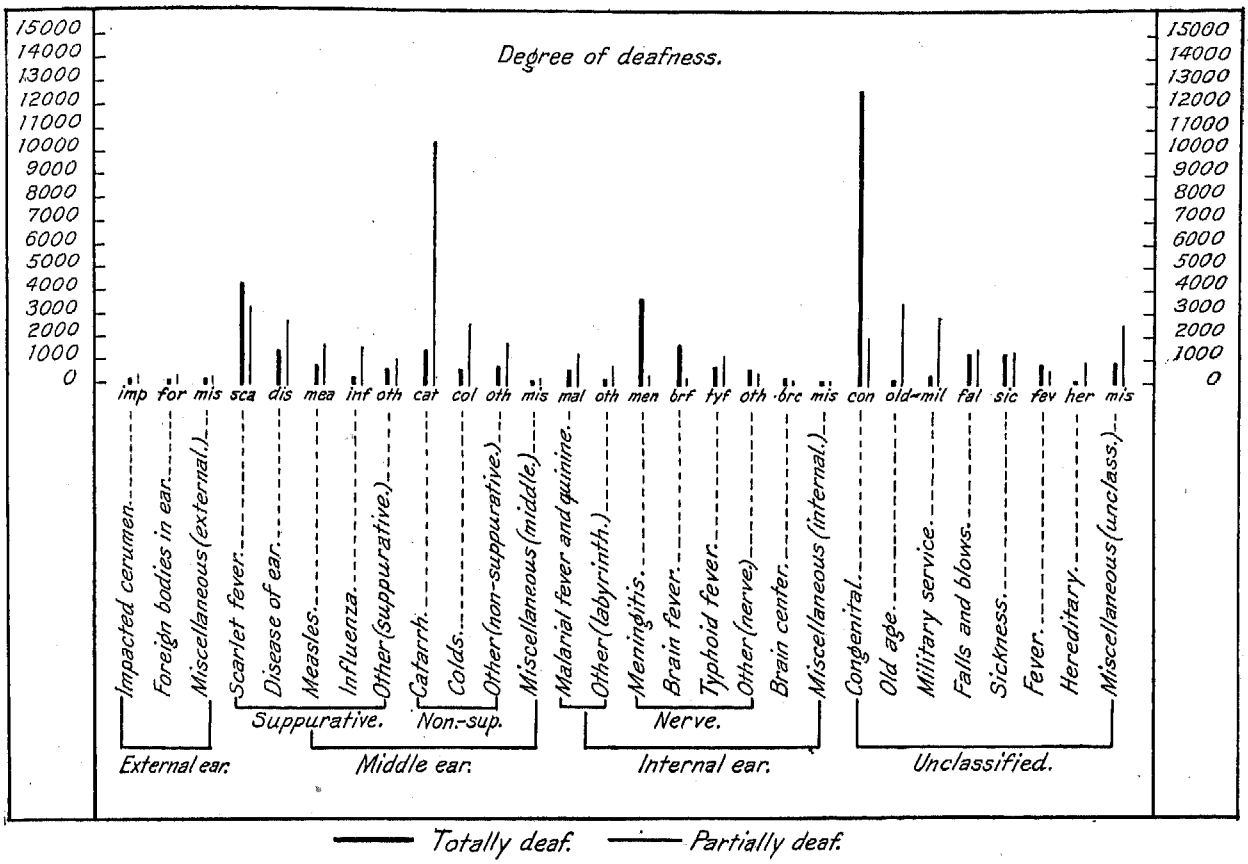



TABLE XLV.—THE DEAF, BY SEX, RACE, NATIVITY OF WHITES, AND CAUSES OF DEAFNESS.

| CAUSE OF DEAFNESS. | Total. | SEX. | | RACE. | | NATIVITY OF WHITES. | | | COLORED. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Male. | Female. | White. | Colored. | Native. | Foreign. | Unknown. | Negro. | Indian. | Mongolian. |
| All causes | 89,287 | 46,915 | 42,372 | 84,361 | 4,926 | 69,865 | 13,786 | 710 | 4,649 | 273 | 4 |
| [illegible] | 47,967 | 23,979 | 23,988 | 46,441 | 1,526 | 39,777 | 6,400 | 264 | 1,439 | 87 | ..... |
| [illegible] | 31,205 | 17,720 | 13,485 | 28,467 | 2,738 | 23,104 | 5,055 | 308 | 2,586 | 150 | 2 |
| [illegible] | 10,115 | 5,216 | 4,899 | 9,453 | 662 | 6,984 | 2,331 | 138 | 624 | 36 | 2 |
| Classified: | | | | | | | | | | | |
| External ear | 871 | 546 | 325 | 807 | 64 | 638 | 165 | 4 | 58 | 6 | ..... |
| Impacted cerumen | 357 | 276 | 81 | 340 | 17 | 253 | 85 | 2 | 13 | 4 | ..... |
| Foreign bodies in ear | 297 | 157 | 140 | 269 | 28 | 214 | 53 | 2 | 27 | 1 | ..... |
| Miscellaneous (external ear) | 217 | 113 | 104 | 198 | 19 | 171 | 27 | ..... | 18 | 1 | ..... |
| Middle ear | 34,801 | 16,241 | 18,560 | 33,968 | 833 | 29,033 | 4,768 | 167 | 770 | 63 | ..... |
| Suppurative | 17,533 | 8,133 | 9,400 | 17,060 | 473 | 14,950 | 1,994 | 116 | 442 | 31 | ..... |
| Scarlet fever | 7,424 | 3,497 | 3,927 | 7,329 | 95 | 6,389 | 887 | 53 | 89 | 6 | ..... |
| Disease of ear | 4,210 | 2,063 | 2,147 | 3,993 | 217 | 3,625 | 345 | 23 | 202 | 15 | ..... |
| Measles | 2,469 | 1,098 | 1,371 | 2,397 | 72 | 2,135 | 242 | 20 | 67 | 5 | ..... |
| Influenza | 1,776 | 762 | 1,014 | 1,740 | 36 | 1,417 | 314 | 9 | 34 | 2 | ..... |
| Other (suppurative) | 1,654 | 713 | 941 | 1,601 | 53 | 1,384 | 206 | 11 | 50 | 3 | ..... |
| Nonsuppurative | 17,260 | 8,106 | 9,154 | 16,900 | 360 | 14,078 | 2,771 | 51 | 328 | 32 | ..... |
| Catarrh | 11,702 | 5,565 | 6,137 | 11,568 | 134 | 10,047 | 1,496 | 25 | 118 | 16 | ..... |
| Colds | 3,074 | 1,387 | 1,687 | 2,967 | 107 | 1,954 | 1,007 | 6 | 98 | 9 | ..... |
| Other (nonsuppurative) | 2,484 | 1,154 | 1,330 | 2,365 | 119 | 2,077 | 268 | 20 | 112 | 7 | ..... |
| Miscellaneous (middle ear) | 8 | 2 | 6 | 8 | ..... | 5 | 3 | ..... | ..... | ..... | ..... |
| Internal ear | 12,295 | 7,192 | 5,103 | 11,666 | 629 | 10,106 | 1,467 | 93 | 611 | 18 | ..... |
| Labyrinth | 2,726 | 1,698 | 1,028 | 2,474 | 252 | 2,065 | 402 | 7 | 250 | 2 | ..... |
| Malarial fever and quinine | 1,636 | 846 | 790 | 1,439 | 197 | 1,296 | 139 | 4 | 196 | 1 | ..... |
| Other (labyrinth) | 1,090 | 852 | 238 | 1,035 | 55 | 769 | 263 | 3 | 54 | 1 | ..... |
| Nerve | 9,361 | 5,371 | 3,990 | 8,991 | 370 | 7,875 | 1,030 | 86 | 358 | 12 | ..... |
| Meningitis | 3,991 | 2,355 | 1,636 | 3,824 | 167 | 3,648 | 118 | 58 | 165 | 2 | ..... |
| Brain fever | 2,013 | 1,189 | 824 | 1,965 | 48 | 1,703 | 251 | 11 | 47 | 1 | ..... |
| Typhoid fever | 2,055 | 1,054 | 1,001 | 1,961 | 94 | 1,516 | 432 | 13 | 91 | 3 | ..... |
| Other (nerve) | 1,302 | 773 | 529 | 1,241 | 61 | 1,008 | 229 | 4 | 55 | 6 | ..... |
| Brain center for hearing | 129 | 75 | 54 | 124 | 5 | 104 | 20 | ..... | 2 | 3 | ..... |
| Miscellaneous (internal ear) | 79 | 48 | 31 | 77 | 2 | 62 | 15 | ..... | 1 | 1 | ..... |
| Unclassified: | | | | | | | | | | | |
| Congenital | 14,472 | 7,668 | 6,804 | 12,789 | 1,683 | 11,371 | 1,180 | 238 | 1,616 | 66 | 1 |
| Old age | 3,361 | 1,727 | 1,634 | 3,181 | 180 | 2,081 | 1,094 | 6 | 167 | 13 | ..... |
| Military service | 3,242 | 3,231 | 11 | 3,130 | 112 | 2,517 | 609 | 4 | 109 | 3 | ..... |
| Falls and blows | 2,243 | 1,417 | 826 | 2,046 | 197 | 1,473 | 558 | 15 | 183 | 14 | ..... |
| Sickness | 2,143 | 1,020 | 1,123 | 1,907 | 236 | 1,348 | 543 | 16 | 200 | 35 | 1 |
| Fever | 1,436 | 764 | 672 | 1,318 | 118 | 1,087 | 219 | 12 | 111 | 7 | ..... |
| Hereditary | 909 | 429 | 480 | 894 | 15 | 791 | 98 | 5 | 15 | ..... | ..... |
| Miscellaneous (unclassified) | 3,399 | 1,464 | 1,935 | 3,202 | 197 | 2,436 | 754 | 12 | 185 | 12 | ..... |

Table XLVI shows the approximate percentage of the deaf of each class included in Tables XLII, XLIV, and XLV who lost hearing from the specified causes.

TABLE XLVI.[1]—PER CENT DEAF FROM EACH SPECIFIED CAUSE, BY PERIOD OF LIFE WHEN DEAFNESS OCCURRED, DEGREE OF DEAFNESS, SEX, RACE, DEAF RELATIVES, AND CONSANGUINITY OF PARENTS.

| CAUSE OF DEAFNESS. | Total. | PERIOD OF LIFE WHEN DEAFNESS OCCURRED. | | DEGREE OF DEAFNESS. | | SEX. | | RACE. | | | | | | DEAF RELATIVES. | | CONSANGUINITY OF PARENTS. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Total. | | White. | | Colored. | | | | | |
| | | Childhood (under 20). | Adult life (20 and over). | Totally deaf. | Partially deaf. | Male. | Female. | White. | Colored. | Native. | Foreign born. | Negro. | Indian. | a, b, c relatives. | No a, b, c relatives. | Parents cousins. | Parents not cousins. |
| All causes | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Classified | 53 | 54 | 54 | 48 | 57 | 51 | 56 | 55 | 30 | 56 | 46 | 30 | 32 | 51 | 57 | 39 | 56 |
| Unclassified | 34 | 39 | 30 | 45 | 27 | 37 | 31 | 33 | 55 | 33 | 36 | 55 | 55 | 38 | 33 | 53 | 33 |
| Unknown | 11 | 5 | 15 | 6 | 15 | 11 | 11 | 11 | 13 | 9 | 16 | 13 | 13 | 10 | 9 | 6 | 9 |
| Classified: | | | | | | | | | | | | | | | | | |
| External ear | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 2 | 0 | 1 | 0 | 1 |
| Impacted cerumen | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| Foreign bodies in ear | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Miscellaneous (external ear) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Middle ear | 38 | 36 | 43 | 27 | 47 | 34 | 43 | 40 | 16 | 41 | 34 | 16 | 23 | 41 | 39 | 30 | 40 |
| Suppurative | 19 | 25 | 11 | 19 | 19 | 17 | 22 | 20 | 9 | 21 | 14 | 9 | 11 | 17 | 21 | 18 | 20 |
| Scarlet fever | 8 | 13 | 1 | 11 | 6 | 7 | 9 | 8 | 1 | 9 | 6 | 1 | 2 | 6 | 9 | 7 | 8 |
| Disease of ear | 4 | 5 | 3 | 3 | 5 | 4 | 5 | 4 | 4 | 5 | 2 | 4 | 5 | 5 | 4 | 5 | 4 |
| Measles | 2 | 3 | 1 | 2 | 2 | 2 | 3 | 2 | 1 | 3 | 1 | 1 | 2 | 2 | 3 | 2 | 2 |
| Influenza | 1 | 0 | 3 | 0 | 2 | 1 | 2 | 2 | 0 | 2 | 2 | 0 | 1 | 1 | 2 | 1 | 2 |
| Other (suppurative) | 1 | 2 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 1 |
| Nonsuppurative | 19 | 10 | 32 | 7 | 27 | 17 | 21 | 20 | 7 | 20 | 20 | 7 | 12 | 24 | 17 | 12 | 20 |
| Catarrh | 13 | 5 | 24 | 3 | 19 | 11 | 14 | 13 | 2 | 14 | 10 | 2 | 6 | 17 | 11 | 7 | 13 |
| Colds | 3 | 1 | 5 | 1 | 4 | 2 | 3 | 3 | 2 | 2 | 7 | 2 | 3 | 3 | 3 | 2 | 3 |
| Other (nonsuppurative) | 2 | 2 | 2 | 2 | 3 | 2 | 3 | 2 | 2 | 2 | 1 | 2 | 2 | 3 | 2 | 2 | 2 |
| Miscellaneous (middle ear) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ..... | 0 | 0 | ..... | ..... | 0 | 0 | ..... | 0 |
| Internal ear | 13 | 17 | 9 | 20 | 8 | 15 | 12 | 13 | 12 | 14 | 10 | 13 | 6 | 8 | 17 | 8 | 14 |
| [illegible] | 3 | 1 | 4 | 1 | 3 | 3 | 2 | 2 | 5 | 2 | 2 | 5 | 1 | 2 | 3 | 2 | 3 |
| [illegible] | 1 | 1 | 2 | 1 | 2 | 1 | 1 | 1 | 4 | 1 | 1 | 4 | 0 | 1 | 1 | 1 | 1 |
| Other (labyrinth) | 1 | 0 | 2 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| Nerve | 10 | 15 | 4 | 18 | 4 | 11 | 9 | 10 | 7 | 11 | 7 | 7 | 4 | 5 | 13 | 6 | 11 |
| Meningitis | 4 | 7 | 0 | 9 | 0 | 5 | 3 | 4 | 3 | 5 | 0 | 3 | 1 | 1 | 6 | 2 | 4 |
| Brain fever | 2 | 3 | 0 | 4 | 0 | 2 | 1 | 2 | 0 | 2 | 1 | 1 | 0 | 0 | 3 | 1 | 2 |
| Typhoid fever | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 3 | 1 | 1 | 1 | 2 | 1 | 2 |
| Other (nerve) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 0 | 1 | 1 | 1 |
| Brain center for hearing | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| Miscellaneous (internal ear) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ..... | 0 |
| Unclassified: | | | | | | | | | | | | | | | | | |
| Congenital | 16 | 28 | ..... | 33 | 3 | 16 | 16 | 15 | 34 | 16 | 8 | 34 | 24 | 23 | 13 | 42 | 14 |
| Old age | 3 | ..... | 9 | 0 | 6 | 3 | 3 | 3 | 3 | 2 | 7 | 3 | 5 | 1 | 3 | 0 | 3 |
| Military service | 3 | 0 | 7 | 1 | 5 | 6 | 0 | 3 | 2 | 3 | 4 | 2 | 1 | 2 | 4 | 1 | 3 |
| Falls and blows | 2 | 3 | 1 | 2 | 2 | 3 | 1 | 2 | 4 | 2 | 4 | 3 | 5 | 1 | 2 | 2 | 2 |
| Sickness | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 4 | 1 | 3 | 4 | 13 | 1 | 2 | 1 | 2 |
| Fever | 1 | 2 | 1 | 2 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 2 | 2 | 1 | 1 | 1 | 1 |
| Hereditary | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | ..... | 3 | 0 | 1 | 1 |
| Miscellaneous (unclassified) | 3 | 2 | 6 | 2 | 4 | 3 | 4 | 3 | 4 | 3 | 5 | 4 | 4 | 3 | 4 | 2 | 3 |

[1] In this table the cipher "0" indicates less than 1 per cent; the figure "1" indicates 1 and less than 2 per cent; the figure "2," 2 and less than 3 per cent, etc.

*Period of life when deafness occurred.*—Table XLVI shows that the percentage deaf from suppurative affections of the middle ear is more than twice as great among the deaf from childhood as among the deaf from adult life, and the proportion deaf from affections of the auditory nerve more than three times as great.

On the other hand, the proportion deaf from nonsuppurative or catarrhal affections of the middle ear is more than three times as great among the deaf from adult life as among those deaf from childhood.

*Degree of deafness.*—The percentage congenitally deaf is eleven times as great among the totally as among the partially deaf, and the proportion deaf from affections of the auditory nerve more than four times as great. On the other hand, the percentage deaf from nonsuppurative or catarrhal affections of the middle ear is nearly four times as great among the partially as among the totally deaf.

*Sex.*—The percentage deaf from affections of the internal ear is greater among males than females, and the proportion deaf from affections of the middle ear greater among females than males. The proportion born deaf and deaf from old age is about the same in either case. Military service and falls and blows are of course responsible for a greater proportion of cases among the males than the females.

*Race.*—The percentage deaf from affections of the middle ear is more than twice as great among the whites as among the colored. In the case of scarlet fever, eight times as great. On the other hand, the proportion deaf from malarial fever and quinine is four times as great among the colored as among the whites; and the proportion born deaf more than twice as great.

*Nativity of whites.*—The percentage deaf from the specified causes are larger among the native whites than the foreign born excepting in the case of colds,

typhoid fever, old age, military service, falls and blows, and sickness. An extremely small percentage of the foreign born lost hearing from meningitis.

*Colored races.*—The proportion born deaf and deaf from affections of the internal ear is greater among the negroes than among the Indians; and the proportion deaf from affections of the middle ear, old age, falls and blows, and indefinite "sickness" greater among the Indians than the negroes. More than 4 per cent of the negroes lost hearing from malarial fever and quinine, and less than 1 per cent of the Indians.

*Deaf relatives.*—The percentage born deaf and deaf from disease of ear, catarrh, and from "hereditary" causes is greater among those who have deaf relatives than among those who have not; and the percentage deaf from meningitis, brain fever, typhoid fever, old age, military service, falls and blows, and sickness is less.

*Consanguinity of parents.*—The most striking feature seems to be the large proportion congenitally deaf among those whose parents were cousins. The percentage congenitally deaf is nearly three times as great among those whose parents were cousins as among those whose parents were not; the percentage deaf from disease of ear is also larger, but only slightly. The percentage deaf from scarlet fever is less, but not to any great extent; and the percentage deaf from catarrh, though considerably less, is sufficiently great to give catarrh prominence among the assigned causes of deafness, both where the parents were cousins and where they were not.

Meningitis, old age, and military service are not at all prominent where the parents were cousins, but moderately so where they were not.

Out of a total of 89,287 deaf, 4,065, 4.5 per cent of the total or 5.1 per cent of those answering, reported that their parents were cousins; 75,530, 84.6 per cent of the total or 94.9 per cent of those answering, reported that their parents were not cousins; and in 9,692 cases, or 10.9 per cent of the whole, the question was not answered. Therefore at least 4.5 per cent of the deaf are the offspring of cousin-marriages.

Table XLVII shows the age and period of life when deafness occurred, the degree of deafness, and the deaf having deaf relatives, by consanguinity of parents, with the percentages resulting.

TABLE XLVII.—NUMBER AND PER CENT OF DEAF, BY AGE WHEN DEAFNESS OCCURRED, DEGREE OF DEAFNESS, DEAF RELATIVES, AND CONSANGUINITY OF PARENTS.

| AGE OR PERIOD OF LIFE WHEN DEAFNESS OCCURRED, DEGREE OF DEAFNESS, AND DEAF RELATIVES. | Total. | CONSANGUINITY OF PARENTS. | | | PER CENT OF TOTAL. | | | PER CENT OF EACH CLASS. | |
|---|---|---|---|---|---|---|---|---|---|
| | | Parents cousins. | Parents not cousins. | Not stated. | Parents cousins. | Parents not cousins. | Not stated. | Parents cousins. | Parents not cousins. |
| Total | 89,287 | 4,065 | 75,530 | 9,692 | 4.5 | 84.6 | 10.9 | 100.0 | 100.0 |
| Period of life when deafness occurred: | | | | | | | | | |
| Childhood (under 20) | 50,296 | 3,276 | 43,187 | 3,833 | 6.5 | 85.9 | 7.6 | 80.6 | 57.2 |
| Adult life (20 and over) | 35,924 | 725 | 30,731 | 4,468 | 2.0 | 85.6 | 12.4 | 17.8 | 40.7 |
| Unknown | 3,067 | 64 | 1,612 | 1,391 | 2.1 | 52.6 | 45.3 | 1.6 | 2.1 |
| Degree of deafness: | | | | | | | | | |
| Totally deaf | 37,426 | 2,525 | 31,560 | 3,341 | 6.8 | 84.3 | 8.9 | 62.1 | 41.8 |
| Partially deaf | 51,861 | 1,540 | 43,970 | 6,351 | 3.0 | 84.8 | 12.2 | 37.9 | 58.2 |
| Deaf relatives:[1] | | | | | | | | | |
| *a* or *b* relatives | 25,851 | 2,171 | 22,552 | 1,128 | 8.4 | 87.2 | 4.4 | 53.4 | 29.9 |
| No *a* or *b* relatives | 54,630 | 1,740 | 51,087 | 1,803 | 3.2 | 93.5 | 3.3 | 42.8 | 67.6 |
| Not stated | 8,806 | 154 | 1,891 | 6,761 | 1.7 | 21.5 | 76.8 | 3.8 | 2.5 |
| Age when deafness occurred: | | | | | | | | | |
| Unknown | 3,067 | 64 | 1,612 | 1,391 | 2.1 | 52.6 | 45.3 | 1.6 | 2.1 |
| Indefinitely stated | 4,630 | 115 | 3,333 | 1,182 | 2.5 | 72.0 | 25.5 | 2.8 | 4.4 |
| Definitely stated | 81,590 | 3,886 | 70,585 | 7,119 | 4.8 | 86.5 | 8.7 | 95.6 | 93.5 |
| Birth | 14,474 | 1,710 | 11,324 | 1,440 | 11.8 | 78.2 | 10.0 | 42.1 | 15.0 |
| After birth, under 2 | 7,396 | 429 | 6,598 | 369 | 5.8 | 89.2 | 5.0 | 10.5 | 8.7 |
| 2 and under 5 | 10,536 | 509 | 9,423 | 604 | 4.8 | 89.5 | 5.7 | 12.5 | 12.5 |
| Under 5 | 32,406 | 2,648 | 27,345 | 2,413 | 8.2 | 84.4 | 7.4 | 65.1 | 36.2 |
| 5 and under 10 | 7,018 | 248 | 6,306 | 464 | 3.5 | 89.9 | 6.6 | 6.1 | 8.3 |
| 10 and under 15 | 4,464 | 161 | 3,995 | 308 | 3.6 | 89.5 | 6.9 | 4.0 | 5.3 |
| 15 and under 20 | 4,061 | 130 | 3,672 | 259 | 3.2 | 90.4 | 6.4 | 3.2 | 4.9 |
| Under 20 | 47,949 | 3,187 | 41,318 | 3,444 | 6.6 | 86.2 | 7.2 | 78.4 | 54.7 |
| 20 and under 40 | 16,588 | 382 | 14,856 | 1,350 | 2.3 | 89.6 | 8.1 | 9.4 | 19.7 |
| 40 and under 60 | 9,437 | 200 | 8,176 | 1,061 | 2.1 | 86.6 | 11.3 | 4.9 | 10.8 |
| 60 and under 80 | 6,595 | 105 | 5,427 | 1,063 | 1.6 | 82.3 | 16.1 | 2.6 | 7.2 |
| 80 and over | 1,021 | 12 | 808 | 201 | 1.2 | 79.1 | 19.7 | 0.3 | 1.1 |

[1] Symbols employed—*a*, deaf brothers, sisters, or ancestors; *b*, deaf uncles, aunts, cousins, or other relatives not *a*, *c*, or *d*; *c*, deaf children (sons or daughters); *d*, deaf husbands or wives.

In the case of the deaf from birth the proportion whose parents were cousins is more than twice as great as when all the deaf are considered, 11.8 per cent of the deaf from birth being the children of cousins and 4.5 per cent of the whole of the deaf.

These would be the true percentages on the usual assumption that the ratios in "not stated" cases are substantially the same as in the cases stated, but in the present instance there is some reason for supposing that they may be different.

Some people are sensitive to questions concerning consanguinity in marriage, especially where defective offspring have appeared, and in such cases nonreply would be an easy means of evading the question. It may be possible, therefore, that the proportion having parents cousins may be larger among the "not stated" than the stated cases. However this may be, and whatever interpretation be put upon cases of nonreply, it is obvious that the true percentages, both in the case of parents cousins and parents not cousins, are greater than those noted in the tables, for the reason already given, viz, that these percentages are based upon totals that include the "not stated" cases.

It also appears that the percentage having parents cousins is greater among the deaf from childhood than the deaf from adult life; greater among the totally deaf than the partially deaf; and greater among those having *a* or *b* deaf relatives than among those who have not (*a* relatives are brothers, sisters, or ancestors; *b* relatives are uncles, aunts, cousins, or other relatives not *a*, *c*, or *d*; *c* relatives are sons or daughters; and *d* relatives are husbands or wives).

The percentage "not stated" is larger among the deaf from adult life than the deaf from childhood; and, in the case of the deaf from adult life, seems to be proportionally larger the more advanced the age when deafness occurred. This increase is accompanied by a corresponding decrease in the percentage having parents not cousins. The reason for this is not obvious.

Of those whose parents were cousins, 42.1 per cent were deaf from birth, and only 15 per cent of those whose parents were not cousins. It thus appears that the percentage deaf from birth is nearly three times as great (2.8) among the deaf whose parents were cousins as among those whose parents were not.

Of the deaf whose parents were cousins, 53.4 per cent, and of those whose parents were not, 29.9 per cent, have other members of their families deaf (*a* or *b* relatives). It thus appears that the percentage having *a* or *b* deaf relatives is nearly twice as great (1.8) among those whose parents are cousins as among those whose parents are not.

The converse fact also appears, viz, that the percentage having parents cousins is more than twice as great (2.6) among those who have *a* or *b* deaf relatives as among those who have not (relatives, 8.4 per cent; no relatives, 3.2).

Table XLVIII shows the number of deaf from the principal assigned causes, by consanguinity of parents, with the percentages resulting.

TABLE XLVIII.—NUMBER AND PER CENT DEAF FROM PRINCIPAL CAUSES, BY CONSANGUINITY OF PARENTS.

| CAUSE OF DEAFNESS. | Total. | CONSANGUINITY OF PARENTS. | | | PER CENT. | | |
|---|---|---|---|---|---|---|---|
| | | Parents cousins. | Parents not cousins. | Not stated. | Parents cousins. | Parents not cousins. | Not stated. |
| Total | 89,287 | 4,065 | 75,530 | 9,692 | 4.5 | 84.6 | 10.9 |
| Causes of deafness: | | | | | | | |
| Affections of external ear | 871 | 29 | 760 | 82 | 3.3 | 87.3 | 9.4 |
| Affections of middle ear | 34,801 | 1,238 | 30,824 | 2,739 | 3.5 | 88.6 | 7.9 |
| Affections of internal ear | 12,295 | 343 | 11,121 | 831 | 2.8 | 90.4 | 6.8 |
| Unclassified | 31,205 | 2,183 | 25,281 | 3,741 | 7.0 | 81.0 | 12.0 |
| Unknown | 10,115 | 272 | 7,544 | 2,299 | 2.7 | 74.6 | 22.7 |
| Principal assigned causes: | | | | | | | |
| Scarlet fever | 7,424 | 285 | 6,647 | 492 | 3.9 | 89.5 | 6.6 |
| Disease of ear | 4,210 | 222 | 3,683 | 305 | 5.3 | 87.5 | 7.2 |
| Measles | 2,469 | 101 | 2,194 | 174 | 4.1 | 88.9 | 7.0 |
| Influenza | 1,776 | 45 | 1,524 | 207 | 2.5 | 85.8 | 11.7 |
| Catarrh | 11,702 | 304 | 10,450 | 948 | 2.6 | 89.3 | 8.1 |
| Colds | 3,074 | 81 | 2,666 | 327 | 2.6 | 86.7 | 10.7 |
| Malarial fever and quinine | 1,636 | 67 | 1,427 | 142 | 4.1 | 87.2 | 8.7 |
| Meningitis | 3,991 | 83 | 3,741 | 167 | 2.1 | 93.7 | 4.2 |
| Brain fever | 2,013 | 59 | 1,859 | 95 | 2.9 | 92.4 | 4.7 |
| Typhoid fever | 2,055 | 60 | 1,839 | 156 | 2.9 | 89.5 | 7.6 |
| Congenital | 14,472 | 1,710 | 11,322 | 1,440 | 11.8 | 78.2 | 10.0 |
| Old age | 3,361 | 38 | 2,369 | 954 | 1.1 | 70.5 | 28.4 |
| Military service | 3,242 | 40 | 2,897 | 305 | 1.2 | 89.4 | 9.4 |
| Falls and blows | 2,243 | 95 | 1,933 | 215 | 4.2 | 86.2 | 9.6 |
| Sickness | 2,143 | 80 | 1,786 | 277 | 3.7 | 83.4 | 12.9 |
| Fever | 1,436 | 62 | 1,257 | 117 | 4.3 | 87.5 | 8.2 |
| Hereditary | 909 | 57 | 799 | 53 | 6.3 | 87.9 | 5.8 |

Table XLVIII shows that of the deaf whose parents were cousins, the assigned causes to which the largest percentages are attributed are the congenital and hereditary causes and disease of ear.

*Deaf relatives.*—Out of a total of 89,287 deaf, 29,716, or 33.3 per cent, had deaf relatives; 50,765, or 56.8 per cent, had not; and in 8,806, or 9.9 per cent, the question relating to deaf relatives remained unanswered (Table 3). It thus appears that one-third of the deaf population of the United States have other members of their families deaf.

Where only one member of a family is deaf, there

is nothing to indicate any inherited predisposition toward deafness in the individual considered; sporadic deafness may be purely adventitious and accidental. But where two or more members of the same family are deaf, it is a little less likely that the deafness is accidental. It is more probable that in many, if not in most, cases heredity has played a part in the production of the deafness; in which case we should look up to the common ancestor of the deaf persons for the initiating cause.

Where a tendency toward ear trouble exists in a family, it may lie dormant and unsuspected until some serious illness attacks a member of the family, when the weak spot is revealed and deafness is produced. We are not all built like that wonderful one-horse shay that was so perfectly made in all its parts that when at last it broke down it crumbled into dust. When an accident occurs, it is the weak part that gives way, and it would be incorrect to attribute the damage to the accident alone and ignore the weakness of the part; both undoubtedly are contributing causes.

In the case, then, of a deaf person who has deaf relatives the assigned cause of deafness may not be the only cause involved, or indeed the true cause at all. It may be the cause simply in the same sense that the pulling of a trigger is the cause of the expulsion of a bullet from a rifle, or a spark the cause of the explosion of a gunpowder magazine; hereditary influences may be involved.

In considering the subject of deaf relatives it seems advisable to distinguish blood relatives from persons who are relatives simply by marriage; and relatives in the direct line, from collateral or distant relatives.

In the present report four kinds of deaf relatives are distinguished, which for convenience of reference are designated by the letters *a*, *b*, *c*, and *d*: *a*, brothers, sisters, or ancestors (direct line); *b*, uncles, aunts, cousins, and other relatives not *a*, *c*, or *d* (collateral); *c*, sons or daughters (descendants); *d*, husbands or wives (relatives by marriage).

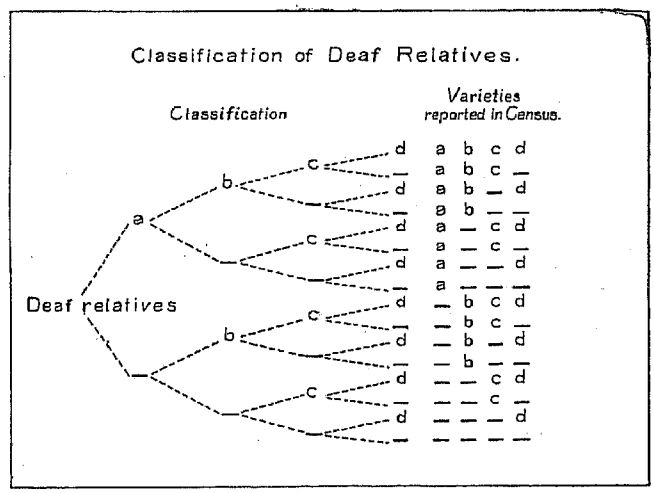
The attempt to distinguish blood relatives from persons who are relatives by marriage only has not been entirely successful, for many of the uncles and aunts contained in the *b* class may be relatives by marriage alone.

Some of the deaf have *a* relatives, others have *b* relatives, etc., and still others have both *a* and *b* relatives, as well, perhaps, as relatives belonging to the *c* and *d* classes. It therefore becomes necessary to effect a classification of deaf relatives so as to distinguish in the tables the various combinations; for it is obvious that if (without some special arrangement or understanding in this matter) we should add together the totals having *a*, *b*, *c*, or *d* relatives, the summation would exceed the aggregate. For example, the total number reported as having deaf relatives is 29,716 (Table 3). Of these, 21,660 had *a* relatives deaf, 8,308 had *b* relatives deaf, 677 had *c* relatives deaf, and 5,051 had *d* relatives deaf. The summation is 35,696, which exceeds the aggregate by 5,980. This, of course, results from the fact that some of those having *a* relatives had also *b* or *c* or *d* relatives, etc. In former censuses, in which deaf relatives were divided into smaller groups and more of them, the discrepancy between the summation and the aggregate was so great as to render it exceedingly difficult to draw broad conclusions from the statistics.

In the present report only four kinds of relatives are considered, giving the advantage of larger numbers with which to deal; and a plan of classification has been adopted which enables us to safely add the varieties together without duplication, thus facilitating researches relating to deaf relatives.

*Classes.*—In classifying deaf relatives we may begin by dividing the deaf into two classes—those who have *a* relatives and those who have not (Diagram 38).

*Diagram 38.*




*Broad groups.*—Each of these classes may then be divided into two broad groups (comparable to genera)—those who have *b* relatives and those who have not.

*Subgroups.*—Each of these groups may then be divided into two subgroups (comparable to species)—those who have *c* relatives and those who have not.

*Varieties.*—Each of these subgroups may be still further subdivided into two varieties—those who have *d* relatives and those who have not.

It will be noticed that the census returns include all possible combinations of *a*, *b*, *c*, and *d*. Diagram 38 exhibits the whole scheme of classification after the manner of a genealogical chart, with the combinations

of *a*, *b*, *c*, and *d* relatives reported in the census arranged in accordance with the classification.

Tables XLIX and L relate to the deaf who have deaf relatives, arranging them into classes, broad groups, subgroups, and varieties in accordance with the classification.

Table XLIX shows the number of the deaf having deaf relatives of the specified classes, by period of life when deafness occurred, degree of deafness, sex, consanguinity of parents, and sex of the married deaf, and is illustrated by Diagram 39.

Table L shows the number of the deaf having deaf relatives of the specified classes, by age or period of life when deafness occurred.

*Diagram 39.*

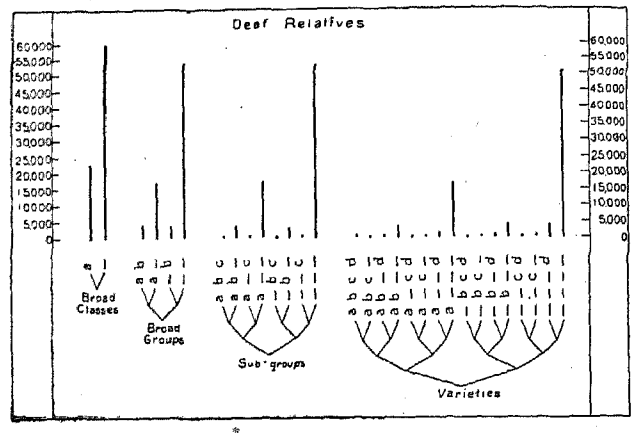



TABLE XLIX.—THE DEAF BY DEAF RELATIVES (*a*, *b*, *c*, OR *d*),[1] PERIOD OF LIFE WHEN DEAFNESS OCCURRED, DEGREE OF DEAFNESS, SEX, CONSANGUINITY OF PARENTS, AND SEX OF MARRIED DEAF.

| CLASS OF DEAF RELATIVES. | Total. | PERIOD OF LIFE WHEN DEAFNESS OCCURRED. | | | DEGREE OF DEAFNESS. | | SEX. | | CONSANGUINITY OF PARENTS. | | | THE MARRIED DEAF. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Childhood (under 20). | Adult life (20 and over). | Unknown. | Totally deaf. | Partially deaf. | Male. | Female. | Parents cousins. | Parents not cousins. | Not stated. | Total. | Male. | Female. |
| Total | 89,287 | 50,296 | 35,924 | 3,067 | 37,426 | 51,861 | 46,915 | 42,372 | 4,065 | 75,530 | 9,692 | 34,206 | 19,746 | 14,460 |
| Deaf relatives: | | | | | | | | | | | | | | |
| Not stated | 8,806 | 3,049 | 4,356 | 1,401 | 2,646 | 6,160 | 4,251 | 4,555 | 154 | 1,891 | 6,761 | 2,872 | 1,655 | 1,217 |
| Stated | 80,481 | 47,247 | 31,568 | 1,666 | 34,780 | 45,701 | 42,664 | 37,817 | 3,911 | 73,639 | 2,931 | 31,334 | 18,091 | 13,243 |
| Stated: | | | | | | | | | | | | | | |
| *a* relatives | 21,660 | 11,783 | 9,520 | 357 | 8,170 | 13,490 | 10,669 | 10,991 | 1,850 | 18,838 | 972 | 9,308 | 5,027 | 4,281 |
| No *a* relatives | 58,821 | 35,464 | 22,048 | 1,309 | 26,610 | 32,211 | 31,995 | 26,826 | 2,061 | 54,801 | 1,959 | 22,026 | 13,064 | 8,962 |
| *a* or *b* relatives | 25,851 | 14,481 | 10,946 | 424 | 10,033 | 15,818 | 12,834 | 13,017 | 2,171 | 22,552 | 1,128 | 10,888 | 5,876 | 5,012 |
| *a b* | 4,117 | 2,352 | 1,704 | 61 | 1,499 | 2,618 | 1,947 | 2,170 | 412 | 3,587 | 118 | 1,764 | 919 | 845 |
| *a* — | 17,543 | 9,431 | 7,816 | 296 | 6,671 | 10,872 | 8,722 | 8,821 | 1,438 | 15,251 | 854 | 7,544 | 4,108 | 3,436 |
| — *b* | 4,191 | 2,698 | 1,426 | 67 | 1,863 | 2,328 | 2,165 | 2,026 | 321 | 3,714 | 156 | 1,580 | 849 | 731 |
| No *a* or *b* relatives | 54,630 | 32,766 | 20,622 | 1,242 | 24,747 | 29,883 | 29,830 | 24,800 | 1,740 | 51,087 | 1,803 | 20,446 | 12,215 | 8,231 |
| *a*, *b*, or *c* relatives | 26,221 | 14,614 | 11,167 | 440 | 10,152 | 16,069 | 13,011 | 13,210 | 2,181 | 22,879 | 1,161 | 11,116 | 6,009 | 5,107 |
| *a b c* | 71 | 42 | 29 | ..... | 33 | 38 | 36 | 35 | 5 | 65 | 1 | 52 | 31 | 21 |
| *a b* — | 4,046 | 2,310 | 1,675 | 61 | 1,466 | 2,580 | 1,911 | 2,135 | 407 | 3,522 | 117 | 1,712 | 888 | 824 |
| *a* — *c* | 198 | 92 | 103 | 3 | 80 | 118 | 92 | 106 | 16 | 171 | 11 | 137 | 76 | 61 |
| *a* — — | 17,345 | 9,339 | 7,713 | 293 | 6,591 | 10,754 | 8,630 | 8,715 | 1,422 | 15,080 | 843 | 7,407 | 4,032 | 3,375 |
| — *b c* | 38 | 15 | 23 | ..... | 14 | 24 | 14 | 24 | ..... | 36 | 2 | 20 | 10 | 10 |
| — *b* — | 4,153 | 2,683 | 1,403 | 67 | 1,849 | 2,304 | 2,151 | 2,002 | 321 | 3,678 | 154 | 1,560 | 839 | 721 |
| — — *c* | 370 | 133 | 221 | 16 | 119 | 251 | 177 | 193 | 10 | 327 | 33 | 228 | 133 | 95 |
| No *a*, *b*, or *c* relatives | 54,260 | 32,633 | 20,401 | 1,226 | 24,628 | 29,632 | 29,653 | 24,607 | 1,730 | 50,760 | 1,770 | 20,218 | 12,082 | 8,136 |
| *a*, *b*, *c*, or *d* relatives | 29,716 | 17,681 | 11,523 | 512 | 13,039 | 16,677 | 14,771 | 14,945 | 2,285 | 26,088 | 1,343 | 14,558 | 7,750 | 6,808 |
| *a b c d* | 23 | 20 | 3 | ..... | 20 | 3 | 16 | 7 | 3 | 19 | 1 | 23 | 16 | 7 |
| *a b c* — | 48 | 22 | 26 | ..... | 13 | 35 | 20 | 28 | 2 | 46 | ..... | 29 | 15 | 14 |
| *a b* — *d* | 221 | 201 | 16 | 4 | 185 | 36 | 111 | 110 | 24 | 187 | 10 | 219 | 110 | 109 |
| *a b* — — | 3,825 | 2,109 | 1,659 | 57 | 1,281 | 2,544 | 1,800 | 2,025 | 383 | 3,335 | 107 | 1,493 | 778 | 715 |
| *a* — *c d* | 54 | 51 | 2 | 1 | 48 | 6 | 26 | 28 | 8 | 43 | 3 | 53 | 25 | 28 |
| *a* — *c* — | 144 | 41 | 101 | 2 | 32 | 112 | 66 | 78 | 8 | 128 | 8 | 84 | 51 | 33 |
| *a* — — *d* | 930 | 829 | 88 | 13 | 766 | 164 | 453 | 477 | 111 | 775 | 44 | 914 | 450 | 464 |
| *a* — — — | 16,415 | 8,510 | 7,625 | 280 | 5,825 | 10,590 | 8,177 | 8,238 | 1,311 | 14,305 | 799 | 6,493 | 3,582 | 2,911 |
| — *b c d* | 8 | 8 | ..... | ..... | 7 | 1 | 2 | 6 | ..... | 7 | 1 | 6 | 2 | 4 |
| — *b c* — | 30 | 7 | 23 | ..... | 7 | 23 | 12 | 18 | ..... | 29 | 1 | 14 | 8 | 6 |
| — *b* — *d* | 241 | 223 | 14 | 4 | 212 | 29 | 127 | 114 | 13 | 219 | 9 | 231 | 121 | 110 |
| — *b* — — | 3,912 | 2,460 | 1,389 | 63 | 1,637 | 2,275 | 2,024 | 1,888 | 308 | 3,459 | 145 | 1,329 | 718 | 611 |
| — — *c d* | 79 | 72 | 7 | ..... | 66 | 13 | 37 | 42 | 2 | 72 | 5 | 77 | 36 | 41 |
| — — *c* — | 291 | 61 | 214 | 16 | 53 | 238 | 140 | 151 | 8 | 255 | 28 | 151 | 97 | 54 |
| — — — *d* | 3,495 | 3,067 | 356 | 72 | 2,887 | 608 | 1,760 | 1,735 | 104 | 3,209 | 182 | 3,442 | 1,741 | 1,701 |
| No *a*, *b*, *c*, or *d* relatives | 50,765 | 29,566 | 20,045 | 1,154 | 21,741 | 29,024 | 27,893 | 22,872 | 1,626 | 47,551 | 1,588 | 16,776 | 10,341 | 6,435 |

[1] Symbols employed—*a*, deaf brothers, sisters, or ancestors; *b*, deaf uncles, aunts, cousins, or other relatives not *a*, *c*, or *d*; *c*, deaf children (sons or daughters); *d*, deaf husbands or wives.

TABLE L.—THE DEAF BY DEAF RELATIVES (*a*, *b*, *c*, OR *d*),[1] AND AGE WHEN DEAFNESS OCCURRED.

| CLASS OF DEAF RELATIVES. | Total. | AGE WHEN DEAFNESS OCCURRED. | | | AGE WHEN DEAFNESS OCCURRED. | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Definitely stated. | Indefinitely stated. | Unknown. | Birth. | After birth, under 2. | 2 and under 5. | Under 5. | 5 and under 10. | 10 and under 15. | 15 and under 20. | Under 20. | 20 and under 40. | 40 and under 60. | 60 and under 80. | 80 and over. |
| Total | 89,287 | 81,590 | 4,630 | 3,067 | 14,474 | 7,396 | 10,536 | 32,406 | 7,018 | 4,464 | 4,061 | 47,949 | 16,588 | 9,437 | 6,595 | 1,021 |
| Deaf relatives: | | | | | | | | | | | | | | | | |
| Not stated | 8,806 | 6,199 | 1,206 | 1,401 | 1,044 | 298 | 485 | 1,827 | 367 | 262 | 218 | 2,674 | 1,201 | 966 | 1,141 | 217 |
| Stated | 80,481 | 75,391 | 3,424 | 1,666 | 13,430 | 7,098 | 10,051 | 30,579 | 6,651 | 4,202 | 3,843 | 45,275 | 15,387 | 8,471 | 5,454 | 804 |
| Stated: | | | | | | | | | | | | | | | | |
| *a* relatives | 21,660 | 20,451 | 852 | 357 | 5,295 | 961 | 1,341 | 7,597 | 1,123 | 1,227 | 1,315 | 11,262 | 5,256 | 2,633 | 1,198 | 102 |
| No *a* relatives | 58,821 | 54,940 | 2,572 | 1,309 | 8,135 | 6,137 | 8,710 | 22,982 | 5,528 | 2,975 | 2,528 | 34,013 | 10,131 | 5,838 | 4,256 | 702 |
| *a* or *b* relatives | 25,851 | 24,411 | 1,016 | 424 | 6,116 | 1,378 | 1,873 | 9,367 | 1,451 | 1,457 | 1,569 | 13,844 | 6,111 | 3,003 | 1,340 | 113 |
| *a* *b* | 4,117 | 3,904 | 152 | 61 | 1,021 | 160 | 243 | 1,424 | 212 | 305 | 320 | 2,261 | 1,086 | 438 | 111 | 8 |
| *a* — | 17,543 | 16,547 | 700 | 296 | 4,274 | 801 | 1,098 | 6,173 | 911 | 922 | 995 | 9,001 | 4,170 | 2,195 | 1,087 | 94 |
| — *b* | 4,191 | 3,960 | 164 | 67 | 821 | 417 | 532 | 1,770 | 328 | 230 | 254 | 2,582 | 855 | 370 | 142 | 11 |
| No *a* or *b* relatives | 54,630 | 50,980 | 2,408 | 1,242 | 7,314 | 5,720 | 8,178 | 21,212 | 5,200 | 2,745 | 2,274 | 31,431 | 9,276 | 5,468 | 4,114 | 661 |
| *a*, *b*, or *c* relatives | 26,221 | 24,749 | 1,032 | 440 | 6,155 | 1,397 | 1,902 | 9,454 | 1,467 | 1,469 | 1,584 | 13,974 | 6,210 | 3,060 | 1,388 | 117 |
| *a* *b* *c* | 71 | 70 | 1 | ..... | 16 | 3 | 3 | 22 | 5 | 3 | 11 | 41 | 20 | 9 | ..... | ..... |
| *a* *b* — | 4,046 | 3,834 | 151 | 61 | 1,005 | 157 | 240 | 1,402 | 207 | 302 | 309 | 2,220 | 1,066 | 429 | 111 | 8 |
| *a* — *c* | 198 | 190 | 5 | 3 | 52 | 5 | 7 | 64 | 9 | 9 | 10 | 92 | 61 | 26 | 11 | ..... |
| *a* — — | 17,345 | 16,357 | 695 | 293 | 4,222 | 796 | 1,091 | 6,109 | 902 | 913 | 985 | 8,909 | 4,109 | 2,169 | 1,076 | 94 |
| — *b* *c* | 38 | 36 | 2 | ..... | 4 | 1 | 3 | 8 | 2 | 3 | 1 | 14 | 10 | 8 | 4 | ..... |
| — *b* — | 4,153 | 3,924 | 162 | 67 | 817 | 416 | 529 | 1,762 | 326 | 227 | 253 | 2,568 | 845 | 362 | 138 | 11 |
| — — *c* | 370 | 338 | 16 | 16 | 39 | 19 | 29 | 87 | 16 | 12 | 15 | 130 | 99 | 57 | 48 | 4 |
| No *a*, *b*, or *c* relatives | 54,260 | 50,642 | 2,392 | 1,226 | 7,275 | 5,701 | 8,149 | 21,125 | 5,184 | 2,733 | 2,259 | 31,301 | 9,177 | 5,411 | 4,066 | 687 |
| *a*, *b*, *c*, or *d* relatives | 29,716 | 28,087 | 1,117 | 512 | 6,621 | 1,948 | 3,143 | 11,712 | 2,051 | 1,606 | 1,626 | 16,995 | 6,311 | 3,161 | 1,494 | 126 |
| *a* *b* *c* *d* | 23 | 22 | 1 | ..... | 12 | 3 | 3 | 18 | 1 | ..... | ..... | 19 | 3 | ..... | ..... | ..... |
| *a* *b* *c* — | 48 | 48 | ..... | ..... | 4 | ..... | ..... | 4 | 4 | 3 | 11 | 22 | 17 | 9 | ..... | ..... |
| *a* *b* — *d* | 221 | 217 | ..... | 4 | 122 | 27 | 28 | 177 | 17 | 5 | 2 | 201 | 11 | 4 | 1 | ..... |
| *a* *b* — — | 3,825 | 3,617 | 151 | 57 | 883 | 130 | 212 | 1,225 | 190 | 297 | 307 | 2,019 | 1,055 | 425 | 110 | 8 |
| *a* — *c* *d* | 54 | 53 | ..... | 1 | 37 | 4 | 4 | 45 | 4 | 1 | 1 | 51 | 2 | ..... | ..... | ..... |
| *a* — *c* — | 144 | 137 | 5 | 2 | 15 | 1 | 3 | 19 | 5 | 8 | 9 | 41 | 59 | 26 | 11 | ..... |
| *a* — — *d* | 930 | 889 | 28 | 13 | 468 | 87 | 157 | 712 | 73 | 15 | 6 | 806 | 36 | 28 | 18 | 1 |
| *a* — — — | 16,415 | 15,468 | 667 | 280 | 3,754 | 709 | 934 | 5,397 | 829 | 898 | 979 | 8,103 | 4,073 | 2,141 | 1,058 | 93 |
| — *b* *c* *d* | 8 | 8 | ..... | ..... | 3 | 1 | 3 | 7 | 1 | ..... | ..... | 8 | ..... | ..... | ..... | ..... |
| — *b* *c* — | 30 | 28 | 2 | ..... | 1 | ..... | ..... | 1 | 1 | 3 | 1 | 6 | 10 | 8 | 4 | ..... |
| — *b* — *d* | 241 | 233 | 4 | 4 | 50 | 48 | 75 | 173 | 36 | 10 | 1 | 220 | 6 | 3 | 4 | ..... |
| — *b* — — | 3,912 | 3,691 | 158 | 63 | 767 | 368 | 454 | 1,589 | 290 | 217 | 252 | 2,348 | 839 | 359 | 134 | 11 |
| — — *c* *d* | 79 | 77 | 2 | ..... | 25 | 16 | 21 | 62 | 5 | 2 | 1 | 70 | 5 | 1 | 1 | ..... |
| — — *c* — | 291 | 261 | 14 | 16 | 14 | 3 | 8 | 25 | 11 | 10 | 14 | 60 | 94 | 56 | 47 | 4 |
| — — — *d* | 3,495 | 3,338 | 85 | 72 | 466 | 551 | 1,241 | 2,258 | 584 | 137 | 42 | 3,021 | 101 | 101 | 106 | 9 |
| No *a*, *b*, *c*, or *d* relatives | 50,765 | 47,304 | 2,307 | 1,154 | 6,809 | 5,150 | 6,908 | 18,867 | 4,600 | 2,596 | 2,217 | 28,280 | 9,076 | 5,310 | 3,960 | 678 |

[1] Symbols employed—*a*, deaf brothers, sisters, or ancestors; *b*, deaf uncles, aunts, cousins, or other relatives not *a*, *c*, or *d*; *c*, deaf children (sons or daughters); *d*, deaf husbands or wives.

*Broad classes.*—The primary division is into two broad classes, "*a* relatives" and "no *a* relatives."

The first class (*a*) consists of deaf persons who have deaf brothers, sisters, or ancestors.

The second class (—) consists of those who have no deaf brothers, sisters, or ancestors.

*a* .....*a* relatives.
— .....No *a* relatives.

*Broad groups.*—Two divisions, "*a* or *b* relatives" and "no *a* or *b* relatives."

The first division consists of deaf persons who have (*a*) deaf brothers, sisters, or ancestors; or (*b*) deaf uncles, aunts, cousins, or other more distant relatives (not *a*, *c*, or *d*).

The second division consists of (— —) those who have neither *a* nor *b* relatives.

*a* or *b* relatives:
*a* *b*.....both *a* and *b*.
*a* — ....*a* but not *b*.
— *b*.....*b* but not *a*.
No *a* or *b* relatives:
— —.....neither *a* nor *b*.

*Subgroups.*—Two divisions, "*a*, *b*, or *c* relatives" and "no *a*, *b*, or *c* relatives."

The first division consists of deaf persons who have (*a*) deaf brothers, sisters, or ancestors; (*b*) deaf uncles, aunts, cousins, or other more distant relatives (not *a*, *c*, or *d*); or (*c*) deaf children (sons or daughters).

The second division consists of (— — —) those who have neither *a*, *b*, nor *c* deaf relatives.

*a*, *b*, or *c* relatives:
*a* *b* *c*.....*a*, *b*, and *c*.
*a* *b* —.....*a* and *b* but not *c*.
*a* — *c*.....*a* and *c* but not *b*.
*a* — —.....*a* but not *b* or *c*.
— *b* *c*.....*b* and *c* but not *a*.
— *b* —.....*b* but not *a* or *c*.
— — *c*.....*c* but not *a* or *b*.
No *a*, *b*, or *c* relatives:
— — —..neither *a*, *b*, nor *c*.

*Varieties.*—Two divisions, "*a*, *b*, *c*, or *d* relatives" and "no *a*, *b*, *c*, or *d* relatives."

The first division consists of deaf persons who have (*a*) deaf brothers, sisters, or ancestors; (*b*) deaf uncles, aunts, cousins, or other more distant relatives (not *a*, *c*, or *d*); (*c*) deaf children (sons or daughters); or (*d*) deaf husbands or wives.

The second division consists of (— — — —) those who have neither *a*, *b*, *c*, nor *d* deaf relatives.

*a*, *b*, *c*, or *d* relatives:

*a b c d*.....*a*, *b*, *c*, and *d*.
*a b c* —....*a*, *b*, *c*, but not *d*.
*a b* — *d*.....*a*, *b*, *d*, but not *c*.
*a b* — —....*a*, *b*, but not *c*, *d*.
*a* — *c d*.....*a*, *c*, *d*, but not *b*.
*a* — *c* —....*a*, *c*, but not *b*, *d*.
*a* — — *d*.....*a*, *d*, but not *b*, *c*.
*a* — — —....*a* but not *b*, *c*, *d*.
— *b c d*.....*b*, *c*, *d*, but not *a*.
— *b c* —....*b*, *c*, but not *a*, *d*.
— *b* — *d*.....*b*, *d*, but not *a*, *c*.
— *b* — —....*b* but not *a*, *c*, *d*.
— — *c d*.....*c*, *d*, but not *a*, *b*.
— — *c* —....*c* but not *a*, *b*, *d*.
— — — *d*.....*d* but not *a*, *b*, *c*.

No *a*, *b*, *c*, or *d* relatives:

— — — —....neither *a*, *b*, *c*, nor *d*.

The 16 varieties shown can be added together in any way that may be desired without duplication of the persons referred to.

As an illustration of the method of handling deaf relatives symbolically, take a case from Table XLIX.

Suppose we desire to ascertain the number of deaf persons reported to have deaf children; we simply add together all the varieties containing the letter *c* (the symbol for deaf sons or daughters). The summation of the varieties containing the letter *d* will give us the number having deaf husbands or wives. The varieties containing the combination *c d* will give us those who have both *c* and *d* relatives; and — *d* will give us *d* relatives without *c*.

ILLUSTRATION.

| | | | |
|---|---|---|---|
| *a b c d* | | | *a b c d* |
| *a b c* — | | | *a b* — *d* |
| *a* — *c d* | | | *a* — *c d* |
| *a* — *c* — | | | *a* — — *d* |
| — *b c d* | *a b c d* | *a b* — *d* | — *b c d* |
| — *b c* — | *a* — *c d* | *a* — — *d* | — *b* — *d* |
| — — *c d* | — *b c d* | — *b* — *d* | — — *c d* |
| — — *c* — | — — *c d* | — — — *d* | — — — *d* |
| *c* | *c d* | — *d* | *d* |

INTERPRETATION.

*c*...The total number having deaf children (sons or daughters).
*c d*...Number having deaf children and deaf husbands or wives.
— *d*...Number having deaf husbands or wives but not deaf children.
*d*...The total number having deaf husbands or wives.

The importance will be noted of (—), a positive sign for a negative fact; *d* means a different thing from — *d*.

*a or b relatives.*—From Table XLIX it appears that out of a total of 89,287 deaf persons 80,481 answered the questions relating to deaf relatives and 8,806 did not. The percentages given in Table LI are based upon the "stated cases."

TABLE LI.—THE PER CENT OF THE DEAF HAVING DEAF RELATIVES (*a* OR *b*), SHOWN FOR THE DEAF CLASSIFIED BY PERIOD OF LIFE WHEN DEAFNESS OCCURRED, DEGREE OF DEAFNESS, SEX, CONSANGUINITY OF PARENTS, AND SEX OF MARRIED DEAF.

| CLASS OF DEAF RELATIVES. | Total. | PERIOD OF LIFE WHEN DEAFNESS OCCURRED. | | DEGREE OF DEAFNESS. | | SEX. | | CONSANGUINITY OF PARENTS. | | THE MARRIED DEAF. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Childhood (under 20). | Adult life (20 and over). | Totally deaf. | Partially deaf. | Male. | Female. | Parents cousins. | Parents not cousins. | Total. | Male. | Female. |
| Deaf relatives: | | | | | | | | | | | | |
| Stated | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| *a* | 26.9 | 25.0 | 30.2 | 23.5 | 29.5 | 25.0 | 29.0 | 47.3 | 25.5 | 29.7 | 27.8 | 32.3 |
| — | 73.1 | 75.0 | 69.8 | 76.5 | 70.5 | 75.0 | 71.0 | 52.7 | 74.5 | 70.3 | 72.2 | 67.7 |
| (*a* or *b*) | 32.1 | 30.7 | 34.7 | 28.8 | 34.6 | 30.1 | 34.4 | 55.5 | 30.6 | 34.7 | 32.5 | 37.8 |
| *a b* | 5.1 | 5.0 | 5.4 | 4.3 | 5.7 | 4.6 | 5.7 | 10.5 | 4.8 | 5.6 | 5.1 | 6.4 |
| *a* — | 21.8 | 20.0 | 24.8 | 19.2 | 23.8 | 20.4 | 23.3 | 36.8 | 20.7 | 24.1 | 22.7 | 25.9 |
| — *b* | 5.2 | 5.7 | 4.5 | 5.3 | 5.1 | 5.1 | 5.4 | 8.2 | 5.1 | 5.0 | 4.7 | 5.5 |
| — — | 67.9 | 69.3 | 65.3 | 71.2 | 65.4 | 69.9 | 65.6 | 44.5 | 69.4 | 65.3 | 67.5 | 62.2 |

Nearly one-third of the deaf, 32.1 per cent, are reported as having deaf relatives (*a* or *b*). That is, they had deaf brothers, sisters, ancestors, or deaf uncles, aunts, cousins, or more distant relatives.

Table LI shows that the proportion having deaf relatives (*a* or *b*) is greater among the deaf from adult life than among the deaf from childhood, and greater among the partially deaf than the totally deaf. It is also greater among females than males. It is greatest of all among deaf persons whose parents were cousins (parents cousins, 55.5 per cent; not cousins, 30.6 per cent).

In the case of the deaf from birth (Table L) 45.5 per cent had deaf relatives (*a* or *b*); so that it seems strange that the proportion having deaf relatives should be smaller among the deaf from childhood (which includes the deaf from birth) than among those who became deaf in adult life. This means, of course, that the percentage having deaf relatives must be still smaller among the noncongenitally deaf from childhood. If we limit our inquiry to the deaf from early childhood (under 5), all of whom belong naturally to the class deaf and dumb, we find that even in their case the proportion having deaf relatives

is smaller than in the case of the deaf from adult life. From Table L it appears that 9,367 persons who became deaf before reaching the age of 5 had *a* or *b* deaf relatives; and these constitute 30.6 per cent of the stated cases, whereas 34.7 per cent of the deaf from adult life had deaf relatives (*a* or *b*) (Table LI).

Of the 9,367 cases referred to above 6,116 were deaf from birth and 3,251 became deaf after birth and before reaching the age of 5 (Table L). Thus 45.5 per cent of the deaf from birth, 18.9 per cent of the noncongenitally deaf from early childhood (under 5), and 34.7 per cent of the deaf from adult life had *a* or *b* deaf relatives.

These figures are very striking, and seem to indicate that heredity has played a part in the production of congenital deafness, and also of deafness occurring in adult life (caused principally by catarrh); whereas deafness occurring in early childhood after birth and under the age of 5 (due principally to scarlet fever, meningitis, and brain fever) is probably adventitious in a large proportion of cases—the sporadic cases constituting 81.1 per cent of the whole.

The partial deafness of adult life caused by catarrh usually comes on gradually and sometimes affects different members of the same family at or about the same age. It is probable, therefore, that a tendency toward catarrh is hereditary in these families, producing deafness occasionally in different members by extension to the middle ear; or the inherited tendency may be toward a local catarrh of the middle ear.

The noncongenital deafness of early childhood, caused mainly by scarlet fever, meningitis, and brain fever, is more accidental in character, and is probably due chiefly to extraneous causes of an epidemical nature producing total deafness in a large proportion of cases.

The causes of congenital deafness are very obscure, but it is obvious that in many cases hereditary influences are involved. This is shown by the large proportion having deaf relatives. It is also shown by the large proportion of the deaf from birth whose parents were cousins, and by the large proportion of the deaf whose parents were cousins who were born deaf (Table XLVII).

The most prominent figures of Table L are reduced to percentages in Table LII. In this table the deaf are arranged by age groups when deafness occurred, and the percentage in each age group who have *a* or *b* relatives is shown.

TABLE LII.—THE PER CENT OF THE DEAF HAVING DEAF RELATIVES (*a* OR *b*), SHOWN FOR THE DEAF CLASSIFIED BY AGE WHEN DEAFNESS OCCURRED.

| CLASS OF DEAF RELATIVES. | AGE WHEN DEAFNESS OCCURRED DEFINITELY STATED. | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Birth. | After birth, under 5. | 5 and under 10. | 10 and under 15. | 15 and under 20. | 20 and under 40. | 40 and under 60. | 60 and under 80. | 80 and over. |
| Deaf relatives: Stated | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| *a* | 39.4 | 13.4 | 16.9 | 29.2 | 34.2 | 34.2 | 31.1 | 22.0 | 12.7 |
| — | 60.6 | 86.6 | 83.1 | 70.8 | 65.8 | 65.8 | 68.9 | 78.0 | 87.3 |
| *a* or *b* | 45.5 | 18.9 | 21.8 | 34.7 | 40.8 | 39.8 | 35.5 | 24.6 | 14.0 |
| *a* and *b* | 7.6 | 2.3 | 3.2 | 7.3 | 8.3 | 7.0 | 5.2 | 2.0 | 1.0 |
| *a* — | 31.8 | 11.1 | 13.7 | 21.9 | 25.9 | 27.2 | 25.9 | 20.0 | 11.7 |
| — *b* | 6.1 | 5.5 | 4.9 | 5.5 | 6.6 | 5.6 | 4.4 | 2.6 | 1.3 |
| — — | 54.5 | 81.1 | 78.2 | 65.3 | 59.2 | 60.2 | 64.5 | 75.4 | 86.0 |

In the noncongenital cases it will be observed that the proportion having *a* or *b* relatives deaf is small among the deaf from early childhood (under 5), and then becomes progressively greater where deafness occurred in middle childhood (5 to 10) and late childhood (10 to 15), reaching a maximum in youth or adolescence (15 to 20). This maximum is substantially retained during early manhood (20 to 40), and then the percentage progressively diminishes in middle life (40 to 60), declining years (60 to 80), and old age (80 and over).

Where deafness occurred during these periods of life the percentages having deaf relatives (*a* or *b*) are respectively as follows: 18.9, 21.8, 34.7, 40.8, 39.8, 35.5, 24.6, and 14 (Table LII).

The noncongenitally deaf who lost hearing between the ages of 15 and 40 show the largest percentage having deaf relatives (*a* or *b*)—about 40 per cent.

The evidence seems to point to heredity as a contributing cause of deafness in two classes of deaf persons, the deaf from birth (most of whom are totally deaf), and the deaf from catarrh (most of whom are partially deaf).

Persons who lost hearing from affections of the middle ear, however (including catarrh), are found mostly in those parts of the country which have the least sunshine (Map 10), namely, the New England states and the states bordering on the Great Lakes, so that it is probable that climatic conditions have a good deal to do with the production of catarrhal deafness. As the members of the same family would often be exposed to identical climatic conditions, we might reasonably anticipate that catarrhal deafness would sometimes appear in more than one member of the same family, quite independently of any hereditary tendency toward the disease (Map 6).

The geographic congestion of the deaf from scarlet fever, however, is even more marked (Map 5), and it is not at all unusual for several members of the same family to be ill from scarlet fever at the same time. The deaf from meningitis, too, an epidemic disease of great virulence, show a very marked geographic congestion within a limited area of country, having its center in Indiana (Map 8); and yet the percentage having *a* or *b* relatives deaf is small among the noncongenitally deaf from early childhood (under 5), most of whom lost hearing from scarlet fever and meningitis, while it is large among the deaf from adult life, most of whom became deaf from catarrh. The hereditary character of catarrhal deafness can hardly be doubted.

*c relatives.*—Six hundred and seventy-seven deaf persons are returned who have deaf children; 319 of these were males and 358 females (Table LIII). The number of deaf children born to these persons is not stated in the tabulated returns, but we may form some idea of the number by ascertaining how many families were formed by these 677 persons and crediting each family with one deaf child.

Of the 677 persons reported to have deaf children, 437 (250 males and 187 females) appeared among the returns of the married deaf (Table LVII); and the remaining 240 cases (69 males and 171 females) were returned among the single, widowed, or divorced. These 240 cases, therefore, constituted 240 families, 69 of which had deaf male heads only, and 171 deaf female heads.

Of the 437 cases which appeared among the married deaf, 159 were deaf persons with deaf husbands or wives (79 deaf males with deaf wives and 80 deaf females with deaf husbands) (Table LVII), and in 278 cases the husbands or wives were not deaf—that is, they were hearing persons. These consisted of 171 deaf males with hearing wives and 107 deaf females with hearing husbands.

If we assume that the deaf males with deaf wives constituted the same families as the deaf females with deaf husbands, then we find a total of 80 families containing deaf children in which both the husbands and wives were deaf.

The 278 cases in which the husbands or wives were not deaf constituted 278 families. Thus the 677 persons reported as having deaf children (Table LIII) constituted 598 families; and if each family had only one deaf child, then there were 598 deaf children having one or both parents deaf. This is a minimum estimate, for some of the families considered undoubtedly contained two or more deaf children. Cases are well known in which two, three, four, five, six, and even seven deaf children have appeared in families in which both the parents were deaf mutes.

The deaf whose parents were deaf were reported in the original verified census schedules, but unfortunately the returns have not been tabulated separately, being simply included in the returns of those having *a* relatives (deaf brothers, sisters, or ancestors). We are therefore obliged to resort to an estimate; and all we can conclude from the tabulated statements is that more than 598 deaf persons having one or both parents deaf are referred to in the present census. How many more it is now impossible to ascertain without resort to the original schedules.

Out of a total population of 75,994,575 persons, 89,287, or 1,175 per million, were returned as deaf. If, then, the children of deaf persons were no more liable to deafness than the people generally of the United States, we should expect to find 105 deaf persons returned whose parents were deaf, for this number would constitute 1,175 per million of the deaf population. But the above facts show that more than 598 deaf children of deaf parents exist in the United States, from which it is obvious that the tendency to deafness among the children of deaf persons is more than five and one-half times as great as in the case of the general population of the United States. How much more can not now be ascertained excepting by a special investigation of the original schedules.

Table LIII shows the deaf who have deaf children (*c*), by deaf relatives (*a* or *b*), by period of life when deafness occurred, degree of deafness, sex, and consanguinity of parents, giving the number and percentage in each class.

TABLE LIII.—THE DEAF HAVING DEAF CHILDREN (*c*), CLASSIFIED BY PERIOD OF LIFE WHEN DEAFNESS OCCURRED, DEGREE OF DEAFNESS, SEX, CONSANGUINITY OF PARENTS, AND DEAF RELATIVES (*a* OR *b*).

| CLASS OF DEAF RELATIVES. | Total. | PERIOD OF LIFE WHEN DEAFNESS OCCURRED. | | | DEGREE OF DEAFNESS. | | SEX. | | CONSANGUINITY OF PARENTS. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Childhood (under 20). | Adult life (20 and over). | Unknown. | Totally deaf. | Partially deaf. | Male. | Female. | Parents cousins. | Not cousins. | Not stated. |
| Number: | | | | | | | | | | | |
| *c* | 677 | 282 | 376 | 19 | 246 | 431 | 319 | 358 | 31 | 599 | 47 |
| (*a* or *b*) *c* | 307 | 149 | 155 | 3 | 127 | 180 | 142 | 165 | 21 | 272 | 14 |
| *a b c* | 71 | 42 | 29 | ..... | 33 | 38 | 36 | 35 | 5 | 65 | 1 |
| *a* — *c* | 198 | 92 | 103 | 3 | 80 | 118 | 92 | 106 | 16 | 171 | 11 |
| — *b c* | 38 | 15 | 23 | ..... | 14 | 24 | 14 | 24 | ..... | 36 | 2 |
| — — *c* | 370 | 133 | 221 | 16 | 119 | 251 | 177 | 193 | 10 | 327 | 33 |
| Per cent: | | | | | | | | | | | |
| *c* | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| (*a* or *b*) *c* | 45.3 | 52.8 | 41.2 | (1) | 51.6 | 41.8 | 44.5 | 46.1 | (1) | 45.4 | (1) |
| *a b c* | 10.5 | 14.9 | 7.7 | ..... | 13.4 | 8.8 | 11.3 | 9.8 | ..... | 10.9 | ..... |
| *a* — *c* | 29.2 | 32.7 | 27.4 | ..... | 32.5 | 27.4 | 28.8 | 29.6 | ..... | 28.5 | ..... |
| — *b c* | 5.6 | 5.2 | 6.1 | ..... | 5.7 | 5.6 | 4.4 | 6.7 | ..... | 6.0 | ..... |
| — — *c* | 54.7 | 47.2 | 58.8 | ..... | 48.4 | 58.2 | 55.5 | 53.9 | ..... | 54.6 | ..... |
| Per cent: | | | | | | | | | | | |
| *c* | 100.0 | 41.7 | 55.5 | 2.8 | 36.3 | 63.7 | 47.1 | 52.9 | 4.6 | 88.5 | 6.9 |
| (*a* or *b*) *c* | 100.0 | 48.5 | 50.5 | 1.0 | 41.4 | 58.6 | 46.3 | 53.7 | 6.8 | 88.6 | 4.6 |
| *a b c* | 100.0 | (1) | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| *a* — *c* | 100.0 | 46.5 | 52.0 | 1.5 | 40.4 | 59.6 | 46.5 | 53.5 | 8.1 | 86.3 | 5.6 |
| — *b c* | 100.0 | (1) | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| — — *c* | 100.0 | 36.0 | 59.7 | 4.3 | 32.1 | 67.9 | 47.8 | 52.2 | 2.8 | 88.3 | 8.9 |

[1] Percentage not given where base is less than 100.

Table LIII reveals the fact that the majority of the deaf who have deaf children are persons who became deaf in adult life. This result is somewhat surprising and could not have been anticipated. It only confirms the conclusion reached upon other grounds that heredity sometimes plays a part in the production of catarrh of the middle ear—the chief cause of deafness occurring in adult life.

The total number returned as having deaf children is 677, of whom 63.7 per cent were partially deaf and 55.5 per cent deaf from adult life; 52.9 per cent were females; 45.3 per cent had *a* or *b* deaf relatives; and 4.6 per cent were the offspring of cousin-marriages.

In the case of the deaf who had deaf children, the proportion having deaf relatives (*a* or *b*) is greater among those deaf from childhood than adult life; and greater among the totally deaf than the partially deaf (Table LIII). The opposite is the case among the whole of the deaf (Table LI).

In both cases, however, the percentage is greater among females than males; and greater among those whose parents were cousins than among those whose parents were not.

Nearly one-third of the whole deaf population, 32.1 per cent, had *a* or *b* deaf relatives (Table LI); and nearly one-half, 45.3 per cent, of the deaf who had deaf children had *a* or *b* relatives deaf (Table LIII).

*d relatives.*—Out of a total of 89,287 deaf, 5,051 had deaf husbands or wives (*d*), 75,430 had not, and in 8,806 cases the question relating to deaf relatives remained unanswered (Table XLIX).

We can not assume that the 75,430 persons referred to above had hearing husbands or wives, for the figures include the whole of the deaf—the single as well as the married, widowed, and divorced. Even in the case of the 5,051 deaf persons who had deaf husbands or wives (*d*), we can not assume that the deaf husbands or wives reported were all living at the time the census was taken; for only 4,965 appear in the returns of the married (Table XLIX), so that the remaining 86 were either widowed or divorced.

Table LIV shows the deaf who had deaf husbands or wives (*d*), by deaf relatives (*a*, *b*, or *c*); by period of life when deafness occurred, degree of deafness, sex, and consanguinity of parents.

TABLE LIV.—THE DEAF HAVING DEAF HUSBANDS OR WIVES (*d*), CLASSIFIED BY PERIOD OF LIFE WHEN DEAFNESS OCCURRED, DEGREE OF DEAFNESS, SEX, CONSANGUINITY OF PARENTS, AND DEAF RELATIVES (*a*, *b*, OR *c*).

| CLASS OF DEAF RELATIVES. | Total. | PERIOD OF LIFE WHEN DEAFNESS OCCURRED. | | | DEGREE OF DEAFNESS. | | SEX. | | CONSANGUINITY OF PARENTS. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Childhood (under 20). | Adult life (20 and over). | Unknown. | Totally deaf. | Partially deaf. | Male. | Female. | Parents cousins. | Not cousins. | Not stated. |
| *d* | 5,051 | 4,471 | 486 | 94 | 4,191 | 860 | 2,532 | 2,519 | 265 | 4,531 | 255 |
| (*a* or *b*) *d* | 1,477 | 1,332 | 123 | 22 | 1,238 | 239 | 735 | 742 | 159 | 1,250 | 68 |
| *a b d* | 244 | 221 | 19 | 4 | 205 | 39 | 127 | 117 | 27 | 206 | 11 |
| *a* — *d* | 984 | 880 | 90 | 14 | 814 | 170 | 479 | 505 | 119 | 818 | 47 |
| — *b d* | 249 | 231 | 14 | 4 | 219 | 30 | 129 | 120 | 13 | 226 | 10 |
| — — *d* | 3,574 | 3,139 | 363 | 72 | 2,953 | 621 | 1,797 | 1,777 | 106 | 3,281 | 187 |
| *c d* | 164 | 151 | 12 | 1 | 141 | 23 | 81 | 83 | 13 | 141 | 10 |
| (*a* or *b*) *c d* | 85 | 79 | 5 | 1 | 75 | 10 | 44 | 41 | 11 | 69 | 5 |
| *a b c d* | 23 | 20 | 3 | ..... | 20 | 3 | 16 | 7 | 3 | 19 | 1 |
| *a* — *c d* | 54 | 51 | 2 | 1 | 48 | 6 | 26 | 28 | 8 | 43 | 3 |
| — *b c d* | 8 | 8 | ..... | ..... | 7 | 1 | 2 | 6 | ..... | 7 | 1 |
| — — *c d* | 79 | 72 | 7 | ..... | 66 | 13 | 37 | 42 | 2 | 72 | 5 |
| — *d* | 4,887 | 4,320 | 474 | 93 | 4,050 | 837 | 2,451 | 2,436 | 252 | 4,390 | 245 |
| (*a* or *b*) — *d* | 1,392 | 1,253 | 118 | 21 | 1,163 | 229 | 691 | 701 | 148 | 1,181 | 63 |
| *a b* — *d* | 221 | 201 | 16 | 4 | 185 | 36 | 111 | 110 | 24 | 187 | 10 |
| *a* — — *d* | 930 | 829 | 88 | 13 | 766 | 164 | 453 | 477 | 111 | 775 | 44 |
| — *b* — *d* | 241 | 223 | 14 | 4 | 212 | 29 | 127 | 114 | 13 | 219 | 9 |
| — — — *d* | 3,495 | 3,067 | 356 | 72 | 2,887 | 608 | 1,760 | 1,735 | 104 | 3,209 | 182 |

From Table LIV it appears that of the 5,051 deaf persons who had deaf husbands or wives, 88.5 per cent were deaf from childhood, 9.6 per cent were deaf from adult life, and in 1.9 per cent of the cases the period of life when deafness occurred was unknown; 83 per cent were totally deaf and 17 per cent partially deaf; 50.1 per cent were males and 49.9 per cent were females; 5.2 per cent were the offspring of cousin-marriages, 89.7 per cent were not the offspring of cousins, and in 5.1 per cent of the cases the question relating to consanguinity of parents remained unanswered; 29.2 per cent had deaf relatives (*a* or *b*) and 70.8 per cent had no (*a* or *b*) deaf relatives; 3.3 per cent had deaf children (*c d*) and 96.7 per cent had no deaf children (— *d*)—that is, they had either hearing children or no children at all.

Table LIV shows that in the case of the 5,051 persons reported to have deaf husbands or wives, the vast majority were deaf from childhood (88.5 per cent), and the vast majority were totally deaf (83 per cent). This, taken in connection with the fact of the nearly equal division of the sexes, leads to the inference that in most of the cases of intermarriage of deaf persons with one another both of the parties to the marriage were deaf from childhood, and both totally deaf. Most of these persons lost hearing before reaching the age of 5 (Table LVII), and belonged, naturally, to the class deaf and dumb; so that these unions consist largely of intermarriages of deaf mutes with one another.

*The married deaf.*—The figures with which we have hitherto been dealing relate to the whole of the deaf, including the single, married, widowed, and divorced. Tables LV, LVI, LVII, and LVIII relate to the married deaf alone and to conditions of marriage that affect the production of deaf offspring. Tables LVI and LVII summarize the detail figures given in Table LV.

TABLE LV.—THE MARRIED DEAF, BY DEGREE OF DEAFNESS, PERIOD OF LIFE WHEN DEAFNESS OCCURRED, SEX, AND DEAF RELATIVES (*a*, *b*, OR *d*), WITH THE NUMBER IN EACH CLASS HAVING DEAF CHILDREN AND THE NUMBER HAVING NO DEAF CHILDREN.

| SEX AND CLASS OF DEAF RELATIVES. | TOTALLY DEAF. | | | | | | | PARTIALLY DEAF. | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total. | Period of life when deafness occurred. | | | Deaf from early childhood (under 5). | | | Total. | Period of life when deafness occurred. | | | Deaf from early childhood (under 5). | | |
| | | Childhood (under 20). | Adult life (20 and over). | Unknown. | Total. | Congenital. | Noncongenital. | | Childhood (under 20). | Adult life (20 and over). | Unknown. | Total. | Congenital. | Noncongenital. |
| Married males | 4,556 | 3,304 | 1,145 | 107 | 2,176 | 834 | 1,342 | 15,190 | 3,364 | 11,188 | 638 | 714 | 169 | 545 |
| Deaf relatives: | | | | | | | | | | | | | | |
| Not stated | 169 | 53 | 81 | 35 | 29 | 21 | 8 | 1,486 | 183 | 1,067 | 236 | 37 | 13 | 24 |
| Stated | 4,387 | 3,251 | 1,064 | 72 | 2,147 | 813 | 1,334 | 13,704 | 3,181 | 10,121 | 402 | 677 | 156 | 521 |
| *a b d* | 108 | 106 | 1 | 1 | 99 | 74 | 25 | 18 | 8 | 10 | | 4 | 2 | 2 |
| *a b c d* | 13 | 13 | | | 12 | 10 | 2 | 3 | | 3 | | | | |
| *a b — d* | 95 | 93 | 1 | 1 | 87 | 64 | 23 | 15 | 8 | 7 | | 4 | 2 | 2 |
| *a — d* | 389 | 386 | 1 | 2 | 337 | 239 | 98 | 86 | 41 | 43 | 2 | 25 | 12 | 13 |
| *a — c d* | 21 | 21 | | | 20 | 17 | 3 | 4 | 3 | | 1 | | | |
| *a — — d* | 368 | 365 | 1 | 2 | 317 | 222 | 95 | 82 | 38 | 43 | 1 | 25 | 12 | 13 |
| *— b d* | 109 | 107 | | 2 | 85 | 23 | 62 | 14 | 5 | 9 | | 3 | | 3 |
| *— b c d* | 2 | 2 | | | 2 | | 2 | | | | | | | |
| *— b — d* | 107 | 105 | | 2 | 83 | 23 | 60 | 14 | 5 | 9 | | 3 | | 3 |
| *— — d* | 1,471 | 1,435 | 15 | 21 | 1,062 | 220 | 842 | 306 | 117 | 173 | 16 | 74 | 15 | 59 |
| *— — c d* | 32 | 32 | | | 28 | 12 | 16 | 4 | 3 | 1 | | | | |
| *— — — d* | 1,439 | 1,403 | 15 | 21 | 1,034 | 208 | 826 | 302 | 114 | 172 | 16 | 74 | 15 | 59 |
| *a b —* | 115 | 64 | 49 | 2 | 32 | 27 | 5 | 678 | 220 | 447 | 11 | 38 | 11 | 27 |
| *a b c —* | 3 | 3 | | | 1 | 1 | | 12 | 7 | 5 | | | | |
| *a b — —* | 112 | 61 | 49 | 2 | 31 | 26 | 5 | 666 | 213 | 442 | 11 | 38 | 11 | 27 |
| *a — —* | 494 | 242 | 245 | 7 | 139 | 97 | 42 | 3,139 | 773 | 2,296 | 70 | 117 | 42 | 75 |
| *a — c —* | 11 | 6 | 5 | | 3 | 3 | | 40 | 10 | 30 | | 4 | 1 | 3 |
| *a — — —* | 483 | 236 | 240 | 7 | 136 | 94 | 42 | 3,099 | 763 | 2,266 | 70 | 113 | 41 | 72 |
| *— b —* | 104 | 61 | 41 | 2 | 31 | 13 | 18 | 622 | 187 | 425 | 10 | 31 | 8 | 23 |
| *— b c —* | 2 | | 2 | | | | | 6 | 2 | 4 | | | | |
| *— b — —* | 102 | 61 | 39 | 2 | 31 | 13 | 18 | 616 | 185 | 421 | 10 | 31 | 8 | 23 |
| *— — —* | 1,597 | 850 | 712 | 35 | 362 | 120 | 242 | 8,841 | 1,830 | 6,718 | 293 | 385 | 66 | 319 |
| *— — c —* | 14 | 5 | 9 | | 5 | 5 | | 83 | 14 | 63 | 6 | 4 | | 4 |
| *— — — —* | 1,583 | 845 | 703 | 35 | 357 | 115 | 242 | 8,758 | 1,816 | 6,655 | 287 | 381 | 66 | 315 |
| Married females | 3,775 | 3,058 | 624 | 93 | 2,110 | 772 | 1,338 | 10,685 | 3,198 | 7,073 | 414 | 603 | 108 | 495 |
| Deaf relatives: | | | | | | | | | | | | | | |
| Not stated | 140 | 68 | 50 | 22 | 37 | 24 | 13 | 1,077 | 229 | 667 | 181 | 41 | 10 | 31 |
| Stated | 3,635 | 2,990 | 574 | 71 | 2,073 | 748 | 1,325 | 9,608 | 2,969 | 6,406 | 233 | 562 | 98 | 464 |
| *a b d* | 95 | 93 | | 2 | 82 | 52 | 30 | 21 | 12 | 8 | 1 | 9 | 5 | 4 |
| *a b c d* | 7 | 7 | | | 6 | 2 | 4 | | | | | | | |
| *a b — d* | 88 | 86 | | 2 | 76 | 50 | 26 | 21 | 12 | 8 | 1 | 9 | 5 | 4 |
| *a — d* | 409 | 400 | 1 | 8 | 360 | 234 | 126 | 83 | 38 | 43 | 2 | 21 | 12 | 9 |
| *a — c d* | 26 | 26 | | | 25 | 20 | 5 | 2 | 1 | 1 | | | | |
| *a — — d* | 383 | 374 | 1 | 8 | 335 | 214 | 121 | 81 | 37 | 42 | 2 | 21 | 12 | 9 |
| *— b d* | 99 | 98 | | 1 | 80 | 26 | 54 | 15 | 10 | 4 | 1 | 4 | 1 | 3 |
| *— b c d* | 3 | 3 | | | 3 | 1 | 2 | 1 | 1 | | | | | |
| *— b — d* | 96 | 95 | | 1 | 77 | 25 | 52 | 14 | 9 | 4 | 1 | 4 | 1 | 3 |
| *— — d* | 1,436 | 1,407 | 5 | 24 | 1,077 | 242 | 835 | 306 | 131 | 164 | 11 | 72 | 7 | 65 |
| *— — c d* | 33 | 33 | | | 31 | 13 | 18 | 8 | 3 | 5 | | 2 | | 2 |
| *— — — d* | 1,403 | 1,374 | 5 | 24 | 1,046 | 229 | 817 | 298 | 128 | 159 | 11 | 70 | 7 | 63 |
| *a b —* | 80 | 42 | 35 | 3 | 21 | 12 | 9 | 649 | 207 | 435 | 7 | 25 | 8 | 17 |
| *a b c —* | 3 | 2 | 1 | | | | | 11 | 4 | 7 | | | | |
| *a b — —* | 77 | 40 | 34 | 3 | 21 | 12 | 9 | 638 | 203 | 428 | 7 | 25 | 8 | 17 |
| *a — —* | 363 | 198 | 153 | 12 | 116 | 84 | 32 | 2,581 | 708 | 1,835 | 38 | 86 | 26 | 60 |
| *a — c —* | 7 | 3 | 3 | 1 | 2 | 2 | | 26 | 9 | 16 | 1 | 1 | 1 | |
| *a — — —* | 356 | 195 | 150 | 11 | 114 | 82 | 32 | 2,555 | 699 | 1,819 | 37 | 85 | 25 | 60 |
| *— b —* | 85 | 52 | 32 | 1 | 28 | 12 | 16 | 532 | 187 | 338 | 7 | 29 | 6 | 23 |
| *— b c —* | 1 | | 1 | | | | | 5 | 2 | 3 | | | | |
| *— b — —* | 84 | 52 | 31 | 1 | 28 | 12 | 16 | 527 | 185 | 335 | 7 | 29 | 6 | 23 |
| *— — —* | 1,068 | 700 | 348 | 20 | 309 | 86 | 223 | 5,421 | 1,676 | 3,579 | 166 | 316 | 33 | 283 |
| *— — c —* | 12 | 10 | 2 | | 6 | 3 | 3 | 42 | 13 | 27 | 2 | 4 | | 4 |
| *— — — —* | 1,056 | 690 | 346 | 20 | 303 | 83 | 220 | 5,379 | 1,663 | 3,552 | 164 | 312 | 33 | 279 |

TABLE LVI.—THE MARRIED DEAF, BY DEGREE OF DEAFNESS, PERIOD OF LIFE WHEN DEAFNESS OCCURRED, AND DEAF RELATIVES (*a*, *b*, OR *d*), WITH THE NUMBER IN EACH CLASS HAVING DEAF CHILDREN AND THE NUMBER HAVING NO DEAF CHILDREN.

| CLASS OF DEAF RELATIVES. | TOTALLY DEAF. | | | | | | | PARTIALLY DEAF. | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total. | Period of life when deafness occurred. | | | Deaf from early childhood (under 5). | | | Total. | Period of life when deafness occurred. | | | Deaf from early childhood (under 5). | | |
| | | Childhood (under 20). | Adult life (20 and over). | Unknown. | Total. | Congenital. | Noncongenital. | | Childhood (under 20). | Adult life (20 and over). | Unknown. | Total. | Congenital. | Noncongenital. |
| The married deaf | 8,331 | 6,362 | 1,769 | 200 | 4,286 | 1,606 | 2,680 | 25,875 | 6,562 | 18,261 | 1,052 | 1,317 | 277 | 1,040 |
| Deaf relatives: | | | | | | | | | | | | | | |
| Not stated | 309 | 121 | 131 | 57 | 66 | 45 | 21 | 2,563 | 412 | 1,734 | 417 | 78 | 23 | 55 |
| Stated | 8,022 | 6,241 | 1,638 | 143 | 4,220 | 1,561 | 2,659 | 23,312 | 6,150 | 16,527 | 635 | 1,239 | 254 | 985 |
| *d* | 4,116 | 4,032 | 23 | 61 | 3,182 | 1,110 | 2,072 | 849 | 362 | 454 | 33 | 212 | 54 | 158 |
| — | 3,906 | 2,209 | 1,615 | 82 | 1,038 | 451 | 587 | 22,463 | 5,788 | 16,073 | 602 | 1,027 | 200 | 827 |
| *a d* | 1,001 | 985 | 3 | 13 | 878 | 599 | 279 | 208 | 99 | 104 | 5 | 59 | 31 | 28 |
| — *d* | 3,115 | 3,047 | 20 | 48 | 2,304 | 511 | 1,793 | 641 | 263 | 350 | 28 | 153 | 23 | 130 |
| *a* — | 1,052 | 546 | 482 | 24 | 308 | 220 | 88 | 7,047 | 1,908 | 5,013 | 126 | 266 | 87 | 179 |
| — — | 2,854 | 1,663 | 1,133 | 58 | 730 | 231 | 499 | 15,416 | 3,880 | 11,060 | 476 | 761 | 113 | 648 |
| *a b d* | 203 | 199 | 1 | 3 | 181 | 126 | 55 | 39 | 20 | 18 | 1 | 13 | 7 | 6 |
| *a* — *d* | 798 | 786 | 2 | 10 | 697 | 473 | 224 | 169 | 79 | 86 | 4 | 46 | 24 | 22 |
| — *b d* | 208 | 205 | ..... | 3 | 165 | 49 | 116 | 29 | 15 | 13 | 1 | 7 | 1 | 6 |
| — — *d* | 2,907 | 2,842 | 20 | 45 | 2,139 | 462 | 1,677 | 612 | 248 | 337 | 27 | 146 | 22 | 124 |
| *a b* — | 195 | 106 | 84 | 5 | 53 | 39 | 14 | 1,327 | 427 | 882 | 18 | 63 | 19 | 44 |
| *a* — — | 857 | 440 | 398 | 19 | 255 | 181 | 74 | 5,720 | 1,481 | 4,131 | 108 | 203 | 68 | 135 |
| *a b* — | 189 | 113 | 73 | 3 | 59 | 25 | 34 | 1,154 | 374 | 763 | 17 | 60 | 14 | 46 |
| — — — | 2,665 | 1,550 | 1,060 | 55 | 671 | 206 | 465 | 14,262 | 3,506 | 10,297 | 459 | 701 | 99 | 602 |
| Stated: | | | | | | | | | | | | | | |
| *c* | 190 | 166 | 23 | 1 | 144 | 89 | 55 | 247 | 72 | 165 | 10 | 15 | 2 | 13 |
| — | 7,832 | 6,075 | 1,615 | 142 | 4,076 | 1,472 | 2,604 | 23,065 | 6,078 | 16,362 | 625 | 1,224 | 252 | 972 |
| *d*: | | | | | | | | | | | | | | |
| *c* | 137 | 137 | ..... | ..... | 127 | 75 | 52 | 22 | 11 | 10 | 1 | 2 | ..... | 2 |
| — | 3,979 | 3,895 | 23 | 61 | 3,055 | 1,035 | 2,020 | 827 | 351 | 444 | 32 | 210 | 54 | 156 |
| —: | | | | | | | | | | | | | | |
| *c* | 53 | 29 | 23 | 1 | 17 | 14 | 3 | 225 | 61 | 155 | 9 | 13 | 2 | 11 |
| — | 3,853 | 2,180 | 1,592 | 81 | 1,021 | 437 | 584 | 22,238 | 5,727 | 15,918 | 593 | 1,014 | 198 | 816 |
| *a d*: | | | | | | | | | | | | | | |
| *c* | 67 | 67 | ..... | ..... | 63 | 49 | 14 | 9 | 4 | 4 | 1 | ..... | ..... | ..... |
| — | 934 | 918 | 3 | 13 | 815 | 550 | 265 | 199 | 95 | 100 | 4 | 59 | 31 | 28 |
| — *d*: | | | | | | | | | | | | | | |
| *c* | 70 | 70 | ..... | ..... | 64 | 26 | 38 | 13 | 7 | 6 | ..... | 2 | ..... | 2 |
| — | 3,045 | 2,977 | 20 | 48 | 2,240 | 485 | 1,755 | 628 | 256 | 344 | 28 | 151 | 23 | 128 |
| *a* —: | | | | | | | | | | | | | | |
| *c* | 24 | 14 | 9 | 1 | 6 | 6 | ..... | 89 | 30 | 58 | 1 | 5 | 2 | 3 |
| — | 1,028 | 532 | 473 | 23 | 302 | 214 | 88 | 6,958 | 1,878 | 4,955 | 125 | 261 | 85 | 176 |
| — —: | | | | | | | | | | | | | | |
| *c* | 29 | 15 | 14 | ..... | 11 | 8 | 3 | 136 | 31 | 97 | 8 | 8 | ..... | 8 |
| — | 2,825 | 1,648 | 1,119 | 58 | 719 | 223 | 496 | 15,280 | 3,849 | 10,963 | 468 | 753 | 113 | 640 |
| *a b d*: | | | | | | | | | | | | | | |
| *c* | 20 | 20 | ..... | ..... | 18 | 12 | 6 | 3 | ..... | 3 | ..... | ..... | ..... | ..... |
| — | 183 | 179 | 1 | 3 | 163 | 114 | 49 | 36 | 20 | 15 | 1 | 13 | 7 | 6 |
| *a* — *d*: | | | | | | | | | | | | | | |
| *c* | 47 | 47 | ..... | ..... | 45 | 37 | 8 | 6 | 4 | 1 | 1 | ..... | ..... | ..... |
| — | 751 | 739 | 2 | 10 | 652 | 436 | 216 | 163 | 75 | 85 | 3 | 46 | 24 | 22 |
| — *b d*: | | | | | | | | | | | | | | |
| *c* | 5 | 5 | ..... | ..... | 5 | 1 | 4 | 1 | 1 | ..... | ..... | ..... | ..... | ..... |
| — | 203 | 200 | ..... | 3 | 160 | 48 | 112 | 28 | 14 | 13 | 1 | 7 | 1 | 6 |
| — — *d*: | | | | | | | | | | | | | | |
| *c* | 65 | 65 | ..... | ..... | 59 | 25 | 34 | 12 | 6 | 6 | ..... | 2 | ..... | 2 |
| — | 2,842 | 2,777 | 20 | 45 | 2,080 | 437 | 1,643 | 600 | 242 | 331 | 27 | 144 | 22 | 122 |
| *a b* —: | | | | | | | | | | | | | | |
| *c* | 6 | 5 | 1 | ..... | 1 | 1 | ..... | 23 | 11 | 12 | ..... | ..... | ..... | ..... |
| — | 189 | 101 | 83 | 5 | 52 | 38 | 14 | 1,304 | 416 | 870 | 18 | 63 | 19 | 44 |
| *a* — —: | | | | | | | | | | | | | | |
| *c* | 18 | 9 | 8 | 1 | 5 | 5 | ..... | 66 | 19 | 46 | 1 | 5 | 2 | 3 |
| — | 839 | 431 | 390 | 18 | 250 | 176 | 74 | 5,654 | 1,462 | 4,085 | 107 | 198 | 66 | 132 |
| — *b* —: | | | | | | | | | | | | | | |
| *c* | 3 | ..... | 3 | ..... | ..... | ..... | ..... | 11 | 4 | 7 | ..... | ..... | ..... | ..... |
| — | 186 | 113 | 70 | 3 | 59 | 25 | 34 | 1,143 | 370 | 756 | 17 | 60 | 14 | 46 |
| — — —: | | | | | | | | | | | | | | |
| *c* | 26 | 15 | 11 | ..... | 11 | 8 | 3 | 125 | 27 | 90 | 8 | 8 | ..... | 8 |
| — | 2,639 | 1,535 | 1,049 | 55 | 660 | 198 | 462 | 14,137 | 3,479 | 10,207 | 451 | 693 | 99 | 594 |

TABLE LVII.—THE MARRIED DEAF, BY SEX, DEGREE OF DEAFNESS, PERIOD OF LIFE WHEN DEAFNESS OCCURRED, AND DEAF RELATIVES (*a*, *b*, OR *d*), WITH THE NUMBER IN EACH CLASS HAVING DEAF CHILDREN AND THE NUMBER HAVING NO DEAF CHILDREN.

| CLASS OF DEAF RELATIVES. | Total. | SEX. | | DEGREE OF DEAFNESS. | | PERIOD OF LIFE WHEN DEAFNESS OCCURRED. | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Male. | Female. | Totally deaf. | Partially deaf. | Childhood (under 20). | Adult life (20 and over). | Unknown. | Early childhood (under 5). | | |
| | | | | | | | | | Total. | Congenital. | Noncongenital. |
| The married deaf | 34,206 | 19,746 | 14,460 | 8,331 | 25,875 | 12,924 | 20,030 | 1,252 | 5,603 | 1,883 | 3,720 |
| Deaf relatives: | | | | | | | | | | | |
| Not stated | 2,872 | 1,655 | 1,217 | 309 | 2,563 | 533 | 1,865 | 474 | 144 | 68 | 76 |
| Stated | 31,334 | 18,091 | 13,243 | 8,022 | 23,312 | 12,391 | 18,165 | 778 | 5,459 | 1,815 | 3,644 |
| *d* | 4,965 | 2,501 | 2,464 | 4,116 | 849 | 4,394 | 477 | 94 | 3,394 | 1,164 | 2,230 |
| — | 26,369 | 15,590 | 10,779 | 3,906 | 22,463 | 7,997 | 17,688 | 684 | 2,065 | 651 | 1,414 |
| *a d* | 1,209 | 601 | 608 | 1,001 | 208 | 1,084 | 107 | 18 | 937 | 630 | 307 |
| — *d* | 3,756 | 1,900 | 1,856 | 3,115 | 641 | 3,310 | 370 | 76 | 2,457 | 534 | 1,923 |
| *a* — | 8,099 | 4,426 | 3,673 | 1,052 | 7,047 | 2,454 | 5,495 | 150 | 574 | 307 | 267 |
| — — | 18,270 | 11,164 | 7,106 | 2,854 | 15,416 | 5,543 | 12,193 | 534 | 1,491 | 344 | 1,147 |
| *a b d* | 242 | 126 | 116 | 203 | 39 | 219 | 19 | 4 | 194 | 133 | 61 |
| *a* — *d* | 967 | 475 | 492 | 798 | 169 | 865 | 88 | 14 | 743 | 497 | 246 |
| — *b d* | 237 | 123 | 114 | 208 | 29 | 220 | 13 | 4 | 172 | 50 | 122 |
| — — *d* | 3,519 | 1,777 | 1,742 | 2,907 | 612 | 3,090 | 357 | 72 | 2,285 | 484 | 1,801 |
| *a b* — | 1,522 | 793 | 729 | 195 | 1,327 | 533 | 966 | 23 | 116 | 58 | 58 |
| *a* — — | 6,577 | 3,633 | 2,944 | 857 | 5,720 | 1,921 | 4,529 | 127 | 458 | 249 | 209 |
| — *b* — | 1,343 | 726 | 617 | 189 | 1,154 | 487 | 836 | 20 | 119 | 39 | 80 |
| — — — | 16,927 | 10,438 | 6,489 | 2,665 | 14,262 | 5,056 | 11,357 | 514 | 1,372 | 305 | 1,067 |
| Stated: | | | | | | | | | | | |
| *c* | 437 | 250 | 187 | 190 | 247 | 238 | 188 | 11 | 159 | 91 | 68 |
| — | 30,897 | 17,841 | 13,056 | 7,832 | 23,065 | 12,153 | 17,977 | 767 | 5,300 | 1,724 | 3,576 |
| *d*: | | | | | | | | | | | |
| *c* | 159 | 79 | 80 | 137 | 22 | 148 | 10 | 1 | 129 | 75 | 54 |
| — | 4,806 | 2,422 | 2,384 | 3,979 | 827 | 4,246 | 467 | 93 | 3,265 | 1,089 | 2,176 |
| —: | | | | | | | | | | | |
| *c* | 278 | 171 | 107 | 53 | 225 | 90 | 178 | 10 | 30 | 16 | 14 |
| — | 26,091 | 15,419 | 10,672 | 3,853 | 22,238 | 7,907 | 17,510 | 674 | 2,035 | 635 | 1,400 |
| *a d*: | | | | | | | | | | | |
| *c* | 76 | 41 | 35 | 67 | 9 | 71 | 4 | 1 | 63 | 49 | 14 |
| — | 1,133 | 560 | 573 | 934 | 199 | 1,013 | 103 | 17 | 874 | 581 | 293 |
| — *d*: | | | | | | | | | | | |
| *c* | 83 | 38 | 45 | 70 | 13 | 77 | 6 | ..... | 66 | 26 | 40 |
| — | 3,673 | 1,862 | 1,811 | 3,045 | 628 | 3,233 | 364 | 76 | 2,391 | 508 | 1,883 |
| *a* —: | | | | | | | | | | | |
| *c* | 113 | 66 | 47 | 24 | 89 | 44 | 67 | 2 | 11 | 8 | 3 |
| — | 7,986 | 4,360 | 3,626 | 1,028 | 6,958 | 2,410 | 5,428 | 148 | 563 | 299 | 264 |
| — —: | | | | | | | | | | | |
| *c* | 165 | 105 | 60 | 29 | 136 | 46 | 111 | 8 | 19 | 8 | 11 |
| — | 18,105 | 11,059 | 7,046 | 2,825 | 15,280 | 5,497 | 12,082 | 526 | 1,472 | 336 | 1,136 |
| *a b d*: | | | | | | | | | | | |
| *c* | 23 | 16 | 7 | 20 | 3 | 20 | 3 | ..... | 18 | 12 | 6 |
| — | 219 | 110 | 109 | 183 | 36 | 199 | 16 | 4 | 176 | 121 | 55 |
| *a* — *d*: | | | | | | | | | | | |
| *c* | 53 | 25 | 28 | 47 | 6 | 51 | 1 | 1 | 45 | 37 | 8 |
| — | 914 | 450 | 464 | 751 | 163 | 814 | 87 | 13 | 698 | 460 | 238 |
| — *b d*: | | | | | | | | | | | |
| *c* | 6 | 2 | 4 | 5 | 1 | 6 | ..... | ..... | 5 | 1 | 4 |
| — | 231 | 121 | 110 | 203 | 28 | 214 | 13 | 4 | 167 | 49 | 118 |
| — — *d*: | | | | | | | | | | | |
| *c* | 77 | 36 | 41 | 65 | 12 | 71 | 6 | ..... | 61 | 25 | 36 |
| — | 3,442 | 1,741 | 1,701 | 2,842 | 600 | 3,019 | 351 | 72 | 2,224 | 459 | 1,765 |
| *a b* —: | | | | | | | | | | | |
| *c* | 29 | 15 | 14 | 6 | 23 | 16 | 13 | ..... | 1 | 1 | ..... |
| — | 1,493 | 778 | 715 | 189 | 1,304 | 517 | 953 | 23 | 115 | 57 | 58 |
| *a* — —: | | | | | | | | | | | |
| *c* | 84 | 51 | 33 | 18 | 66 | 28 | 54 | 2 | 10 | 7 | 3 |
| — | 6,493 | 3,582 | 2,911 | 839 | 5,654 | 1,893 | 4,475 | 125 | 448 | 242 | 206 |
| — *b* —: | | | | | | | | | | | |
| *c* | 14 | 8 | 6 | 3 | 11 | 4 | 10 | ..... | ..... | ..... | ..... |
| — | 1,329 | 718 | 611 | 186 | 1,143 | 483 | 826 | 20 | 119 | 39 | 80 |
| — — —: | | | | | | | | | | | |
| *c* | 151 | 97 | 54 | 26 | 125 | 42 | 101 | 8 | 19 | 8 | 11 |
| — | 16,776 | 10,341 | 6,435 | 2,639 | 14,137 | 5,014 | 11,256 | 506 | 1,353 | 297 | 1,056 |

TABLE LVIII.—THE PER CENT OF THE MARRIED DEAF HAVING DEAF CHILDREN AND THE PER CENT HAVING NO DEAF CHILDREN, BY SEX, DEGREE OF DEAFNESS, AND PERIOD OF LIFE WHEN DEAFNESS OCCURRED, AND DEAF RELATIVES (*a*, *b*, OR *d*).

| CLASS OF DEAF RELATIVES. | Total. | SEX. | | DEGREE OF DEAFNESS. | | PERIOD OF LIFE WHEN DEAFNESS OCCURRED. | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Male. | Female. | Totally deaf. | Partially deaf. | Childhood (under 20). | Adult life (20 and over). | Unknown. | Early childhood (under 5). | | |
| | | | | | | | | | Total. | Congenital. | Noncongenital. |
| The married deaf: | | | | | | | | | | | |
| Deaf relatives— | | | | | | | | | | | |
| Stated | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| *c* | 1.4 | 1.4 | 1.4 | 2.4 | 1.1 | 1.9 | 1.0 | 1.4 | 2.9 | 5.0 | 1.9 |
| — | 98.6 | 98.6 | 98.6 | 97.6 | 98.9 | 98.1 | 99.0 | 98.6 | 97.1 | 95.0 | 98.1 |
| *d* | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | ..... | 100.0 | 100.0 | 100.0 |
| *c* | 3.2 | 3.2 | 3.2 | 3.3 | 2.6 | 3.4 | 2.1 | (1) | 3.8 | 6.4 | 2.4 |
| — | 96.8 | 96.8 | 96.8 | 96.7 | 97.4 | 96.6 | 97.9 | (1) | 96.2 | 93.6 | 97.6 |
| — | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| *c* | 1.1 | 1.1 | 1.0 | 1.4 | 1.0 | 1.1 | 1.0 | 1.5 | 1.5 | 2.5 | 1.0 |
| — | 98.9 | 98.9 | 99.0 | 98.6 | 99.0 | 98.9 | 99.0 | 98.5 | 98.5 | 97.5 | 99.0 |
| *a d* | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | ..... | 100.0 | 100.0 | 100.0 |
| *c* | 6.3 | 6.8 | 5.8 | 6.7 | 4.3 | 6.5 | 3.7 | (1) | 6.7 | 7.8 | 4.6 |
| — | 93.7 | 93.2 | 94.2 | 93.3 | 95.7 | 93.5 | 96.3 | (1) | 93.3 | 92.2 | 95.4 |
| — *d* | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | ..... | 100.0 | 100.0 | 100.0 |
| *c* | 2.2 | 2.0 | 2.4 | 2.2 | 2.0 | 2.3 | 1.6 | ..... | 2.7 | 4.9 | 2.1 |
| — | 97.8 | 98.0 | 97.6 | 97.8 | 98.0 | 97.7 | 98.4 | (1) | 97.3 | 95.1 | 97.9 |
| *a* — | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| *c* | 1.4 | 1.5 | 1.3 | 2.3 | 1.3 | 1.8 | 1.2 | 1.3 | 1.9 | 2.6 | 1.1 |
| — | 98.6 | 98.5 | 98.7 | 97.7 | 98.7 | 98.2 | 98.8 | 98.7 | 98.1 | 97.4 | 98.9 |
| — — | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| *c* | 0.9 | 0.9 | 0.8 | 1.0 | 0.9 | 0.8 | 0.9 | 1.5 | 1.3 | 2.3 | 1.0 |
| — | 99.1 | 99.1 | 99.2 | 99.0 | 99.1 | 99.2 | 99.1 | 98.5 | 98.7 | 97.7 | 99.0 |
| *a b d* | 100.0 | 100.0 | 100.0 | 100.0 | ..... | 100.0 | ..... | ..... | 100.0 | 100.0 | ..... |
| *c* | 9.5 | 12.7 | 6.0 | 9.9 | (1) | 9.1 | (1) | ..... | 9.3 | 9.0 | (1) |
| — | 90.5 | 87.3 | 94.0 | 90.1 | (1) | 90.9 | (1) | (1) | 90.7 | 91.0 | (1) |
| *a* — *d* | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | ..... | ..... | 100.0 | 100.0 | 100.0 |
| *c* | 5.5 | 5.3 | 5.7 | 5.9 | 3.6 | 5.9 | (1) | (1) | 6.1 | 7.4 | 3.3 |
| — | 94.5 | 94.7 | 94.3 | 94.1 | 96.4 | 94.1 | (1) | (1) | 93.9 | 92.6 | 96.7 |
| — *b d* | 100.0 | 100.0 | 100.0 | 100.0 | ..... | 100.0 | ..... | ..... | 100.0 | ..... | 100.0 |
| *c* | 2.5 | 1.6 | 3.5 | 2.4 | (1) | 2.7 | ..... | ..... | 2.9 | (1) | 3.3 |
| — | 97.5 | 98.4 | 96.5 | 97.6 | (1) | 97.3 | (1) | (1) | 97.1 | (1) | 96.7 |
| — — *d* | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | ..... | 100.0 | 100.0 | 100.0 |
| *c* | 2.2 | 2.0 | 2.4 | 2.2 | 2.0 | 2.3 | 1.7 | ..... | 2.7 | 5.2 | 2.0 |
| — | 97.8 | 98.0 | 97.6 | 97.8 | 98.0 | 97.7 | 98.3 | (1) | 97.3 | 94.8 | 98.0 |
| *a b* — | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | ..... | 100.0 | ..... | ..... |
| *c* | 1.9 | 1.9 | 1.9 | 3.1 | 1.7 | 3.0 | 1.3 | ..... | 0.9 | (1) | ..... |
| — | 98.1 | 98.1 | 98.1 | 96.9 | 98.3 | 97.0 | 98.7 | (1) | 99.1 | (1) | (1) |
| *a* — — | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| *c* | 1.3 | 1.4 | 1.1 | 2.1 | 1.2 | 1.5 | 1.2 | 1.6 | 2.2 | 2.8 | 1.4 |
| — | 98.7 | 98.6 | 98.9 | 97.9 | 98.8 | 98.5 | 98.8 | 98.4 | 97.8 | 97.2 | 98.6 |
| — *b* — | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | ..... | 100.0 | ..... | ..... |
| *c* | 1.0 | 1.1 | 1.0 | 1.6 | 1.0 | 0.8 | 1.2 | ..... | ..... | ..... | ..... |
| — | 99.0 | 98.9 | 99.0 | 98.4 | 99.0 | 99.2 | 98.8 | (1) | 100.0 | (1) | (1) |
| — — — | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| *c* | 0.9 | 0.9 | 0.8 | 1.0 | 0.9 | 0.8 | 0.9 | 1.6 | 1.4 | 2.6 | 1.0 |
| — | 99.1 | 99.1 | 99.2 | 99.0 | 99.1 | 99.2 | 99.1 | 98.4 | 98.6 | 97.4 | 99.0 |

[1] Percentage not given where aggregate is less than 100.

From Table LVII it appears that 34,206 married deaf persons were reported in the census of 1900. Of these, 57.7 per cent were males and 42.3 per cent were females; 37.8 per cent were deaf from childhood (under 20), 58.5 per cent became deaf in adult life, and in 3.7 per cent of the cases the period of life when deafness occurred was unknown.

Of the 12,924 cases deaf from childhood, 51.5 per cent were males and 48.5 per cent were females. Of the 20,030 cases deaf from adult life, 61.6 per cent were males and only 38.4 per cent were females (Tables LV and LVI). It thus appears that the majority of the deaf who marry are males; and the disproportion of the sexes in this respect is most manifest in the case of the deaf from adult life, of whom 61.6 per cent were males.

Out of a total of 34,206 married deaf persons, 31,334 answered the question relating to deaf relatives and 2,872 did not (Table LVII). The following percentages relate to the stated cases:

*a or b relatives.*—10,888, or 34.7 per cent, of the married deaf had deaf brothers, sisters, ancestors,

uncles, aunts, cousins, or more distant relatives, and 20,446, or 65.3 per cent, had no *a* or *b* deaf relatives (Table LVII).

*c relatives.*—437, or 1.4 per cent, of the married deaf had deaf children, and 30,897, or 98.6 per cent, had no deaf children—that is, they either had hearing children or no children at all (Table LVII).

*d relatives.*—4,965, or 15.8 per cent, of the married deaf had deaf husbands or wives, and in 26,369 cases, or 84.2 per cent, the husbands or wives were not deaf—that is, they were hearing persons (Table LVII).

Of the 4,965 married deaf who had deaf husbands or wives, 4,394, or 88.5 per cent, were deaf from childhood (under 20); 477, or 9.6 per cent, became deaf in adult life; and in 94 cases, or 1.9 per cent, the period of life when deafness occurred was unknown (Table LVII).

Of the 26,369 married deaf whose husbands or wives were not deaf, 7,997, or 30.3 per cent, were deaf from childhood; 17,688, or 67.1 per cent, were deaf from adult life; and in 684 cases, or 2.6 per cent, the period of life when deafness occurred was unknown (Table LVII).

Thus the vast majority of the married deaf who had deaf husbands or wives (88.5 per cent) were deaf from childhood, and about two-thirds of the married deaf whose husbands and wives were not deaf (67.1 per cent) were persons who lost hearing in adult life. It will also be noticed that the majority of the married deaf who had deaf husbands or wives (68.3 per cent) were deaf from early childhood (under 5) (Table LVII), and belong naturally to the class deaf and dumb. They represent intermarriages of deaf-mutes with one another.

In studying the marriages of the deaf, and the influence of these marriages upon the offspring, the plan has been adopted of calculating the percentage having deaf children upon the basis of a total which includes the males and females considered, instead of noting separately the percentage of males and the percentage of females having deaf children. The percentage derived from the summation of the two classes is more reliable than that derived from either class alone, because based upon larger numbers. And the percentages express not merely the proportion of deaf persons who have deaf children, but the proportion of families containing deaf children. This is an important point and worthy of special consideration.

In regard to the absolute numbers involved it will of course be noticed that the figures expressing the number of deaf persons who have deaf children do not represent the number of deaf children born to them, even if we assume that each person had only one deaf child—which would be an underestimate. Some of the males and females included were undoubtedly the parents of the same children—two parents to one child. Nor do these figures represent the number of families having deaf children, which is necessarily less than the number of married persons composing them; and yet the percentage of persons having deaf children expresses the percentage of families having deaf children, even though the absolute number of families may be unknown. This will be obvious from the following considerations:

Let there be one hundred families, and let one of them contain deaf children; then the proportion of families having deaf children is 1 per cent.

*Case 1.*—Now assume that in each of these families only one of the married partners was deaf; then 100 married deaf persons in all would be recorded, of whom 1 had deaf children. In this case the proportion having deaf children would be 1 per cent, thus corresponding with the percentage of families.

*Case 2.*—Next assume that in each of the families considered both of the married partners were deaf; then 200 married deaf persons in all would be recorded, of whom 2 had deaf children. But the proportion having deaf children would remain at 1 per cent, thus still corresponding with the percentage of families.

*Case 3.*—These are extreme cases, and there is only one other supposable case between them, namely, that in some of the families the married partners were both deaf, and that in others only one of the married partners was deaf. In this case also it is obvious that the percentage of deaf persons having deaf children would correspond to the percentage of families.

In the case of the married deaf we do not know exactly the total number of families involved or the exact number of families containing deaf children; but still we can estimate these numbers with a sufficient approximation to the truth to enable us to test the accuracy of the conclusions noted above.

*Case 1.*—The 26,369 married deaf persons whose husbands or wives were not deaf constituted, of course, 26,369 families, and the 278 persons among them who had deaf children also evidently constituted 278 families; so that here the percentage of persons having deaf children is obviously the same as the percentage of families containing deaf children.

*Case 2.*—In the case of the 4,965 married deaf persons who had deaf husbands or wives, 2,501 were males and 2,464 were females; so they constituted at least 2,501 families. There may have been more, but certainly not less. In the case of the 159 persons among them who had deaf children 79 were males and 80 were females; so that these persons constituted not less than 80 families.

$$\frac{4965}{159} = \text{the ratio of persons.}$$

$$\frac{2501}{80} = \text{the (approximate) ratio of families.}$$

These ratios are substantially the same, for—

$$4965 : 159 :: 2501 : 80.09.$$

*Case 3.*—In the case of the 31,334 married deaf persons constituting the stated cases in Table LVII, 18,091 were males and 13,243 were females. These persons therefore constituted at least 18,091 families. In the case of the 437 persons among them who had deaf children 250 were males and 187 were females; so that they constituted at least 250 families. There may have been more, but certainly not less.

$$\frac{31334}{437} = \text{the ratio of persons.}$$

$$\frac{18091}{250} = \text{the (approximate) ratio of families.}$$

These two ratios are very nearly the same, for—

$$31334 : 437 :: 18091 : 252.3.$$

*Conditions affecting the production of deaf offspring.*—Table LVII shows that out of 31,334 married deaf persons 437, or 1.4 per cent, had deaf children. This means that on the average 1.4 per cent of the marriages contracted by deaf persons are productive of deaf offspring. Out of every 100 families formed by these marriages 1.4 contain deaf children.

*Sex.*—Out of 18,091 married deaf males 250, or 1.4 per cent, had deaf children. Out of 13,243 married deaf females 187, or 1.4 per cent, had deaf children (Table LVII).

From this it appears that the sex of the deaf partner in marriage does not appreciably affect the proportion having deaf children, although it should be noticed that in the case of those having *a b d* deaf relatives the percentage having deaf children is more than twice as great among the males as among the females (males, 12.7; females, 6) (Table LVIII). The totals, however, on which these latter percentages are based are comparatively small, very little exceeding 100; whereas the percentages for the whole of the married males and females are based upon many thousands of cases, and show no difference in this respect between the males and females. The sex of the deaf parent alone, without other complicating conditions (like *a b d* deaf relatives) does not seem to be a factor affecting the proportion having deaf children.

| | |
|---|---|
| Males | 1.4 |
| Females | 1.4 |

*Degree of deafness.*—Out of 8,022 married deaf persons who were totally deaf 190, or 2.4 per cent, had deaf offspring; and out of 23,312 married deaf persons who were partially deaf 247, or 1.1 per cent, had deaf children (Table LVII).

It thus appears that the proportion having deaf offspring is more than twice as great among the totally deaf as among the partially deaf married persons. Table LIII shows that the majority of the deaf who have deaf offspring are partially deaf; but this evidently results not from any greater liability on their part to produce deaf offspring, but from the fact that the partially deaf are more numerous than the totally deaf in the whole deaf population. Among the married deaf 25,875 were partially deaf and only 8,331 totally deaf (Table LVII).

| | |
|---|---|
| Totally deaf | 2.4 |
| Partially deaf | 1.1 |

*Period of life when deafness occurred.*—Out of 12,391 married deaf who were deaf from childhood (under 20) 238, or 1.9 per cent, had deaf children. Out of 18,165 married deaf who became deaf in adult life 188, or 1 per cent, had deaf children (Table LVII).

Out of 5,459 married deaf persons who lost hearing before the age of 5, 159, or 2.9 per cent, had deaf children. Of these, 1,815 were congenitally deaf and 3,644 became deaf after birth and before reaching the age of 5. Of the congenitally deaf cases, 91, or 5 per cent, had deaf children. Of the noncongenitally deaf cases, 68, or 1.9 per cent, had deaf children (Table LVII).

It thus appears that the tendency to transmit the defect is greater among the deaf from childhood than the deaf from adult life. It is still greater among the deaf from early childhood (under 5), all of whom belong naturally to the class deaf and dumb, and greatest of all among the deaf from birth (the congenital cases).

| | |
|---|---|
| Childhood (under 20) | 1.9 |
| Adult life (20 and over) | 1.0 |
| Early childhood (under 5) | 2.9 |
| Congenital | 5.0 |
| Noncongenital (under 5) | 1.9 |

*a, b, or d relatives.*—Out of 14,407 married deaf persons who had deaf relatives (*a*, *b*, or *d*), 286, or 2 per cent, had deaf children. Out of 16,927 who had no deaf relatives (*a*, *b*, or *d*), 151, or 0.9 per cent, had deaf children (Table LVII).

It thus appears that the proportion having deaf children is more than twice as great among the married deaf who have deaf relatives (*a*, *b*, or *d*) as among those who have no *a*, *b*, or *d* deaf relatives.

| | |
|---|---|
| Deaf relatives (*a*, *b*, or *d*) | 2.0 |
| No deaf relatives (*a*, *b*, or *d*) | 0.9 |

*a relatives.*—There were 9,308 married deaf persons who had deaf brothers, sisters, or ancestors. Of these, 189, or 2 per cent, had deaf children, but it will be observed that the total includes all who have *a* relatives. Some of the persons referred to had also *b* or *d* relatives. To ascertain the effect of the *a* element alone we should exclude the *b* and *d* elements from consideration. Out of 6,577 married deaf who had *a* relatives alone without *b* or *d* relatives (*a* — —), 84, or 1.3 per cent, had deaf children (Table LVII).

*b relatives.*—Out of 3,344 married deaf persons who had uncles, aunts, cousins, or other more distant relatives deaf (*b*), 72, or 2.2 per cent, had deaf children; but the total includes persons who had also *a* or *d* relatives. Excluding the *a* and *d* elements, we find that

1,343 of the married deaf had *b* relatives alone, without *a* or *d* relatives (— *b* —); and of these, 14, or 1 per cent, had deaf children (Table LVII).

*d relatives.*—Out of 4,965 married deaf who had deaf husbands or wives, 159, or 3.2 per cent, had deaf children. The total includes persons who had *a* or *b* deaf relatives; and if we exclude these, we find 3,519 married deaf with deaf husbands or wives but no *a* or *b* relatives deaf (— — *d*). Of these, 77, or 2.2 per cent, had deaf children (Table LVII).

Even in this case, however, we have not eliminated the effect of *a* or *b* relatives; for many of the deaf husbands or wives considered undoubtedly had *a* or *b* deaf relatives. The census returns give us no information concerning these husbands or wives beyond the bare fact that they were deaf.

*No a, b, or d relatives.*—Out of 16,927 married deaf persons who had no *a*, *b*, or *d* relatives deaf, 151, or 0.9 per cent, had deaf children (Table LVII).

In considering the significance of deaf relatives as an indication of the liability of a deaf person to produce deaf offspring the following seems to be the order of importance of the *a*, *b*, and *d* elements considered separately: The largest proportion having deaf children is found among the married deaf who have deaf husbands or wives (but no *a* or *b* relatives); next come those having *a* relatives (but not *b* or *d*); then those having *b* relatives (but not *a* or *d*). The smallest proportion having deaf children is found among those who have neither *a*, *b*, nor *d* relatives:

| | |
|---|---|
| — — *d* | 2.2 |
| *a* — — | 1.3 |
| — *b* — | 1.0 |
| — — — | 0.9 |

*Combinations of a, b, and d relatives.*—From these facts we would naturally anticipate that the largest proportion having deaf children would be found among those having both *a* and *b* relatives who married deaf husbands or wives, and that the proportion having deaf children would be successively smaller where other combinations of *a*, *b*, or *d* occurred in the following order: *a b d; a — d; — b d; — — d; a b —; a — —; — b —; — — —.* And this we find to be the case. The following figures show the percentage of married deaf persons having deaf children where these combinations of deaf relatives occurred (Table LVIII).

| | |
|---|---|
| *a b d* | 9.5 |
| *a — d* | 5.5 |
| — *b d* | 2.5 |
| — — *d* | 2.2 |
| *a b* — | 1.9 |
| *a* — — | 1.3 |
| — *b* — | 1.0 |
| — — — | 0.9 |

We should also expect to find a still larger percentage having deaf children where the *a b d* elements are combined with other elements found to be significant in this connection—like total deafness and deafness occurring at an early period of life, and this we find to be the case. For example: Table LVI records 181 married deaf persons who were totally deaf from birth, and who had *a b d* relatives deaf. Of these, 18, or 9.94 per cent, had deaf children.

| | |
|---|---|
| Totally deaf from birth, *a b d* | 9.94 |

The significance of the percentages will be apparent by applying the results to the whole married population of the United States. We can calculate how many families containing deaf children would be found among the married people of the United States if they had the same liability to the production of deaf offspring that is found in the case of the married deaf.

More than 13,000,000 married males are returned in the census of 1900, and more than 13,000,000 married females. If only 1 per cent of these persons should have deaf children, we would have in the United States more than 130,000 families containing deaf children.

| | |
|---|---|
| 130,000 equal | 1 per cent. |
| 260,000 equal | 2 per cent. |
| 390,000 equal | 3 per cent. |
| 520,000 equal | 4 per cent. |
| 650,000 equal | 5 per cent. |
| 780,000 equal | 6 per cent. |
| 910,000 equal | 7 per cent. |
| 1,040,000 equal | 8 per cent. |
| 1,170,000 equal | 9 per cent. |
| 1,300,000 equal | 10 per cent. |

For convenience of reference the percentages having deaf children for each of the classes of deaf persons mentioned in Table LVIII are given below, where they may be directly compared:

| CLASS OF DEAF RELATIVES. | Total. | SEX. | | DEGREE OF DEAFNESS. | | PERIOD OF LIFE WHEN DEAFNESS OCCURRED. | | EARLY CHILDHOOD (UNDER 5). | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Male. | Female. | Totally. | Partially. | Childhood. | Adult life. | Total. | Birth. | After birth, under 5. |
| Stated | 1.4 | 1.4 | 1.4 | 2.4 | 1.1 | 1.9 | 1.0 | 2.9 | 5.0 | 1.9 |
| *d* | 3.2 | 3.2 | 3.2 | 3.3 | 2.6 | 3.4 | 2.1 | 3.8 | 6.4 | 2.4 |
| — | 1.1 | 1.1 | 1.0 | 1.4 | 1.0 | 1.1 | 1.0 | 1.5 | 2.5 | 1.0 |
| *a d* | 6.3 | 6.8 | 5.8 | 6.7 | 4.3 | 6.5 | 3.7 | 6.7 | 7.8 | 4.6 |
| — *d* | 2.2 | 2.0 | 2.4 | 2.2 | 2.0 | 2.3 | 1.6 | 2.7 | 4.9 | 2.1 |
| *a* — | 1.4 | 1.5 | 1.3 | 2.3 | 1.3 | 1.8 | 1.2 | 1.9 | 2.6 | 1.1 |
| — — | 0.9 | 0.9 | 0.8 | 1.0 | 0.9 | 0.8 | 0.9 | 1.3 | 2.3 | 1.0 |
| *a b d* | 9.5 | 12.7 | 6.0 | 9.9 | (1) | 9.1 | (1) | 9.3 | 9.0 | (1) |
| *a* — *d* | 5.5 | 5.3 | 5.7 | 5.9 | 3.6 | 5.9 | (1) | 6.1 | 7.4 | 3.3 |
| — *b d* | 2.5 | 1.6 | 3.5 | 2.4 | (1) | 2.7 | ..... | 2.9 | (1) | 3.3 |
| — — *d* | 2.2 | 2.0 | 2.4 | 2.2 | 2.0 | 2.3 | 1.7 | 2.7 | 5.2 | 2.0 |
| *a b* — | 1.9 | 1.9 | 1.9 | 3.1 | 1.7 | 3.0 | 1.3 | 0.9 | (1) | ..... |
| *a* — — | 1.3 | 1.4 | 1.1 | 2.1 | 1.2 | 1.5 | 1.2 | 2.2 | 2.8 | 1.4 |
| — *b* — | 1.0 | 1.1 | 1.0 | 1.6 | 1.0 | 0.8 | 1.2 | ..... | ..... | ..... |
| — — — | 0.9 | 0.9 | 0.8 | 1.0 | 0.9 | 0.8 | 0.9 | 1.4 | 2.6 | 1.0 |

[1] Percentage not given where base is less than 100.

The above investigation relating to the marriages of the deaf and the effect upon the offspring affords a convincing demonstration of the fact that the laws of heredity which are known to apply to animals also apply to man. This has generally been assumed, but the above investigation demonstrates the proposition.

*Present age.*—The present age of the deaf is given in Table LIX, by various classifications.

About one-fifth of the deaf are under 20 years of age; of these, over 75 per cent are totally deaf, while among the number over 20, only about 33 per cent are totally deaf.

The per cent who speak is very much larger among those over 20, although the per cent who have attended school is larger for those under 20.

The figures presenting the relation of the present age of the deaf to the age when deafness occurred are found in Table LX.

Of the number now under 20, the largest per cent are the deaf from birth. Of those over 20, the largest per cent lost their hearing between the ages of 20 and 40.

The present age of the totally deaf from early childhood is compared with the present age of the entire population in Table LXI.

Table LXII gives the geographic distribution of the deaf, by present age groups.

TABLE LIX.—*The deaf, classified by period of life when deafness occurred, degree of deafness, ability to speak, sex, race, nativity, school attendance, and present age.*

| PERIOD OF LIFE WHEN DEAFNESS OCCURRED, DEGREE OF DEAFNESS, ABILITY TO SPEAK, SEX, RACE, NATIVITY, AND SCHOOL ATTENDANCE. | Total. | PRESENT AGE. | | |
|---|---|---|---|---|
| | | Under 20. | 20 and over. | Unknown. |
| Total | 89,287 | 18,358 | 70,602 | 327 |
| Period of life when deafness occurred: | | | | |
| Childhood (under 20) | 50,296 | 18,358 | 31,763 | 175 |
| Adult life (20 and over) | 35,924 | ..... | 35,825 | 99 |
| Unknown | 3,067 | ..... | 3,014 | 53 |
| Degree of deafness: | | | | |
| Totally deaf | 37,426 | 13,987 | 23,272 | 167 |
| Partially deaf | 51,861 | 4,371 | 47,330 | 160 |
| Ability to speak: | | | | |
| Well | 55,501 | 3,965 | 51,374 | 162 |
| Imperfectly | 9,417 | 4,566 | 4,809 | 42 |
| Not at all | 24,369 | 9,827 | 14,419 | 123 |
| Sex: | | | | |
| Male | 46,915 | 9,998 | 36,741 | 176 |
| Female | 42,372 | 8,360 | 33,861 | 151 |
| Race: | | | | |
| White | 84,361 | 16,702 | 67,397 | 262 |
| Colored | 4,926 | 1,656 | 3,205 | 65 |
| Nativity of whites: | | | | |
| Native | 69,865 | 15,507 | 54,183 | 175 |
| Foreign born | 13,786 | 835 | 12,910 | 41 |
| Unknown | 710 | 360 | 304 | 46 |
| School attendance: | | | | |
| Attended school | 65,717 | 14,290 | 51,228 | 199 |
| Did not attend school | 13,557 | 3,716 | 9,768 | 73 |
| Not stated | 10,013 | 352 | 9,606 | 55 |
| Attended school: | | | | |
| Kind of school— | | | | |
| Special | 25,197 | 11,349 | 13,753 | 95 |
| Other | 19,664 | 2,581 | 17,029 | 54 |
| Both | 237 | 57 | 178 | 2 |
| Not stated | 20,619 | 303 | 20,268 | 48 |

TABLE LX.—THE DEAF, BY AGE WHEN DEAFNESS OCCURRED AND PRESENT AGE.

| AGE WHEN DEAFNESS OCCURRED. | Total. | PRESENT AGE. | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Under 20. | 20 and over. | Unknown. | Under 5. | 5 and under 10. | 10 and under 15. | 15 and under 20. | 20 and under 40. | 40 and under 60. | 60 and under 80. | 80 and under 100. | 100 and over. |
| All ages | 89,287 | 18,358 | 70,602 | 327 | 1,021 | 4,551 | 6,710 | 6,076 | 19,457 | 22,172 | 22,146 | 6,751 | 76 |
| Age when deafness occurred: | | | | | | | | | | | | | |
| Unknown | 3,067 | ..... | 3,014 | 53 | ..... | ..... | ..... | ..... | 617 | 886 | 1,164 | 344 | 3 |
| Indefinitely stated | 4,630 | 1,049 | 3,554 | 27 | 57 | 241 | 421 | 330 | 467 | 748 | 1,434 | 890 | 15 |
| Definitely stated | 81,590 | 17,309 | 64,034 | 247 | 964 | 4,310 | 6,289 | 5,746 | 18,373 | 20,538 | 19,548 | 5,517 | 58 |
| Birth | 14,474 | 7,232 | 7,173 | 69 | 479 | 1,885 | 2,652 | 2,216 | 3,987 | 2,275 | 835 | 76 | ..... |
| After birth, under 2 | 7,396 | 4,039 | 3,344 | 13 | 276 | 1,175 | 1,418 | 1,170 | 2,339 | 791 | 206 | 8 | ..... |
| 2 and under 5 | 10,536 | 3,882 | 6,627 | 27 | 209 | 958 | 1,450 | 1,265 | 4,056 | 1,854 | 662 | 55 | ..... |
| Under 5 | 32,406 | 15,153 | 17,144 | 109 | 964 | 4,018 | 5,520 | 4,651 | 10,382 | 4,920 | 1,703 | 139 | ..... |
| 5 and under 10 | 7,018 | 1,567 | 5,428 | 23 | ..... | 292 | 618 | 657 | 2,582 | 1,882 | 888 | 76 | ..... |
| 10 and under 15 | 4,464 | 485 | 3,969 | 10 | ..... | ..... | 151 | 334 | 1,562 | 1,523 | 788 | 96 | ..... |
| 15 and under 20 | 4,061 | 104 | 3,939 | 18 | ..... | ..... | ..... | 104 | 1,335 | 1,794 | 714 | 96 | ..... |
| Under 20 | 47,949 | 17,309 | 30,480 | 160 | 964 | 4,310 | 6,289 | 5,746 | 15,861 | 10,119 | 4,093 | 407 | ..... |
| 20 and under 40 | 16,588 | ..... | 16,548 | 40 | ..... | ..... | ..... | ..... | 2,512 | 7,834 | 5,800 | 402 | ..... |
| 40 and under 60 | 9,437 | ..... | 9,411 | 26 | ..... | ..... | ..... | ..... | ..... | 2,585 | 5,782 | 1,040 | 4 |
| 60 and under 80 | 6,595 | ..... | 6,578 | 17 | ..... | ..... | ..... | ..... | ..... | ..... | 3,873 | 2,693 | 12 |
| 80 and over | 1,021 | ..... | 1,017 | 4 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 975 | 42 |

TABLE LXI.—*The total population at specified ages compared with the deaf from early childhood.*

| PRESENT AGE. | Population of the United States. | THE TOTALLY DEAF FROM EARLY CHILDHOOD (UNDER 5). | | |
|---|---|---|---|---|
| | | Total. | Birth. | After birth. |
| Stated ages | 100.0 | 100.0 | 100.0 | 100.0 |
| Under 5 | 12.1 | 3.2 | 3.6 | 2.9 |
| 5 and under 10 | 11.7 | 12.5 | 13.3 | 11.6 |
| 10 and under 15 | 10.7 | 16.9 | 18.2 | 15.7 |
| 15 and under 20 | 10.0 | 14.5 | 15.4 | 13.7 |
| 20 and under 25 | 9.7 | 9.3 | 9.0 | 9.6 |
| 25 and under 30 | 8.6 | 9.3 | 7.1 | 11.4 |
| 30 and under 35 | 7.3 | 7.5 | 6.0 | 9.0 |
| 35 and under 40 | 6.5 | 7.1 | 5.6 | 8.6 |
| 40 and under 45 | 5.6 | 5.0 | 5.2 | 4.8 |
| 45 and under 50 | 4.6 | 3.9 | 4.1 | 3.7 |
| 50 and under 55 | 3.9 | 3.4 | 3.9 | 3.0 |
| 55 and under 60 | 2.9 | 2.6 | 2.7 | 2.4 |
| 60 and under 65 | 2.4 | 1.9 | 2.2 | 1.5 |
| 65 and under 70 | 1.7 | 1.3 | 1.6 | 0.9 |
| 70 and under 75 | 1.2 | 0.8 | 1.1 | 0.6 |
| 75 and under 80 | 0.7 | 0.5 | 0.6 | 0.4 |
| 80 and under 85 | 0.3 | 0.2 | 0.3 | 0.1 |
| 85 and under 90 | 0.1 | 0.1 | 0.1 | 0.1 |
| 90 and under 95 | (1) | (1) | (1) | (1) |
| 95 and under 100 | (1) | (1) | (1) | ..... |
| 100 and over | (1) | ..... | ..... | ..... |

[1] Less than one-tenth of 1 per cent.

TABLE LXII.—*The number deaf, by present age groups, for states and territories.*

| STATE OR TERRITORY. | Total. | PRESENT AGE. | | |
|---|---|---|---|---|
| | | Under 20. | 20 and over. | Unknown. |
| Continental United States | 89,287 | 18,358 | 70,602 | 327 |
| North Atlantic division | 28,632 | 4,222 | 24,335 | 75 |
| New England | 8,854 | 981 | 7,849 | 24 |
| Maine | 1,257 | 144 | 1,110 | 3 |
| New Hampshire | 702 | 37 | 724 | 1 |
| Vermont | 723 | 27 | 693 | 3 |
| Massachusetts | 4,015 | 472 | 3,531 | 12 |
| Rhode Island | 583 | 83 | 498 | 2 |
| Connecticut | 1,514 | 218 | 1,293 | 3 |
| Southern North Atlantic | 19,778 | 3,241 | 16,486 | 51 |
| New York | 9,946 | 1,713 | 8,205 | 28 |
| New Jersey | 2,285 | 276 | 2,006 | 3 |
| Pennsylvania | 7,547 | 1,252 | 6,275 | 20 |
| South Atlantic division | 10,193 | 2,745 | 7,385 | 63 |
| Northern South Atlantic | 5,400 | 1,192 | 4,179 | 29 |
| [illegible] | 255 | 28 | 224 | 3 |
| [illegible] | 1,579 | 255 | 1,320 | 4 |
| [illegible] | 507 | 74 | 430 | 3 |
| Virginia | 1,913 | 489 | 1,410 | 14 |
| West Virginia | 1,146 | 346 | 795 | 5 |

TABLE LXII.—*The number deaf, by present age groups, for states and territories*—Continued.

| STATE OR TERRITORY. | Total. | PRESENT AGE. | | |
|---|---|---|---|---|
| | | Under 20. | 20 and over. | Unknown. |
| Southern South Atlantic | 4,793 | 1,553 | 3,206 | 34 |
| North Carolina | 1,642 | 626 | 1,000 | 16 |
| South Carolina | 952 | 302 | 648 | 2 |
| Georgia | 1,817 | 527 | 1,276 | 14 |
| Florida | 382 | 98 | 282 | 2 |
| North Central division | 34,076 | 6,675 | 27,301 | 100 |
| Eastern North Central | 21,618 | 4,013 | 17,548 | 57 |
| Ohio | 6,080 | 951 | 5,116 | 13 |
| Indiana | 3,607 | 644 | 2,951 | 12 |
| Illinois | 6,053 | 1,238 | 4,794 | 21 |
| Michigan | 3,402 | 622 | 2,772 | 8 |
| Wisconsin | 2,476 | 558 | 1,915 | 3 |
| Western North Central | 12,458 | 2,662 | 9,753 | 43 |
| Minnesota | 1,738 | 444 | 1,294 | ..... |
| Iowa | 2,952 | 485 | 2,458 | 9 |
| Missouri | 3,766 | 849 | 2,897 | 20 |
| North Dakota | 256 | 88 | 164 | 4 |
| South Dakota | 430 | 100 | 329 | 1 |
| Nebraska | 1,220 | 278 | 937 | 5 |
| Kansas | 2,096 | 418 | 1,674 | 4 |
| South Central division | 12,322 | 3,842 | 8,408 | 72 |
| Eastern South Central | 6,968 | 2,039 | 4,890 | 39 |
| Kentucky | 2,619 | 720 | 1,880 | 19 |
| Tennessee | 2,026 | 664 | 1,355 | 7 |
| Alabama | 1,333 | 349 | 978 | 6 |
| Mississippi | 990 | 306 | 677 | 7 |
| Western South Central | 5,354 | 1,803 | 3,518 | 33 |
| Louisiana | 1,211 | 328 | 877 | 6 |
| Arkansas | 1,317 | 453 | 844 | 20 |
| Indian Territory | 228 | 74 | 152 | 2 |
| Oklahoma | 282 | 110 | 172 | ..... |
| Texas | 2,316 | 838 | 1,473 | 5 |
| Western division | 4,064 | 874 | 3,173 | 17 |
| Rocky Mountain | 1,076 | 289 | 782 | 5 |
| Montana | 126 | 48 | 78 | ..... |
| Idaho | 146 | 38 | 107 | 1 |
| Wyoming | 29 | 6 | 23 | ..... |
| Colorado | 472 | 123 | 347 | 2 |
| New Mexico | 303 | 74 | 227 | 2 |
| Basin and Plateau | 455 | 110 | 343 | 2 |
| Arizona | 51 | 11 | 38 | 2 |
| Utah | 343 | 90 | 253 | ..... |
| Nevada | 61 | 9 | 52 | ..... |
| Pacific | 2,533 | 475 | 2,048 | 10 |
| Washington | 374 | 94 | 280 | ..... |
| Oregon | 410 | 86 | 321 | 3 |
| California | 1,749 | 295 | 1,447 | 7 |

The North Central division shows the largest number deaf in each age group. The North Atlantic shows the next largest number.

*Marital condition.*—Table LXIII shows the marital condition of the deaf, classified by age and period of life when deafness occurred, degree of deafness, sex, and deaf relatives.

TABLE LXIII.—NUMBER AND PER CENT DEAF, CLASSIFIED BY MARITAL CONDITION, AGE WHEN DEAFNESS OCCURRED, DEGREE OF DEAFNESS, SEX, AND DEAF RELATIVES.

| AGE OR PERIOD OF LIFE WHEN DEAFNESS OCCURRED, DEGREE OF DEAFNESS, SEX, AND DEAF RELATIVES. | Total. | MARITAL CONDITION. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Number. | | | | | Per cent. | | | | |
| | | Single. | Married. | Widowed. | Divorced. | Unknown. | Single. | Married. | Widowed. | Divorced. | Unknown. |
| Total | 89,287 | 39,070 | 34,206 | 15,331 | 353 | 327 | 43.7 | 38.3 | 17.2 | 0.4 | 0.4 |
| Period of life when deafness occurred: | | | | | | | | | | | |
| Childhood (under 20) | 50,266 | 34,248 | 12,924 | 2,791 | 147 | 186 | 68.1 | 25.7 | 5.5 | 0.3 | 0.4 |
| Adult life (20 and over) | 35,924 | 3,839 | 20,030 | 11,780 | 189 | 86 | 10.7 | 55.8 | 32.8 | 0.5 | 0.2 |
| Unknown | 3,067 | 983 | 1,252 | 760 | 17 | 55 | 32.1 | 40.8 | 24.8 | 0.5 | 1.8 |
| Degree of deafness: | | | | | | | | | | | |
| Totally deaf | 37,426 | 26,593 | 8,331 | 2,195 | 104 | 203 | 71.1 | 22.3 | 5.7 | 0.3 | 0.6 |
| Partially deaf | 51,861 | 12,477 | 25,875 | 13,136 | 249 | 124 | 24.1 | 49.9 | 25.3 | 0.5 | 0.2 |
| Sex: | | | | | | | | | | | |
| Male | 46,915 | 21,338 | 19,746 | 5,480 | 172 | 179 | 45.5 | 42.1 | 11.7 | 0.3 | 0.4 |
| Female | 42,372 | 17,732 | 14,460 | 9,851 | 181 | 148 | 41.8 | 34.1 | 23.3 | 0.4 | 0.4 |
| Deaf relatives: | | | | | | | | | | | |
| *a* or *b* relatives | 25,851 | ..... | 10,888 | ..... | ..... | ..... | ..... | 42.1 | ..... | ..... | ..... |
| No *a* or *b* relatives | 54,630 | ..... | 20,446 | ..... | ..... | ..... | ..... | 37.4 | ..... | ..... | ..... |
| Not stated | 8,806 | ..... | 2,872 | ..... | ..... | ..... | ..... | 32.6 | ..... | ..... | ..... |
| Age when deafness occurred: | | | | | | | | | | | |
| Unknown | 3,067 | 983 | 1,252 | 760 | 17 | 55 | 32.1 | 40.8 | 24.8 | 0.5 | 1.8 |
| Indefinitely stated | 4,630 | 1,840 | 1,407 | 1,346 | 14 | 23 | 39.7 | 30.4 | 29.1 | 0.3 | 0.5 |
| Definitely stated | 81,590 | 36,247 | 31,547 | 13,225 | 322 | 249 | 44.4 | 38.7 | 16.2 | 0.4 | 0.3 |
| Birth | 14,474 | 12,106 | 1,883 | 401 | 18 | 66 | 83.6 | 13.0 | 2.8 | 0.1 | 0.5 |
| After birth, under 2 | 7,396 | 6,149 | 1,086 | 125 | 14 | 22 | 83.1 | 14.7 | 1.7 | 0.2 | 0.3 |
| 2 and under 5 | 10,536 | 7,466 | 2,634 | 368 | 26 | 42 | 70.9 | 25.0 | 3.5 | 0.2 | 0.4 |
| Under 5 | 32,406 | 25,721 | 5,603 | 894 | 58 | 130 | 79.4 | 17.3 | 2.7 | 0.2 | 0.4 |
| 5 and under 10 | 7,018 | 3,953 | 2,447 | 561 | 33 | 24 | 56.3 | 34.9 | 8.0 | 0.5 | 0.3 |
| 10 and under 15 | 4,464 | 1,870 | 2,031 | 521 | 33 | 9 | 41.9 | 45.5 | 11.7 | 0.7 | 0.2 |
| 15 and under 20 | 4,061 | 1,171 | 2,291 | 571 | 18 | 10 | 28.8 | 56.4 | 14.1 | 0.4 | 0.3 |
| Under 20 | 47,949 | 32,715 | 12,372 | 2,547 | 142 | 173 | 68.2 | 25.8 | 5.3 | 0.3 | 0.4 |
| 20 and under 40 | 16,588 | 2,244 | 10,903 | 3,286 | 119 | 36 | 13.5 | 65.8 | 19.8 | 0.7 | 0.2 |
| 40 and under 60 | 9,437 | 810 | 5,327 | 3,232 | 44 | 24 | 8.6 | 56.4 | 34.2 | 0.5 | 0.3 |
| 60 and under 80 | 6,595 | 421 | 2,710 | 3,435 | 16 | 13 | 6.4 | 41.1 | 52.1 | 0.2 | 0.2 |
| 80 and over | 1,021 | 57 | 235 | 725 | 1 | 3 | 5.6 | 23.0 | 71.0 | 0.1 | 0.3 |

The marital condition of the deaf is clearly presented in Table LXIII. As might naturally be expected, the largest number of single persons is found among those who were deaf from childhood, while the proportion of married and widowed is especially large among those who became deaf in adult life. Naturally enough, also, the majority of those who remained single are totally deaf, more than two-thirds of those who are reported single being in the totally deaf class, while three-fourths of those who are married are only partially deaf. In the matter of sex males are in the majority in both the single and married class, but strangely enough there are almost twice as many widows as widowers. This may arise from the fact that the chance of remarriage is doubtless smaller for a deaf woman than for a deaf man, but the principal reason is probably to be found in the occurrence of deafness in old age among the many cases where the wife survives the husband. Whatever the cause of this preponderance may be, it is one of the interesting facts developed by this table.

By contrasting similar figures relating to marriageable population for the deaf and the total population, the following interesting percentages appear:

| | Single. | Married. | Widowed. | Divorced. | Unknown. |
|---|---|---|---|---|---|
| Total population | 36.0 | 55.5 | 7.8 | 0.4 | 0.3 |
| The deaf | 34.8 | 44.4 | 19.9 | 0.5 | 0.4 |

The proportion single and married among the deaf is slightly smaller than among the total population, while the proportion widowed is very much larger. Eliminating the deaf under 15 years of age considerably decreases the proportion single and increases the proportion married.

The relation of deafness to marital condition is shown in detail in Table 37.

*School attendance.*—Table LXIV distributes the deaf by age or period of life when deafness occurred, degree of deafness, sex, and race in relation to school attendance. Unfortunately for purposes of comparison in the total population the deaf are not classified according to literacy and illiteracy. Attendance at school is in reality a most unsatisfactory test, since many persons who have not attended school may be literate, and among the deaf it is likely that a large proportion would come within this class. However, even if it be assumed that only those of the deaf who have attended

school are literate as a class, the deaf show comparatively little illiteracy. In 79,274 cases the question as to attendance at school was answered, 65,717, or 73.6 per cent, attending, and 13,557, or 15.2 per cent, not attending; while in 10,013 cases no answer was received. There are practical reasons, indeed, why illiteracy among deaf persons should be less than among the general population, since writing necessarily forms for many the principal medium of communication. Persons who are totally deaf usually employ the sign-language or communicate by writing, the acquisition of one being about as easy as the other. In the case of the deaf, therefore, there is a definite and personal reason which operates against illiteracy. The white race shows a much larger per cent attending school than the colored.

TABLE LXIV.—NUMBER AND PER CENT DEAF, CLASSIFIED BY SCHOOL ATTENDANCE, DEGREE OF DEAFNESS, SEX, RACE, AND AGE WHEN DEAFNESS OCCURRED.

| AGE OR PERIOD OF LIFE WHEN DEAFNESS OCCURRED, DEGREE OF DEAFNESS, SEX, RACE, AND PRESENT AGE. | Total. | SCHOOL ATTENDANCE. | | | | | |
|---|---|---|---|---|---|---|---|
| | | Number. | | | Per cent. | | |
| | | Attended school. | Did not attend school. | Not stated. | Attended school. | Did not attend school. | Not stated. |
| Total | 89,287 | 65,717 | 13,557 | 10,013 | 73.6 | 15.2 | 11.2 |
| Period of life when deafness occurred: | | | | | | | |
| Childhood (under 20) | 50,296 | 40,448 | 7,974 | 1,874 | 80.4 | 15.9 | 3.7 |
| Adult life (20 and over) | 35,924 | 23,700 | 5,109 | 7,115 | 66.0 | 14.2 | 19.8 |
| Unknown | 3,067 | 1,569 | 474 | 1,024 | 51.1 | 15.5 | 33.4 |
| Degree of deafness: | | | | | | | |
| Totally deaf | 37,426 | 29,348 | 6,480 | 1,598 | 78.4 | 17.3 | 4.3 |
| Partially deaf | 51,861 | 36,369 | 7,077 | 8,415 | 70.1 | 13.7 | 16.2 |
| Sex: | | | | | | | |
| Male | 46,915 | 35,476 | 6,987 | 4,452 | 75.6 | 14.9 | 9.5 |
| Female | 42,372 | 30,241 | 6,570 | 5,561 | 71.4 | 15.5 | 13.1 |
| Race: | | | | | | | |
| White | 84,361 | 63,680 | 11,027 | 9,654 | 75.5 | 13.0 | 11.5 |
| Colored | 4,926 | 2,037 | 2,530 | 359 | 41.3 | 51.4 | 7.3 |
| Age when deafness occurred: | | | | | | | |
| Unknown | 3,067 | 1,569 | 474 | 1,024 | 51.2 | 15.4 | 33.4 |
| Indefinitely stated | 4,630 | 2,831 | 726 | 1,073 | 61.1 | 15.7 | 23.2 |
| Definitely stated | 81,590 | 61,317 | 12,357 | 7,916 | 75.2 | 15.1 | 9.7 |
| Birth | 14,474 | 10,541 | 3,436 | 497 | 72.8 | 23.8 | 3.4 |
| After birth, under 2 | 7,396 | 6,076 | 1,218 | 102 | 82.1 | 16.5 | 1.4 |
| 2 and under 5 | 10,536 | 8,983 | 1,308 | 245 | 85.3 | 12.4 | 2.3 |
| Under 5 | 32,406 | 25,600 | 5,962 | 844 | 79.0 | 18.4 | 2.6 |
| 5 and under 10 | 7,018 | 5,858 | 843 | 317 | 83.5 | 12.0 | 4.5 |
| 10 and under 15 | 4,464 | 3,758 | 438 | 268 | 84.2 | 9.8 | 6.0 |
| 15 and under 20 | 4,061 | 3,401 | 385 | 275 | 83.7 | 9.5 | 6.8 |
| Under 20 | 47,949 | 38,617 | 7,628 | 1,704 | 80.5 | 15.9 | 3.6 |
| 20 and under 40 | 16,588 | 12,929 | 1,725 | 1,934 | 77.9 | 10.4 | 11.7 |
| 40 and under 60 | 9,437 | 6,199 | 1,476 | 1,762 | 65.7 | 15.6 | 18.7 |
| 60 and under 80 | 6,595 | 3,248 | 1,270 | 2,077 | 49.2 | 19.3 | 31.5 |
| 80 and over | 1,021 | 324 | 258 | 439 | 31.7 | 25.3 | 43.0 |
| Present age: | | | | | | | |
| Under 20 | 18,358 | 14,290 | 3,716 | 352 | 77.8 | 20.3 | 1.9 |
| 20 and over | 70,902 | 51,228 | 9,768 | 9,606 | 72.6 | 13.8 | 13.6 |
| Not stated | 327 | 199 | 73 | 55 | 60.9 | 22.3 | 16.8 |

Those whose present age is under 20 show 77.8 per cent who have attended school, as against 72.6 per cent of those 20 years of age and over.

Table LXV shows the deaf who have attended school, by kind of school, age or period of life when deafness occurred, degree of deafness, sex, race, and present age.

In 20,619 cases the kind of school attended was not stated. Of those who did state kind of school, the larger part had attended special schools. This was to be expected, in view of the fact that the great majority of those who reported schooling (40,448 out of 65,717) became deaf in childhood.

Of the totally deaf, 77.5 per cent, and of the partially deaf only 6.8 per cent, attended special schools.

A slightly greater proportion of the males than of the females attended special schools, 39 and 37.5 per cent, respectively, the latter exceeding in the proportion who have attended other schools.

Of those who lost hearing before 5 years of age, 81.5 per cent attended special schools, this proportion decreasing rapidly as age when deafness occurred increases. The percentage who did not state kind of school attended increases as the age when deafness occurred increases.

TABLE LXV.—NUMBER AND PER CENT OF DEAF ATTENDING SCHOOL, CLASSIFIED BY AGE WHEN DEAFNESS OCCURRED, DEGREE OF DEAFNESS, SEX, RACE, PRESENT AGE, AND KIND OF SCHOOL.

| AGE OR PERIOD OF LIFE WHEN DEAFNESS OCCURRED, DEGREE OF DEAFNESS, SEX, RACE, AND PRESENT AGE. | Total. | NUMBER ATTENDING SCHOOL. | | | | PER CENT ATTENDING SCHOOL. | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Special. | Other. | Both. | Not stated. | Special. | Other. | Both. | Not stated. |
| Total | 65,717 | 25,197 | 19,664 | 237 | 20,619 | 38.3 | 29.9 | 0.4 | 31.4 |
| Period of life when deafness occurred: | | | | | | | | | |
| Childhood (under 20) | 40,448 | 24,846 | 10,826 | 225 | 4,551 | 61.4 | 26.7 | 0.6 | 11.3 |
| Adult life (20 and over) | 23,700 | 125 | 8,336 | 10 | 15,229 | 0.5 | 35.2 | (1) | 64.3 |
| Unknown | 1,569 | 226 | 502 | 2 | 839 | 14.4 | 32.0 | 0.1 | 53.5 |
| Degree of deafness: | | | | | | | | | |
| Totally deaf | 29,348 | 22,734 | 3,827 | 181 | 2,606 | 77.5 | 13.0 | 0.6 | 8.9 |
| Partially deaf | 36,369 | 2,463 | 15,837 | 56 | 18,013 | 6.8 | 43.5 | 0.2 | 49.5 |
| Sex: | | | | | | | | | |
| Male | 35,476 | 13,851 | 10,441 | 132 | 11,052 | 39.0 | 29.4 | 0.4 | 31.2 |
| Female | 30,241 | 11,346 | 9,223 | 105 | 9,567 | 37.5 | 30.5 | 0.4 | 31.6 |
| Race: | | | | | | | | | |
| White | 63,680 | 24,308 | 18,974 | 236 | 20,162 | 38.2 | 29.8 | 0.4 | 31.6 |
| Colored | 2,037 | 889 | 690 | 1 | 457 | 43.6 | 33.9 | 0.1 | 22.4 |
| Age when deafness occurred: | | | | | | | | | |
| Unknown | 1,569 | 226 | 502 | 2 | 839 | 14.4 | 32.0 | 0.1 | 53.5 |
| Indefinitely stated | 2,831 | 893 | 1,057 | 6 | 875 | 31.6 | 37.3 | 0.2 | 30.9 |
| Definitely stated | 61,317 | 24,078 | 18,105 | 229 | 18,905 | 39.3 | 29.5 | 0.4 | 30.8 |
| Birth | 10,541 | 9,232 | 953 | 29 | 327 | 87.6 | 9.0 | 0.3 | 3.1 |
| After birth, under 2 | 6,076 | 5,110 | 799 | 28 | 139 | 84.1 | 13.1 | 0.5 | 2.3 |
| 2 and under 5 | 8,983 | 6,521 | 1,908 | 47 | 507 | 72.6 | 21.2 | 0.5 | 5.7 |
| Under 5 | 25,600 | 20,863 | 3,660 | 104 | 973 | 81.5 | 14.3 | 0.4 | 3.8 |
| 5 and under 10 | 5,858 | 2,511 | 2,448 | 60 | 839 | 42.9 | 41.8 | 1.0 | 14.3 |
| 10 and under 15 | 3,758 | 488 | 2,192 | 40 | 1,038 | 13.0 | 58.3 | 1.1 | 27.6 |
| 15 and under 20 | 3,401 | 96 | 1,895 | 15 | 1,395 | 2.8 | 55.7 | .5 | 41.0 |
| Under 20 | 38,617 | 23,958 | 10,195 | 219 | 4,245 | 62.0 | 26.4 | 0.6 | 11.0 |
| 20 and under 40 | 12,929 | 78 | 4,838 | 10 | 8,003 | 0.6 | 37.4 | 0.1 | 61.9 |
| 40 and under 60 | 6,199 | 30 | 1,888 | ..... | 4,281 | 0.5 | 30.4 | ..... | 69.1 |
| 60 and under 80 | 3,248 | 12 | 1,040 | ..... | 2,196 | 0.4 | 32.0 | ..... | 67.6 |
| 80 and over | 324 | ..... | 144 | ..... | 180 | ..... | 44.4 | ..... | 55.6 |
| Present age: | | | | | | | | | |
| Under 20 | 14,290 | 11,349 | 2,581 | 57 | 303 | 79.4 | 18.1 | 0.4 | 2.1 |
| 20 and over | 51,228 | 13,753 | 17,029 | 178 | 20,268 | 26.8 | 33.2 | 0.4 | 39.6 |
| Not stated | 199 | 95 | 54 | 2 | 48 | 47.8 | 27.1 | 1.0 | 24.1 |

[1] Less than one-tenth of 1 per cent.

*Occupations.*—The same classification of occupations was adopted for the deaf as was used for the general population at the Twelfth Census. A comparison is therefore possible of the deaf and of the total population 10 years of age and over gainfully employed.

| | Total number 10 years of age and over. | Number gainfully employed. | Per cent. |
|---|---|---|---|
| Total population | 57,949,824 | 29,073,233 | 50.2 |
| The deaf | 83,388 | 32,142 | 38.5 |

These figures indicate that deafness is a drawback to some extent in securing employment; but they also show that the deaf as a class are by no means a burden upon the community. Few of the deaf who are under 20 years of age are engaged in gainful occupations (Table LXXII); but this is no discredit to them, for the vast majority of these cases are attending school (Table LXIV). Of those over 20 years of age 43 per cent are engaged in gainful occupations—for Table LIX shows a total of 70,602 who are over 20 years of age, and Table LXXIII shows that 30,353 of these, or 43 per cent, are engaged in gainful occupations.

Table LXVI shows the number and per cent of the deaf in each occupation contrasted with the per cent of the total population in each group.

TABLE LXVI.—*Number and per cent of deaf and per cent of total population in each group of occupations.*

| CLASS OF OCCUPATIONS. | THE DEAF. | | Per cent of total population. |
|---|---|---|---|
| | Number. | Per cent. | |
| All occupations | 32,142 | 100.0 | 100.0 |
| Agricultural pursuits | 14,068 | 43.8 | 35.7 |
| Manufacturing and mechanical pursuits | 9,442 | 29.4 | 24.4 |
| Domestic and personal service | 5,316 | 16.5 | 19.2 |
| [illegible] | 2,236 | 6.9 | 16.4 |
| [illegible] | 1,080 | 3.4 | 4.3 |

Of the deaf gainfully employed, 89.7 per cent are found in the three groups in which perfect or even partial hearing is not essential, while in the two remaining groups—trade and transportation and professional service—which require hearing and speaking power, only a small proportion of the deaf (10.3 per cent) report employment.

That the degree of deafness considerably affects the occupation is shown in Table LXVII.

TABLE LXVII.—*Number and per cent of the deaf in each group of occupations, by degree of deafness.*

| CLASS OF OCCUPATIONS. | TOTAL. | | DEGREE OF DEAFNESS. | | | |
|---|---|---|---|---|---|---|
| | | | Totally deaf. | | Partially deaf. | |
| | Number. | Per cent. | Number. | Per cent. | Number. | Per cent. |
| All occupations | 32,142 | 100.0 | 12,678 | 39.4 | 19,467 | 60.6 |
| Agricultural pursuits | 14,068 | 100.0 | 4,761 | 33.8 | 9,307 | 66.2 |
| Manufacturing and mechanical pursuits | 9,442 | 100.0 | 4,583 | 48.5 | 4,859 | 51.5 |
| Domestic and personal service | 5,316 | 100.0 | 2,395 | 45.1 | 2,921 | 54.9 |
| Trade and transportation | 2,236 | 100.0 | 552 | 24.6 | 1,684 | 75.4 |
| Professional service | 1,080 | 100.0 | 387 | 35.8 | 693 | 64.2 |

The percentage for professional service is high because it includes teachers, professors in colleges, etc., and artists and teachers of art. The teachers show a very large per cent totally deaf (206 out of 294), the majority of whom probably are instructors in schools for the deaf. In nearly every other kind of professional service the totally deaf constitute a very small minority.

Table LXVIII shows the obvious connection between school attendance and the opportunity for obtaining gainful employment.

TABLE LXVIII.—*Number and per cent of the deaf and of the deaf gainfully employed, classified according to schooling.*

| | TOTAL NUMBER OF DEAF. | | DEAF GAINFULLY EMPLOYED. | |
|---|---|---|---|---|
| | Number. | Per cent. | Number. | Per cent. |
| Aggregate | 89,287 | 100.0 | 32,142 | 100.0 |
| Schooling | 65,717 | 73.6 | 26,030 | 81.0 |
| No schooling | 13,557 | 15.2 | 3,950 | 12.3 |
| Not stated | 10,013 | 11.2 | 2,162 | 6.7 |

The deaf who have attended school show a much larger per cent of their number pursuing gainful occupations than of those who have not attended school.

The kind of employment—whether skilled or unskilled—is also largely determined by school attendance. In Table LXIX the number in each group of occupations is distributed according to schooling.

TABLE LXIX.—*Number and per cent of deaf gainfully employed, by class of occupations, in relation to schooling.*

| CLASS OF OCCUPATIONS. | DISTRIBUTION ACCORDING TO SCHOOLING. | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Total. | | Schooling. | | No schooling. | | Not stated. | |
| | Number. | Per cent. | Number. | Per cent. | Number. | Per cent. | Number. | Per cent. |
| All occupations | 32,142 | 100.0 | 26,030 | 81.0 | 3,950 | 12.3 | 2,162 | 6.7 |
| Agricultural pursuits | 14,068 | 100.0 | 10,668 | 75.8 | 2,294 | 16.3 | 1,106 | 7.9 |
| Professional service | 1,080 | 100.0 | 1,037 | 96.0 | 16 | 1.5 | 27 | 2.5 |
| Domestic and personal service | 5,316 | 100.0 | 3,903 | 73.4 | 988 | 18.6 | 425 | 8.0 |
| Trade and transportation | 2,236 | 100.0 | 1,979 | 88.5 | 119 | 5.3 | 138 | 6.2 |
| Manufacturing and mechanical pursuits | 9,442 | 100.0 | 8,443 | 89.4 | 533 | 5.7 | 466 | 4.9 |

Those engaged in professional service, manufacturing and mechanical pursuits, and trade and transportation show a very large percentage of their number schooled, ranking in this respect in the order named; while those in agricultural pursuits show next lowest, and those in domestic and personal service, the smallest percentage schooled. In the last two classes of occupations lack of schooling is no great drawback, while in the remaining three it is almost a total disqualification.

Unfortunately for purposes of comparison, the kind of school was not stated in over one-third of the cases. This failure to state kind of school was particularly marked among those in agricultural and in manufacturing and mechanical pursuits.

In Tables LXXII, LXXIII, and LXXIV the occupations of the deaf are given in detail.

Table LXX shows the deaf, by present age (10 and over, and 20 and over), period of life when deafness occurred, and degree of deafness, giving the number and percentage of each class who are employed in gainful occupations.

TABLE LXX.—*The number and per cent of the deaf 10 years of age and over gainfully employed, classified by present age, period of life when deafness occurred, and degree of deafness.*

| PRESENT AGE, PERIOD OF LIFE WHEN DEAFNESS OCCURRED, AND DEGREE OF DEAFNESS. | Total. | GAINFULLY EMPLOYED. | |
|---|---|---|---|
| | | Number. | Per cent. |
| Present age 10 years and over | 83,388 | 32,142 | 38.5 |
| Period of life when deafness occurred: | | | |
| Childhood (under 20) | 44,549 | 18,073 | 40.6 |
| Adult life (20 and over) | 35,825 | 13,172 | 36.8 |
| Unknown | 3,014 | 897 | 29.8 |
| Degree of deafness: | | | |
| Totally deaf | 32,831 | 12,678 | 38.1 |
| Partially deaf | 50,557 | 19,464 | 38.5 |
| Present age 20 years and over | 70,602 | 30,353 | 43.0 |
| Period of life when deafness occurred: | | | |
| Childhood (under 20) | 31,763 | 16,405 | 51.6 |
| Adult life (20 and over) | 35,825 | 13,172 | 36.8 |
| Unknown | 3,014 | 776 | 25.7 |
| Degree of deafness: | | | |
| Totally deaf | 23,272 | 11,670 | 50.1 |
| Partially deaf | 47,330 | 18,683 | 39.5 |

From this table it appears that the deaf from childhood are more self-supporting than the deaf from adult life.

This is specially surprising when we consider the fact that the deaf from childhood include practically all of the deaf and dumb, and that most of them are totally deaf; whereas the deaf from adult life include none of the deaf and dumb (at least substantially none), and most of them are only partially deaf.

Of the deaf from childhood who were over 10 years of age, 40.6 per cent were gainfully employed, and of the deaf from adult life only 36.8 per cent (Table LXX).

These figures, however, do not fully express the discrepancy between the two classes in this respect; for all of the deaf from adult life were, of course, 20 years of age or over, because they did not lose hearing until after reaching that age; whereas many of the deaf from

childhood (12,786) were between 10 and 20 years of age, and comparatively few of these were earning their livelihood, because most were in school.

Of the deaf from childhood who were 20 years of age or over, the majority (51.6 per cent) were gainfully employed, against 36.8 per cent of the deaf from adult life (Table LXX).

Of the totally deaf who were 20 years of age or over (most of whom were deaf from childhood) 50.1 per cent were earning their livelihood, but only 39.5 per cent of the partially deaf (most of whom became deaf in adult life). (Table LXX.)

The deaf from adult life are undoubtedly better equipped by nature for the task of earning a livelihood, for most of them possess perfect speech and partial hearing; and yet the deaf from childhood seem to be more successful in this respect.

The explanation for this apparently anomalous condition of affairs seems to lie in the fact that many persons who become deaf in adult life fail to accommodate themselves to the new condition of deafness. They lose their positions on account of increasing deafness; and feeling themselves to be too old to begin life all over again in their crippled condition by seeking some new occupation with which deafness would not interfere, they lose heart and drop out of the struggle, becoming dependent upon their friends for support, or living upon the savings of former years, without entering into new pursuits.

In the case of the deaf from childhood, however, the accommodation to the environment has become complete before the dawn of adult life. Many of these persons have never experienced any other condition than that of deafness; and most of them enter upon the duties and responsibilities of adult life with that feeling of buoyancy and hope that is so characteristic of youth.

Nor should we neglect to notice in this connection the powerful influence exerted on the deaf from childhood by the special schools which have been established for their benefit.

The sentiment is very early instilled into their minds that these schools are not in any sense "asylums" or "charitable institutions," but simply "schools" for their education, analogous to the ordinary public schools of the country; and that they themselves are not—and never should be—objects of charity. The spirit of dependence is discouraged; and every effort made to stimulate a spirit of independence and self-help. The pupils are led to believe that it is the duty of every deaf boy and girl to learn some means of livelihood; and that a stigma attaches to those who become a burden upon their friends or the public.

Sentiment counts for a great deal with the young; but the special schools go further than this by providing manual training and art instruction for advanced pupils.[1]

These schools very generally teach the use of tools and give manual training in the form of sloyd. Mechanical drawing, too, and art instruction are given to those who manifest abilities in these lines. Many of our schools support special trade shops in which specific occupations are taught, like shoemaking, cabinetmaking, etc., although it is perhaps doubtful whether this specialization of manual training during school life is of as much value to the deaf as instruction of a more general character, embracing elements that are common to a number of trades. Comparatively few of the deaf from childhood pursue in adult life the specific occupations they were taught in school; and the very great variety in the occupations actually pursued seems to render diversity rather than specialization a desirable aim during the school period, leaving specialization into a specific occupation to come later in life, through actual work in ordinary shops, which are more likely to be up-to-date in their methods of work than the trade shops of the schools, which do not feel the stimulating effects of competition.

The Census tables relating to occupation reveal the astonishing fact that there are extremely few occupations pursued by the people of the United States in which deaf persons do not find employment. This is not only surprising, but at the same time encouraging, as widening the scope of possible usefulness for the deaf.

There can be no question that the industrial training provided by our special schools has been of material assistance to their pupils in securing employment in adult life, and it is specially worthy of notice in this connection that very many of the deaf from childhood have had the opportunity of taking this training, whereas hardly any of the deaf from adult life have attended special schools.

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[1] *Industries taught in American schools for the deaf.*—Architectural drawing, art, baking, barbering, basket making, blacksmithing, bookbinding, bricklaying, broom making, cabinetmaking, calcimining, carpentry, chalk engraving, cementing, chair making, china painting, construction work, cooking, clay modeling, coopery, domestic science, drawing, dressmaking, electricity, embroidery, engineering, fancy work, farming, floriculture, [illegible] handicraft, harness making, house decoration, [illegible] housework, horticulture, illuminating, ironing, knitting, lace making, manual training, mattress making, millinery, needlework, painting, paper hanging, plastering, plate engraving, photography, printing, pyrography, raffia, sewing, shoemaking, sign painting, sloyd, stone laying, tailoring, tinwork, typewriting, venetian iron work, weaving, wood carving, wood engraving, wood turning, woodworking, working in iron, and the use of tools.—*From the American Annals of the Deaf.*

Out of 35,924 persons who became deaf in adult life, only 135 attended special schools; whereas out of 50,296 persons deaf from childhood, 25,071 received training in special schools (including 225 who attended both special and other schools). (Table 2.)

From this it appears probable that our special schools for the deaf are mainly responsible for the fact that the deaf from childhood no longer constitute a dependent class. The majority, or 51.6 per cent, are gainfully employed in adult life. The percentage rightfully entitled to be regarded as self-supporting is even larger than this, for the chief occupation reported by married females ("keeping house") has not been included among gainful occupations.

TABLE LXXI.—*The number and per cent of the deaf 10 years of age and over gainfully employed, classified by ability to speak and degree of deafness.*

| ABILITY TO SPEAK AND DEGREE OF DEAFNESS. | Total. | GAINFULLY EMPLOYED. | |
|---|---|---|---|
| | | Number. | Per cent. |
| The deaf 10 years of age and over | 83,388 | 32,142 | 38.5 |
| Ability to speak: | | | |
| Well | 54,506 | 21,274 | 39.0 |
| Imperfectly | 8,152 | 2,722 | 33.4 |
| Not at all | 20,730 | 8,146 | 39.3 |
| Totally deaf | 32,831 | 12,678 | 38.1 |
| Ability to speak: | | | |
| Well | 7,727 | 3,094 | 40.0 |
| Imperfectly | 5,084 | 1,626 | 32.0 |
| Not at all | 20,020 | 7,958 | 34.7 |
| Partially deaf | 50,557 | 19,464 | 38.5 |
| Ability to speak: | | | |
| Well | 46,779 | 18,180 | 38.9 |
| Imperfectly | 3,068 | 1,096 | 35.7 |
| Not at all | 710 | 188 | 26.5 |

Table LXXI shows the deaf who are 10 years of age or over, by ability to speak and degree of deafness; giving the number and percentage of each class who are employed in gainful occupations.

Out of 62,658 deaf persons 10 years of age or over who were able to speak, 23,996, or 38.3 per cent, were employed in gainful occupations. Out of 20,730 deaf persons who were unable to speak, 8,146, or 39.3 per cent were gainfully employed (Table LXXI).

It thus appears that the deaf and dumb, as a class, are more self-supporting than the deaf who speak.

This is rather a startling conclusion; and it is very easy to draw false inferences from the fact. It can hardly be doubted that the deaf who speak, even imperfectly, have some advantage over those who can not speak at all; so that it is obvious that the above result arises, not from the difference of speaking power, but from other differences not specified in the table.

The fact of the matter is that all of the deaf and dumb were deaf from childhood; whereas the majority of the deaf who speak lost hearing in adult life. The deaf from adult life are inferior in self-supporting power—not of course, because they can speak, but because of other conditions referred to more particularly in remarks concerning Table LXX; and the deaf and dumb are superior in this respect—not because they are dumb, but because of the industrial training they have received in special schools.

In order to ascertain the influence of speech upon employment, we should eliminate the deaf from adult life and study the occupations of the deaf from childhood who speak well, imperfectly, or not at all, so as to have no other substantial point of difference between the classes considered, excepting their ability to speak. Unfortunately the tabulated returns do not give us the information desired.

We can ascertain the period of life when deafness occurred, and the present age, of the deaf who speak well, imperfectly, or not at all; and also of the deaf who are gainfully employed, but we have no tables correlating the results. We may gain some light upon the subject, however, from the consideration of the fact that the totally deaf consist mainly of persons deaf from childhood, so that the totally deaf cases noted in Table LXXI were probably all deaf from childhood. Of those who could speak well, 40 per cent were employed in gainful occupations; whereas only 34.7 per cent of those who were deaf and dumb were gainfully employed. The ability to speak well was evidently of advantage.

The advantage is not so obvious in the case of the totally deaf who speak imperfectly, of whom only 32 per cent were gainfully employed. It should be remembered, however, that in these cases we are dealing largely with persons who have acquired speech artificially by instruction in school, and that the table includes many persons who are between 10 and 20 years of age.

Articulation teaching is of so comparatively recent origin that most of the deaf who have acquired speech artificially by instruction in schools are still quite young, few having passed middle life; whereas the deaf and dumb, and the deaf who speak well, contain persons of all ages—even up to extreme old age.

The difference between the three classes in respect to age may be illustrated by taking the aggregates given in Table LXXI (composed of persons 10 years of age or over), and showing the number and percentage who are 20 years of age or over:

| CLASS. | 10 years of age and over. | 20 years of age and over. | Percentage 20 years of age and over. |
|---|---|---|---|
| Aggregate gainfully employed | 32,142 | 30,353 | 94.4 |
| Speak well | 54,506 | 51,376 | 94.2 |
| Imperfectly | 8,152 | 4,809 | 59.0 |
| Not at all | 20,730 | 14,419 | 69.5 |

As more than 94 per cent of the aggregate gainfully employed are 20 years of age or over, it follows that the number 20 years of age or over who are gainfully employed among the three classes named (the deaf who speak well, imperfectly, or not at all) would be only slightly changed from the figures of the table (Table LXXI); but the percentage gainfully employed would be considerably increased in the case of the deaf who speak imperfectly—in fact, almost doubled—because it would be based upon a smaller total little more than half its former value (59 per cent).

Not only does ability to speak affect the opportunity for engaging in pursuits in general, but it also, in a large measure, determines the choice of occupation. The following percentages are taken from Table 47, and show the percentage of the deaf who speak well, imperfectly, or not all, who are engaged in the principal groups of occupations:

| OCCUPATION. | ABILITY TO SPEAK. | | |
|---|---|---|---|
| | Well. | Imperfectly. | Not at all. |
| All occupations | 100.0 | 100.0 | 100.0 |
| Agricultural pursuits | 46.1 | 40.9 | 38.6 |
| Professional service | 4.1 | 2.5 | 1.8 |
| Domestic and personal service | 14.7 | 19.3 | 20.4 |
| Trade and transportation | 8.8 | 3.6 | 3.3 |
| Manufacturing and mechanical pursuits | 26.3 | 33.7 | 35.9 |

The advantage of speech is most manifest in agricultural pursuits, professional service, and trade and transportation; the percentage employed in these occupations being greatest among those who speak well, least among those who do not speak at all, and intermediate among those who speak imperfectly. On the other hand, speech does not seem to be of so much consequence in domestic and personal service and manufacturing and mechanical pursuits, the order of the percentages being reversed.

TABLE LXXII.—THE DEAF, 10 YEARS OF AGE AND OVER, ENGAGED IN EACH OCCUPATION AND CLASS OF OCCUPATIONS, BY AGE WHEN DEAFNESS OCCURRED.

| OCCUPATION. | Total. | AGE WHEN DEAFNESS OCCURRED. | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Unknown. | Indefinitely stated. | Definitely stated. | Birth. | After birth, under 2. | 2 and under 5. | Under 5. | 5 and under 10. | 10 and under 15. | 15 and under 20. | Under 20. | 20 and under 40. | 40 and under 60. | 60 and under 80. | 80 and over. |
| All occupations | 32,142 | 897 | 1,104 | 30,141 | 4,086 | 2,053 | 4,003 | 10,142 | 3,105 | 2,118 | 2,098 | 17,463 | 7,227 | 3,579 | 1,756 | 116 |
| Agricultural pursuits | 14,068 | 382 | 498 | 13,188 | 1,871 | 809 | 1,324 | 4,004 | 1,116 | 853 | 838 | 6,811 | 3,287 | 1,937 | 1,071 | 82 |
| Agricultural laborers | 2,016 | 50 | 72 | 1,894 | 635 | 208 | 313 | 1,156 | 230 | 134 | 85 | 1,605 | 169 | 81 | 37 | 2 |
| Dairymen and dairywomen | 29 | | | 29 | | 1 | | 1 | 4 | 1 | 2 | 8 | 15 | 4 | 1 | 1 |
| Farmers, planters, and overseers | 11,428 | 306 | 404 | 10,718 | 1,196 | 577 | 969 | 2,742 | 843 | 667 | 700 | 4,952 | 2,951 | 1,762 | 978 | 75 |
| Gardeners, florists, nurserymen, etc | 330 | 16 | 17 | 297 | 20 | 6 | 20 | 46 | 18 | 23 | 20 | 107 | 86 | 61 | 40 | 3 |
| Lumbermen and raftsmen | 51 | | 1 | 50 | 5 | 3 | 7 | 15 | 4 | 6 | 6 | 31 | 13 | 5 | 1 | |
| Stock raisers, herders, and drovers | 147 | 3 | 2 | 142 | 7 | 12 | 13 | 32 | 15 | 15 | 15 | 77 | 40 | 17 | 7 | |
| Turpentine farmers and laborers | 4 | 1 | | 3 | | | | | | | 3 | 3 | | | | |
| Wood choppers | 52 | 6 | 2 | 44 | 8 | 2 | 1 | 11 | 1 | 5 | 6 | 23 | 8 | 7 | 6 | |
| Other agricultural pursuits | 11 | | | 11 | | | 1 | 1 | 1 | 2 | 1 | 5 | 5 | | 1 | |
| Professional service | 1,080 | 30 | 44 | 1,006 | 59 | 44 | 127 | 230 | 144 | 94 | 70 | 538 | 288 | 120 | 56 | 4 |
| Actors, professional showmen, etc | 23 | 2 | 1 | 20 | | | 5 | 5 | 4 | 2 | 2 | 13 | 6 | | 1 | |
| Architects, designers, draftsmen, etc | 46 | | 1 | 45 | 1 | 2 | 7 | 10 | 5 | 5 | 2 | 22 | 18 | 2 | 3 | |
| Artists and teachers of art | 114 | 2 | 2 | 110 | 10 | 11 | 32 | 53 | 20 | 12 | 4 | 89 | 16 | 4 | 1 | |
| Clergymen | 116 | 2 | 9 | 105 | 1 | 1 | 5 | 7 | 9 | 8 | 6 | 30 | 33 | 25 | 14 | 3 |
| Dentists | 20 | | 2 | 18 | | 1 | 2 | 3 | 1 | 2 | 2 | 8 | 8 | 2 | | |
| [illegible] | 18 | 1 | | 17 | 1 | | 2 | 3 | 2 | 1 | | 6 | 10 | 1 | | |
| [illegible] | 43 | 2 | | 41 | 1 | | | 1 | 2 | 3 | 9 | 15 | 13 | 9 | 4 | |
| [illegible] | 54 | 2 | 2 | 50 | | 1 | 3 | 4 | 11 | 9 | 4 | 28 | 18 | 4 | | |
| Lawyers | 90 | 4 | 3 | 83 | | 1 | 2 | 3 | 2 | 5 | 6 | 17 | 41 | 14 | 10 | 1 |
| Literary and scientific persons | 40 | 1 | 1 | 38 | 1 | | 2 | 3 | 6 | 2 | 3 | 14 | 16 | 7 | 1 | |
| Musicians and teachers of music | 39 | 1 | 4 | 34 | 1 | | 3 | 4 | 2 | 5 | 8 | 19 | 12 | 3 | | |
| [illegible] | 62 | 4 | 1 | 57 | 3 | | 2 | 5 | 7 | 2 | 8 | 22 | 18 | 15 | 2 | |
| [illegible] | 106 | 4 | 6 | 96 | 1 | | 4 | 5 | 4 | 3 | 8 | 20 | 37 | 27 | 12 | |
| [illegible] | 294 | 5 | 11 | 278 | 39 | 27 | 57 | 123 | 64 | 34 | 8 | 229 | 35 | 6 | 8 | |
| [illegible] | 15 | | 1 | 14 | | | 1 | 1 | 4 | 1 | | 6 | 7 | 1 | | |
| Domestic and personal service | 5,316 | 187 | 195 | 4,934 | 856 | 336 | 720 | 1,912 | 588 | 369 | 345 | 3,214 | 1,095 | 444 | 170 | 11 |
| Barbers and hairdressers | 122 | 3 | 1 | 118 | 12 | 19 | 31 | 62 | 13 | 7 | 7 | 89 | 21 | 6 | 2 | |
| Bartenders | 9 | | 1 | 8 | | 1 | | 1 | 1 | 1 | 3 | 6 | 2 | | | |
| Boarding and lodging house keepers | 125 | 4 | 7 | 114 | 3 | 1 | 4 | 8 | 7 | 8 | 5 | 28 | 55 | 27 | 3 | 1 |
| Hotel keepers | 96 | 1 | 6 | 89 | 3 | 1 | 5 | 9 | 6 | 3 | 3 | 21 | 33 | 21 | 14 | |
| Housekeepers and stewards | 230 | 7 | 10 | 213 | 35 | 16 | 30 | 81 | 26 | 9 | 12 | 128 | 60 | 18 | 7 | |
| Janitors and sextons | 74 | 3 | 4 | 67 | 4 | 2 | 4 | 10 | 3 | 4 | 6 | 23 | 31 | 11 | 2 | |
| Laborers (not specified) | 2,718 | 98 | 96 | 2,524 | 424 | 187 | 386 | 997 | 291 | 175 | 178 | 1,641 | 546 | 229 | 101 | 7 |
| Launderers and laundresses | 452 | 19 | 12 | 421 | 63 | 12 | 59 | 134 | 57 | 47 | 35 | 273 | 102 | 36 | 10 | |
| Nurses and midwives | 57 | 4 | 2 | 51 | 2 | 3 | 4 | 9 | 3 | 1 | 4 | 17 | 18 | 8 | 8 | |
| Restaurant keepers | 21 | | | 21 | | 1 | 3 | 4 | 3 | 1 | 3 | 11 | 6 | 3 | 1 | |
| Saloon keepers | 26 | 3 | 1 | 22 | 1 | | | 1 | 2 | 1 | 3 | 7 | 5 | 9 | 1 | |
| Servants and waiters | 1,303 | 42 | 48 | 1,213 | 301 | 92 | 188 | 581 | 172 | 101 | 80 | 934 | 191 | 69 | 17 | 2 |
| [illegible] | 3 | | | 3 | | | | | | | 2 | 2 | 1 | | | |
| [illegible] | 48 | 3 | 5 | 40 | 2 | | 2 | 4 | 2 | 5 | 1 | 12 | 18 | 5 | 4 | 1 |
| Other domestic and personal service | 32 | | 2 | 30 | 6 | 1 | 4 | 11 | 2 | 6 | 3 | 22 | 6 | 2 | | |
| Trade and transportation | 2,236 | 61 | 92 | 2,083 | 129 | 76 | 206 | 411 | 187 | 171 | 226 | 995 | 661 | 304 | 117 | 6 |
| Agents | 231 | 10 | 14 | 207 | 14 | 4 | 15 | 33 | 11 | 17 | 21 | 82 | 68 | 39 | 17 | 1 |
| Bankers and brokers | 119 | 4 | 8 | 107 | 3 | 2 | 4 | 9 | 5 | 6 | 8 | 28 | 37 | 20 | 20 | 2 |
| Boatmen and sailors | 45 | 1 | 2 | 42 | 2 | | 4 | 6 | 3 | 2 | 5 | 16 | 11 | 8 | 7 | |
| Bookkeepers and accountants | 124 | 3 | 4 | 117 | 5 | 3 | 6 | 14 | 17 | 17 | 12 | 60 | 38 | 15 | 4 | |
| Clerks and copyists | 263 | 1 | 10 | 252 | 20 | 18 | 32 | 70 | 30 | 25 | 33 | 158 | 70 | 20 | 4 | |
| Commercial travelers | 33 | 1 | 2 | 30 | 3 | 2 | 2 | 7 | 4 | 1 | 5 | 17 | 10 | 3 | | |
| Draymen, hackmen, teamsters, etc | 206 | 10 | 7 | 189 | 18 | 8 | 24 | 50 | 18 | 16 | 17 | 101 | 58 | 25 | 5 | |
| Foremen and overseers | 3 | | | 3 | | | 2 | 2 | 1 | | | 3 | | | | |
| [illegible] | 47 | 3 | 1 | 43 | 10 | 1 | 11 | 22 | 3 | 3 | 4 | 32 | 9 | | 2 | |
| [illegible] | 66 | 1 | 4 | 61 | 7 | 1 | 6 | 14 | 7 | 6 | 6 | 33 | 14 | 9 | 5 | |
| [illegible] | 30 | 1 | 1 | 28 | | 1 | 3 | 4 | 2 | 3 | 3 | 12 | 9 | 6 | 1 | |
| [illegible] | 710 | 13 | 28 | 669 | 21 | 20 | 51 | 92 | 48 | 48 | 82 | 270 | 230 | 123 | 45 | 1 |
| Merchants and dealers (wholesale) | 7 | | | 7 | 1 | | | 1 | 1 | | | 2 | 4 | | 1 | |
| Messengers and errand and office boys | 13 | 2 | | 11 | 1 | 1 | 1 | 3 | | 4 | | 7 | 3 | 1 | | |
| Officials of banks and companies | 22 | 2 | 1 | 19 | | | 2 | 2 | 1 | 1 | 1 | 5 | 9 | 3 | 1 | 1 |
| Packers a[illegible] | 26 | 1 | | 25 | 2 | 3 | 7 | 12 | 5 | 4 | | 21 | 3 | 1 | | |
| Porters a[illegible] | 39 | | 1 | 38 | 10 | 2 | 4 | 16 | 5 | 2 | 2 | 25 | 10 | 1 | 1 | 1 |
| Salesmen | 77 | 4 | 4 | 69 | 6 | 3 | 13 | 22 | 4 | 4 | 7 | 37 | 21 | 11 | | |
| [illegible] | 106 | 3 | 4 | 99 | 3 | 3 | 8 | 14 | 13 | 8 | 12 | 47 | 37 | 11 | 4 | |
| [illegible] | 15 | | | 15 | | 2 | 3 | 5 | 3 | 1 | 4 | 13 | 1 | 1 | | |
| [illegible] | 1 | | | 1 | | | | | | | | | 1 | | | |
| [illegible] | 3 | | | 3 | | | 1 | 1 | | | 1 | 2 | 1 | | | |
| [illegible] | 16 | | | 16 | | | 1 | 1 | | 1 | 2 | 4 | 11 | 1 | | |
| [illegible] | 13 | | | 13 | 1 | | 1 | 2 | 1 | 1 | | 4 | 4 | 5 | | |
| [illegible] tion | 21 | 1 | 1 | 19 | 2 | 2 | 5 | 9 | 5 | 1 | 1 | 16 | 2 | 1 | | |
| Manufacturing and mechanical pursuits | 9,442 | 237 | 275 | 8,930 | 1,171 | 788 | 1,626 | 3,585 | 1,070 | 631 | 619 | 5,905 | 1,896 | 774 | 342 | 13 |
| Building trades | 2,000 | 63 | 69 | 1,868 | 165 | 123 | 266 | 554 | 178 | 122 | 148 | 1,002 | 494 | 240 | 129 | 3 |
| Carpenters and joiners | 1,121 | 41 | 40 | 1,040 | 82 | 63 | 135 | 280 | 82 | 62 | 71 | 495 | 282 | 161 | 99 | 3 |
| Masons (brick and stone) | 203 | 7 | 5 | 191 | 15 | 7 | 12 | 34 | 18 | 20 | 21 | 93 | 56 | 26 | 16 | |
| Painters, glaziers, and varnishers | 399 | 10 | 10 | 379 | 42 | 40 | 82 | 164 | 50 | 24 | 27 | 265 | 76 | 31 | 7 | |
| Paper hangers | 30 | | 1 | 29 | | | 5 | 5 | 5 | 3 | 4 | 17 | 11 | 1 | | |
| Plasterers | 59 | 1 | 4 | 54 | 1 | 1 | 7 | 9 | 8 | 3 | 6 | 26 | 21 | 5 | 2 | |
| Plumbers and gas and steam fitters | 20 | 1 | 1 | 18 | 2 | 1 | | 3 | 4 | 3 | 3 | 13 | 4 | 1 | | |
| Roofers and slaters | 7 | 1 | | 6 | | | | | | | 2 | 2 | 3 | 1 | | |
| Mechanics (not otherwise specified) | 161 | 2 | 8 | 151 | 23 | 11 | 25 | 59 | 11 | 7 | 14 | 91 | 41 | 14 | 5 | |
| Chemicals and allied products | 20 | | 2 | 18 | 1 | 1 | 1 | 3 | 4 | 1 | 1 | 9 | 4 | 5 | | |
| Oil well and oil works employees | 16 | | 1 | 15 | | | 1 | 1 | 3 | 1 | 1 | 6 | 4 | 5 | | |
| Other chemical workers | 4 | | 1 | 3 | 1 | 1 | | 2 | 1 | | | 3 | | | | |

TABLE LXXII.—THE DEAF, 10 YEARS OF AGE AND OVER, ENGAGED IN EACH OCCUPATION AND CLASS OF OCCUPATIONS, BY AGE WHEN DEAFNESS OCCURRED—Continued.

| OCCUPATION. | Total. | AGE WHEN DEAFNESS OCCURRED. | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Unknown. | Indefinitely stated. | Definitely stated. | Birth. | After birth, under 2. | 2 and under 5. | Under 5. | 5 and under 10. | 10 and under 15. | 15 and under 20. | Under 20. | 20 and under 40. | 40 and under 60. | 60 and under 80. | 80 and over. |
| Clay, glass, and stone products | 129 | 3 | ..... | 126 | 16 | 9 | 26 | 51 | 13 | 9 | 9 | 82 | 27 | 11 | 6 | ..... |
| Brick and tile makers, etc | 26 | 2 | ..... | 24 | 5 | 2 | 5 | 12 | 4 | 1 | ..... | 17 | 5 | 1 | 1 | ..... |
| Glassworkers | 24 | 1 | ..... | 23 | 3 | 3 | 3 | 9 | 3 | 3 | 3 | 18 | 4 | ..... | 1 | ..... |
| Marble and stone cutters | 70 | ..... | ..... | 70 | 6 | 3 | 15 | 24 | 5 | 5 | 5 | 39 | 17 | 10 | 4 | ..... |
| Potters | 9 | ..... | ..... | 9 | 2 | 1 | 3 | 6 | 1 | ..... | 1 | 8 | 1 | ..... | ..... | ..... |
| Fishing and mining | 350 | 7 | 1 | 342 | 38 | 17 | 34 | 89 | 34 | 32 | 37 | 192 | 92 | 33 | 25 | ..... |
| Fishermen and oystermen | 85 | 2 | ..... | 83 | 16 | 3 | 3 | 22 | 6 | 7 | 9 | 44 | 25 | 7 | 7 | ..... |
| Miners and quarrymen | 265 | 5 | 1 | 259 | 22 | 14 | 31 | 67 | 28 | 25 | 28 | 148 | 67 | 26 | 18 | ..... |
| Food and kindred products | 297 | 11 | 10 | 276 | 21 | 26 | 35 | 82 | 30 | 22 | 32 | 166 | 72 | 30 | 8 | ..... |
| Bakers | 103 | 3 | 1 | 99 | 11 | 14 | 20 | 45 | 13 | 6 | 10 | 74 | 16 | 6 | 3 | ..... |
| Butchers | 91 | 4 | 3 | 84 | 4 | 7 | 5 | 16 | 11 | 12 | 9 | 48 | 26 | 10 | ..... | ..... |
| Butter and cheese makers | 6 | ..... | ..... | 6 | 1 | ..... | ..... | 1 | ..... | 1 | 1 | 3 | 2 | 1 | ..... | ..... |
| Confectioners | 36 | 1 | 1 | 34 | 1 | 2 | 4 | 7 | 3 | 3 | 6 | 19 | 9 | 5 | 1 | ..... |
| Millers | 49 | 3 | 3 | 43 | 1 | 2 | 3 | 6 | 2 | ..... | 5 | 13 | 18 | 8 | 4 | ..... |
| Other food preparers | 12 | ..... | 2 | 10 | 3 | 1 | 3 | 7 | 1 | ..... | 1 | 9 | 1 | ..... | ..... | ..... |
| Iron and steel and their products | 869 | 37 | 22 | 810 | 77 | 42 | 119 | 238 | 85 | 59 | 75 | 457 | 228 | 84 | 39 | 2 |
| Blacksmiths | 348 | 17 | 9 | 322 | 23 | 9 | 18 | 50 | 28 | 21 | 38 | 137 | 115 | 42 | 26 | 2 |
| Iron and steel workers | 183 | 5 | 4 | 174 | 22 | 13 | 47 | 82 | 24 | 15 | 11 | 132 | 30 | 9 | 3 | ..... |
| Machinists | 216 | 7 | 4 | 205 | 21 | 16 | 34 | 71 | 24 | 16 | 15 | 126 | 51 | 21 | 7 | ..... |
| Steam boiler makers | 54 | 7 | 3 | 44 | 1 | ..... | 1 | 2 | 2 | 1 | 8 | 13 | 20 | 11 | ..... | ..... |
| Stove, furnace, and grate makers | 7 | ..... | ..... | 7 | ..... | 2 | 2 | 4 | 1 | 1 | ..... | 6 | 1 | ..... | ..... | ..... |
| Tool and cutlery makers | 26 | 1 | 2 | 23 | 4 | ..... | 7 | 11 | 3 | 2 | ..... | 16 | 6 | 1 | ..... | ..... |
| Wheelwrights | 24 | ..... | ..... | 24 | 4 | 2 | 4 | 10 | 2 | 3 | 3 | 18 | 4 | ..... | 2 | ..... |
| Wireworkers | 11 | ..... | ..... | 11 | 2 | ..... | 6 | 8 | 1 | ..... | ..... | 9 | 1 | ..... | 1 | ..... |
| Leather and its finished products | 955 | 16 | 32 | 907 | 192 | 109 | 235 | 536 | 104 | 49 | 35 | 724 | 99 | 61 | 22 | 1 |
| Boot and shoe makers and repairers | 794 | 13 | 29 | 752 | 172 | 92 | 197 | 461 | 95 | 41 | 25 | 622 | 68 | 44 | 17 | 1 |
| Harness and saddle makers and repairers | 110 | 2 | 3 | 105 | 14 | 11 | 26 | 51 | 4 | 4 | 6 | 65 | 22 | 14 | 4 | ..... |
| Leather curriers and tanners | 41 | 1 | ..... | 40 | 4 | 5 | 10 | 19 | 3 | 4 | 3 | 29 | 9 | 1 | 1 | ..... |
| Trunk and leather-case makers, etc | 10 | ..... | ..... | 10 | 2 | 1 | 2 | 5 | 2 | ..... | 1 | 8 | ..... | 2 | ..... | ..... |
| Liquors and beverages | 19 | ..... | 2 | 17 | 4 | 1 | 4 | 9 | 5 | 2 | ..... | 16 | 1 | ..... | ..... | ..... |
| Bottlers and soda water makers, etc | 13 | ..... | 1 | 12 | 1 | ..... | 4 | 5 | 4 | 2 | ..... | 11 | 1 | ..... | ..... | ..... |
| Brewers and maltsters | 3 | ..... | 1 | 2 | 1 | ..... | ..... | 1 | 1 | ..... | ..... | 2 | ..... | ..... | ..... | ..... |
| Distillers and rectifiers | 3 | ..... | ..... | 3 | 2 | 1 | ..... | 3 | ..... | ..... | ..... | 3 | ..... | ..... | ..... | ..... |
| Lumber and its remanufactures | 730 | 12 | 24 | 694 | 98 | 78 | 154 | 330 | 80 | 37 | 38 | 485 | 113 | 63 | 32 | 1 |
| Cabinetmakers | 180 | 2 | 4 | 174 | 29 | 30 | 47 | 106 | 25 | 7 | 6 | 144 | 14 | 8 | 8 | ..... |
| Coopers | 92 | 1 | ..... | 91 | 12 | 6 | 20 | 38 | 13 | 5 | 6 | 62 | 21 | 4 | 4 | ..... |
| Saw and planing mill employees | 110 | 3 | 5 | 102 | 15 | 3 | 17 | 35 | 10 | 8 | 7 | 60 | 24 | 11 | 7 | ..... |
| Other woodworkers | 348 | 6 | 15 | 327 | 42 | 39 | 70 | 151 | 32 | 17 | 19 | 219 | 54 | 40 | 13 | 1 |
| Metals and metal products other than iron and steel | 204 | 5 | 2 | 197 | 23 | 16 | 48 | 87 | 23 | 14 | 10 | 134 | 42 | 16 | 5 | ..... |
| Brassworkers | 19 | 2 | ..... | 17 | 3 | 1 | 6 | 10 | 2 | ..... | 3 | 15 | 1 | 1 | ..... | ..... |
| [illegible] | 35 | 1 | ..... | 34 | 4 | 5 | 8 | 17 | 2 | 1 | ..... | 20 | 9 | 4 | 1 | ..... |
| [illegible] | 17 | 1 | ..... | 16 | 1 | 2 | 4 | 7 | 5 | ..... | 1 | 13 | 1 | 2 | ..... | ..... |
| [illegible] | 65 | 1 | ..... | 64 | 6 | 4 | 10 | 20 | 10 | 7 | 3 | 40 | 19 | 4 | 1 | ..... |
| Other metal workers | 68 | ..... | 2 | 66 | 9 | 4 | 20 | 33 | 4 | 6 | 3 | 46 | 12 | 5 | 3 | ..... |
| Paper and printing | 606 | 12 | 11 | 583 | 113 | 99 | 164 | 376 | 94 | 40 | 18 | 528 | 43 | 8 | 4 | ..... |
| Bookbinders | 54 | ..... | 2 | 52 | 8 | 7 | 20 | 35 | 6 | 1 | 1 | 43 | 7 | 1 | 1 | ..... |
| Boxmakers (paper) | 18 | ..... | ..... | 18 | 2 | ..... | 8 | 10 | 2 | 3 | 1 | 16 | 2 | ..... | ..... | ..... |
| Engravers | 27 | ..... | 1 | 26 | 3 | 5 | 6 | 14 | 8 | 1 | ..... | 23 | 3 | ..... | ..... | ..... |
| Paper and pulp mill operatives | 31 | 2 | ..... | 29 | 5 | 4 | 7 | 16 | 1 | 1 | 1 | 19 | 8 | 2 | ..... | ..... |
| Printers, lithographers, and pressmen | 476 | 10 | 8 | 458 | 95 | 83 | 123 | 301 | 77 | 34 | 15 | 427 | 23 | 5 | 3 | ..... |
| Textiles | 2,214 | 43 | 64 | 2,107 | 317 | 180 | 377 | 874 | 296 | 166 | 160 | 1,496 | 425 | 135 | 46 | 5 |
| Bleachery and dye works operatives | 13 | 1 | ..... | 12 | 1 | 1 | 1 | 3 | 2 | 1 | 1 | 7 | 3 | 2 | ..... | ..... |
| Carpet factory operatives | 45 | ..... | 1 | 44 | 7 | 2 | 9 | 18 | 5 | 5 | 4 | 32 | 7 | 3 | 1 | 1 |
| [illegible] | 136 | 1 | 3 | 132 | 29 | 12 | 21 | 62 | 17 | 9 | 12 | 100 | 24 | 7 | 1 | ..... |
| [illegible] | 31 | ..... | 2 | 29 | 5 | 4 | 6 | 15 | 2 | 2 | 1 | 20 | 5 | 2 | 2 | ..... |
| [illegible] | 15 | ..... | ..... | 15 | 2 | 2 | 3 | 7 | 1 | 2 | 1 | 11 | 4 | ..... | ..... | ..... |
| [illegible] | 86 | 6 | 2 | 78 | 8 | 6 | 10 | 24 | 14 | 9 | 6 | 53 | 17 | 6 | 2 | ..... |
| [illegible] | 24 | ..... | ..... | 24 | 3 | 2 | 4 | 9 | 3 | 2 | 1 | 15 | 5 | 2 | 2 | ..... |
| Dressmakers | 706 | 10 | 22 | 674 | 80 | 51 | 116 | 247 | 99 | 57 | 62 | 465 | 166 | 35 | 8 | ..... |
| [illegible] | 26 | 1 | 1 | 24 | 2 | 1 | 9 | 12 | 4 | 3 | 2 | 21 | 1 | 2 | ..... | ..... |
| [illegible] | 53 | 3 | 2 | 48 | 4 | 2 | 8 | 14 | 6 | 8 | 1 | 29 | 15 | 3 | 1 | ..... |
| Seamstresses | 604 | 14 | 22 | 568 | 93 | 43 | 92 | 228 | 83 | 36 | 42 | 389 | 124 | 44 | 9 | 2 |
| Shirt, collar, and cuff makers | 34 | 1 | ..... | 33 | 9 | 3 | 10 | 22 | 5 | 2 | 1 | 30 | 3 | ..... | ..... | ..... |
| Tailors and tailoresses | 402 | 6 | 7 | 389 | 71 | 49 | 84 | 204 | 53 | 23 | 23 | 303 | 44 | 24 | 17 | 1 |
| Other textile workers | 39 | ..... | 2 | 37 | 3 | 2 | 4 | 9 | 2 | 7 | 3 | 21 | 7 | 5 | 3 | 1 |
| Miscellaneous industries | 1,049 | 28 | 36 | 985 | 106 | 87 | 163 | 356 | 124 | 78 | 56 | 614 | 256 | 88 | 26 | 1 |
| Broom and brush makers | 45 | 2 | ..... | 43 | 5 | 3 | 8 | 16 | 9 | 2 | 3 | 30 | 11 | 1 | 1 | ..... |
| Charcoal, coke, and lime burners | 6 | ..... | ..... | 6 | ..... | ..... | ..... | ..... | ..... | 2 | ..... | 2 | 3 | 1 | ..... | ..... |
| [illegible] | 126 | 4 | 4 | 118 | 10 | 2 | 8 | 20 | 7 | 10 | 8 | 45 | 56 | 15 | 2 | ..... |
| [illegible] | 18 | ..... | ..... | 18 | 2 | 1 | 3 | 6 | 1 | ..... | 1 | 8 | 6 | 4 | ..... | ..... |
| [illegible] | 248 | 15 | 9 | 224 | 2 | 5 | 20 | 27 | 27 | 15 | 22 | 91 | 83 | 39 | 11 | ..... |
| [illegible] | 27 | 1 | 2 | 24 | 3 | 2 | 5 | 10 | 1 | ..... | 1 | 12 | 6 | 4 | 2 | ..... |
| Photographers | 55 | ..... | ..... | 55 | 4 | 8 | 11 | 23 | 7 | 2 | 3 | 35 | 18 | 2 | ..... | ..... |
| [illegible] | 12 | 1 | ..... | 11 | 3 | 1 | 3 | 7 | 1 | ..... | ..... | 8 | 3 | ..... | ..... | ..... |
| [illegible] | 233 | 3 | 11 | 219 | 39 | 30 | 46 | 115 | 39 | 27 | 9 | 190 | 21 | 5 | 3 | ..... |
| [illegible] | 56 | 1 | 1 | 54 | 5 | 6 | 13 | 24 | 7 | 6 | 2 | 39 | 10 | 5 | ..... | ..... |
| [illegible] | 223 | 1 | 9 | 213 | 33 | 29 | 46 | 108 | 25 | 14 | 7 | 154 | 39 | 12 | 7 | 1 |

TABLE LXXIII.—THE DEAF ENGAGED IN EACH OCCUPATION AND CLASS OF OCCUPATIONS, BY DEGREE OF DEAFNESS, ABILITY TO SPEAK, SEX, RACE, AND PRESENT AGE.

| OCCUPATION. | Aggregate. | DEGREE OF DEAFNESS. | | ABILITY TO SPEAK. | | | SEX. | | RACE. | | PRESENT AGE. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Totally deaf. | Partially deaf. | Well. | Imperfectly. | Not at all. | Male. | Female. | White. | Colored. | 10 and under 20. | 20 and over. | Unknown. |
| All occupations | 32,142 | 12,678 | 19,464 | 21,274 | 2,722 | 8,146 | 26,637 | 5,505 | 29,831 | 2,311 | 1,668 | 30,353 | 121 |
| Agricultural pursuits | 14,068 | 4,761 | 9,307 | 9,807 | 1,113 | 3,148 | 13,126 | 942 | 12,827 | 1,241 | 887 | 13,139 | 42 |
| Agricultural laborers | 2,016 | 1,218 | 798 | 722 | 309 | 985 | 1,813 | 203 | 1,516 | 500 | 444 | 1,564 | 8 |
| Dairymen and dairywomen | 29 | 7 | 22 | 27 | 1 | 1 | 22 | 7 | 29 | | | 29 | |
| [illegible] | 11,428 | 3,366 | 8,062 | 8,597 | 764 | 2,067 | 10,721 | 707 | 10,742 | 686 | 423 | 10,974 | 31 |
| [illegible] | 330 | 75 | 255 | 277 | 15 | 38 | 314 | 16 | 316 | 14 | 5 | 324 | 1 |
| [illegible] | 51 | 31 | 20 | 32 | 2 | 17 | 51 | | 48 | 3 | 1 | 50 | |
| Stock raisers, herders, and drovers | 147 | 41 | 106 | 110 | 14 | 23 | 138 | 9 | 130 | 17 | 10 | 136 | 1 |
| [illegible] | 4 | 1 | 3 | 3 | | 1 | 4 | | 2 | 2 | | 4 | |
| [illegible] | 52 | 18 | 34 | 30 | 7 | 15 | 52 | | 33 | 19 | 4 | 47 | 1 |
| [illegible] | 11 | 4 | 7 | 9 | 1 | 1 | 11 | | 11 | | | 11 | |
| Professional service | 1,080 | 387 | 693 | 869 | 68 | 143 | 832 | 248 | 1,058 | 22 | 13 | 1,058 | 9 |
| Actors, professional showmen, etc. | 23 | 16 | 7 | 14 | 3 | 6 | 23 | | 21 | 2 | 2 | 21 | |
| Architects, designers, draftsmen, etc. | 46 | 15 | 31 | 41 | 1 | 4 | 45 | 1 | 46 | | 1 | 45 | |
| Artists and teachers of art | 114 | 60 | 54 | 68 | 14 | 32 | 51 | 63 | 113 | 1 | 3 | 110 | 1 |
| Clergymen | 116 | 18 | 98 | 112 | 3 | 1 | 112 | 4 | 108 | 8 | | 114 | 2 |
| Dentists | 20 | 3 | 17 | 19 | | 1 | 20 | | 20 | | | 20 | |
| Electricians | 18 | 4 | 14 | 16 | 1 | 1 | 18 | | 18 | | 1 | 17 | |
| Engineers (civil, etc.) and surveyors | 43 | 5 | 38 | 43 | | | 43 | | 43 | | | 42 | 1 |
| Journalists | 54 | 17 | 37 | 51 | 3 | | 47 | 7 | 54 | | | 54 | |
| Lawyers | 90 | 7 | 83 | 87 | 2 | 1 | 89 | 1 | 88 | 2 | | 90 | |
| Literary and scientific persons | 40 | 11 | 29 | 38 | 2 | | 24 | 16 | 40 | | 1 | 39 | |
| [illegible] | 39 | 2 | 37 | 38 | 1 | | 12 | 27 | 39 | | 3 | 36 | |
| [illegible] | 62 | 11 | 51 | 56 | | 6 | 55 | 7 | 62 | | | 62 | |
| [illegible] | 106 | 10 | 96 | 105 | 1 | | 101 | 5 | 104 | 2 | | 105 | 1 |
| [illegible] | 294 | 206 | 88 | 166 | 37 | 91 | 177 | 117 | 287 | 7 | 2 | 288 | 4 |
| [illegible] | 15 | 2 | 13 | 15 | | | 15 | | 15 | | | 15 | |
| Domestic and personal service | 5,316 | 2,395 | 2,921 | 3,130 | 527 | 1,659 | 3,210 | 2,106 | 4,548 | 768 | 280 | 4,995 | 41 |
| Barbers and hairdressers | 122 | 74 | 48 | 55 | 15 | 52 | 117 | 5 | 110 | 12 | 4 | 118 | |
| Bartenders | 9 | 3 | 6 | 7 | | 2 | 9 | | 9 | | | 9 | |
| Boarding and lodging house keepers | 125 | 13 | 112 | 118 | 3 | 4 | 17 | 108 | 121 | 4 | | 125 | |
| Hotel keepers | 96 | 18 | 78 | 90 | | 6 | 74 | 22 | 95 | 1 | 1 | 94 | 1 |
| Housekeepers and stewards | 230 | 91 | 139 | 158 | 15 | 57 | 10 | 220 | 223 | 7 | 9 | 220 | 1 |
| Janitors and sextons | 74 | 15 | 59 | 66 | 1 | 7 | 66 | 8 | 71 | 3 | | 74 | |
| Laborers (not specified) | 2,718 | 1,217 | 1,501 | 1,573 | 264 | 881 | 2,587 | 131 | 2,424 | 294 | 144 | 2,560 | 14 |
| Launderers and laundresses | 452 | 210 | 242 | 280 | 40 | 132 | 38 | 414 | 287 | 165 | 12 | 435 | 5 |
| Nurses and midwives | 57 | 9 | 48 | 48 | 4 | 5 | 6 | 51 | 48 | 9 | | 57 | |
| Restaurant keepers | 21 | 6 | 15 | 15 | 5 | 1 | 20 | 1 | 19 | 2 | | 21 | |
| Saloon keepers | 26 | 4 | 22 | 24 | 1 | 1 | 26 | | 26 | | | 26 | |
| Servants and waiters | 1,303 | 712 | 591 | 634 | 172 | 497 | 159 | 1,144 | 1,040 | 263 | 106 | 1,177 | 20 |
| Soldiers, sailors, and marines (U. S.) | 3 | | 3 | 3 | | | 3 | | 3 | | | 3 | |
| Watchmen, policemen, firemen, etc. | 48 | 6 | 42 | 41 | 3 | 4 | 48 | | 48 | | | 48 | |
| Other domestic and personal service | 32 | 17 | 15 | 18 | 4 | 10 | 30 | 2 | 24 | 8 | 4 | 28 | |
| Trade and transportation | 2,236 | 552 | 1,684 | 1,866 | 97 | 273 | 2,046 | 190 | 2,171 | 65 | 77 | 2,152 | 7 |
| Agents | 231 | 61 | 170 | 197 | 5 | 29 | 200 | 31 | 229 | 2 | 2 | 229 | |
| Bankers and brokers | 119 | 18 | 101 | 111 | 3 | 5 | 86 | 33 | 119 | | | 119 | |
| Boatmen and sailors | 45 | 8 | 37 | 40 | 1 | 4 | 45 | | 44 | 1 | | 45 | |
| Bookkeepers and accountants | 124 | 27 | 97 | 112 | 6 | 6 | 102 | 22 | 123 | 1 | 4 | 120 | |
| Clerks and copyists | 263 | 105 | 158 | 192 | 15 | 56 | 241 | 22 | 259 | 4 | 18 | 244 | 1 |
| Commercial travelers | 33 | 8 | 25 | 26 | 2 | 5 | 31 | 2 | 33 | | | 33 | |
| [illegible] | 206 | 56 | 150 | 161 | 15 | 30 | 205 | 1 | 188 | 18 | 13 | 190 | 3 |
| [illegible] | 3 | | 3 | 3 | | | 2 | 1 | 3 | | | 3 | |
| [illegible] | 47 | 24 | 23 | 25 | 3 | 19 | 47 | | 39 | 8 | 4 | 43 | |
| [illegible] | 66 | 24 | 42 | 48 | 4 | 14 | 59 | 7 | 66 | | 1 | 65 | |
| Livery stable keepers | 30 | 3 | 27 | 29 | | 1 | 29 | 1 | 30 | | 1 | 29 | |
| [illegible] | 710 | 115 | 595 | 641 | 23 | 46 | 666 | 44 | 702 | 8 | 11 | 697 | 2 |
| [illegible] | 7 | 4 | 3 | 5 | 1 | 1 | 7 | | 7 | | | 7 | |
| [illegible] | 13 | 6 | 7 | 8 | 2 | 3 | 13 | | 12 | 1 | 7 | 6 | |
| Officials of banks and companies | 22 | 4 | 18 | 20 | 1 | 1 | 21 | 1 | 22 | | | 22 | |
| Packers and shippers | 26 | 17 | 9 | 13 | 4 | 9 | 22 | 4 | 26 | | 2 | 24 | |
| Porters and helpers (in stores, etc.) | 39 | 22 | 17 | 20 | 1 | 18 | 39 | | 24 | 15 | 1 | 38 | |
| [illegible] | 77 | 20 | 57 | 63 | 4 | 10 | 70 | 7 | 77 | | 3 | 73 | 1 |
| [illegible] | 106 | 15 | 91 | 96 | 5 | 5 | 101 | 5 | 100 | 6 | 3 | 103 | |
| [illegible] | 15 | 3 | 12 | 13 | 1 | 1 | 6 | 9 | 15 | | 1 | 14 | |
| [illegible] | 1 | | 1 | 1 | | | 1 | | 1 | | | 1 | |
| [illegible] | 3 | 1 | 2 | 2 | | 1 | 3 | | 3 | | 1 | 2 | |
| [illegible] | 16 | | 16 | 16 | | | 16 | | 16 | | | 16 | |
| [illegible] | 13 | 2 | 11 | 11 | | 2 | 13 | | 13 | | | 13 | |
| [illegible] tion | 21 | 9 | 12 | 13 | 1 | 7 | 21 | | 20 | 1 | 5 | 16 | |
| Manufacturing and mechanical pursuits | 9,442 | 4,583 | 4,859 | 5,602 | 917 | 2,923 | 7,423 | 2,019 | 9,227 | 215 | 411 | 9,009 | 22 |
| Building trades | 2,000 | 738 | 1,262 | 1,407 | 137 | 456 | 1,981 | 19 | 1,966 | 34 | 48 | 1,946 | 6 |
| Carpenters and joiners | 1,121 | 371 | 750 | 837 | 65 | 219 | 1,114 | 7 | 1,102 | 19 | 21 | 1,097 | 3 |
| Masons (brick and stone) | 203 | 52 | 151 | 161 | 11 | 31 | 203 | | 196 | 7 | 3 | 199 | 1 |
| Painters, glaziers, and varnishers | 399 | 223 | 176 | 213 | 34 | 152 | 392 | 7 | 395 | 4 | 14 | 383 | 2 |
| Paper hangers | 30 | 5 | 25 | 27 | 1 | 2 | 30 | | 28 | 2 | | 30 | |
| Plasterers | 59 | 17 | 42 | 47 | 3 | 9 | 58 | 1 | 58 | 1 | 2 | 57 | |
| Plumbers and gas and steam fitters | 20 | 4 | 16 | 15 | 2 | 3 | 20 | | 20 | | 2 | 18 | |
| Roofers and slaters | 7 | | 7 | 7 | | | 7 | | 7 | | | 7 | |
| Mechanics (not otherwise specified) | 161 | 66 | 95 | 100 | 21 | 40 | 157 | 4 | 160 | 1 | 6 | 155 | |
| Chemicals and allied products | 20 | 7 | 13 | 15 | 2 | 3 | 18 | 2 | 20 | | | 20 | |
| Oil well and oil works employees | 16 | 3 | 13 | 14 | 1 | 1 | 16 | | 16 | | | 16 | |
| Other chemical workers | 4 | 4 | | 1 | 1 | 2 | 2 | 2 | 4 | | | 4 | |

TABLE LXXIII.—THE DEAF ENGAGED IN EACH OCCUPATION AND CLASS OF OCCUPATIONS, BY DEGREE OF DEAFNESS, ABILITY TO SPEAK, SEX, RACE, AND PRESENT AGE—Continued.

| OCCUPATION. | Aggregate. | DEGREE OF DEAFNESS. | | ABILITY TO SPEAK. | | | SEX. | | RACE. | | PRESENT AGE. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Totally deaf. | Partially deaf. | Well. | Imperfectly. | Not at all. | Male. | Female. | White. | Colored. | 10 and under 20. | 20 and over. | Unknown. |
| Clay, glass, and stone products | 129 | 63 | 66 | 75 | 9 | 45 | 125 | 4 | 127 | 2 | 5 | 124 | ..... |
| Brick and tile makers, etc | 26 | 13 | 13 | 14 | 1 | 11 | 25 | 1 | 25 | 1 | 4 | 22 | ..... |
| Glassworkers | 24 | 11 | 13 | 13 | 1 | 10 | 22 | 2 | 24 | ..... | 1 | 23 | ..... |
| Marble and stone cutters | 70 | 33 | 37 | 42 | 7 | 21 | 69 | 1 | 69 | 1 | ..... | 70 | ..... |
| Potters | 9 | 6 | 3 | 6 | ..... | 3 | 9 | ..... | 9 | ..... | ..... | 9 | ..... |
| Fishing and mining | 350 | 103 | 247 | 261 | 22 | 67 | 345 | 5 | 338 | 12 | 15 | 334 | 1 |
| Fishermen and oystermen | 85 | 22 | 63 | 62 | 5 | 18 | 84 | 1 | 81 | 4 | 1 | 83 | 1 |
| Miners and quarrymen | 265 | 81 | 184 | 199 | 17 | 49 | 261 | 4 | 257 | 8 | 14 | 251 | ..... |
| Food and kindred products | 297 | 118 | 179 | 205 | 22 | 70 | 270 | 27 | 291 | 6 | 18 | 278 | 1 |
| Bakers | 103 | 61 | 42 | 50 | 10 | 43 | 90 | 13 | 102 | 1 | 7 | 96 | ..... |
| Butchers | 91 | 23 | 68 | 76 | 3 | 12 | 90 | 1 | 90 | 1 | 8 | 82 | 1 |
| Butter and cheese makers | 6 | 2 | 4 | 5 | ..... | 1 | 6 | ..... | 6 | ..... | ..... | 6 | ..... |
| Confectioners | 36 | 14 | 22 | 28 | 6 | 2 | 28 | 8 | 36 | ..... | 3 | 33 | ..... |
| Millers | 49 | 8 | 41 | 42 | 1 | 6 | 48 | 1 | 47 | 2 | ..... | 49 | ..... |
| Other food preparers | 12 | 10 | 2 | 4 | 2 | 6 | 8 | 4 | 10 | 2 | ..... | 12 | ..... |
| Iron and steel and their products | 869 | 316 | 553 | 618 | 61 | 190 | 860 | 9 | 851 | 18 | 17 | 850 | 2 |
| Blacksmiths | 348 | 84 | 264 | 293 | 17 | 38 | 347 | 1 | 334 | 14 | 8 | 339 | 1 |
| Iron and steel workers | 183 | 106 | 77 | 90 | 18 | 75 | 178 | 5 | 182 | 1 | 5 | 178 | ..... |
| Machinists | 216 | 87 | 129 | 143 | 20 | 53 | 215 | 1 | 215 | 1 | 3 | 212 | 1 |
| Steam boiler makers | 54 | 3 | 51 | 52 | 1 | 1 | 54 | ..... | 52 | 2 | ..... | 54 | ..... |
| Stove, furnace, and grate makers | 7 | 4 | 3 | 4 | ..... | 3 | 7 | ..... | 7 | ..... | ..... | 7 | ..... |
| Tool and cutlery makers | 26 | 12 | 14 | 16 | 3 | 7 | 26 | ..... | 26 | ..... | ..... | 26 | ..... |
| Wheelwrights | 24 | 11 | 13 | 15 | ..... | 9 | 24 | ..... | 24 | ..... | ..... | 24 | ..... |
| Wireworkers | 11 | 9 | 2 | 5 | 2 | 4 | 9 | 2 | 11 | ..... | 1 | 10 | ..... |
| Leather and its finished products | 955 | 646 | 309 | 364 | 118 | 473 | 914 | 41 | 933 | 22 | 46 | 907 | 2 |
| Boot and shoe makers and repairers | 794 | 559 | 235 | 276 | 98 | 420 | 756 | 38 | 773 | 21 | 41 | 751 | 2 |
| Harness and saddle makers and repairers | 110 | 59 | 51 | 59 | 13 | 38 | 109 | 1 | 109 | 1 | 2 | 108 | ..... |
| Leather curriers and tanners | 41 | 22 | 19 | 23 | 6 | 12 | 39 | 2 | 41 | ..... | 1 | 40 | ..... |
| Trunk and leather-case makers, etc | 10 | 6 | 4 | 6 | 1 | 3 | 10 | ..... | 10 | ..... | 2 | 8 | ..... |
| Liquors and beverages | 19 | 15 | 4 | 7 | ..... | 12 | 18 | 1 | 18 | 1 | 2 | 17 | ..... |
| Bottlers and soda water makers, etc | 13 | 10 | 3 | 5 | ..... | 8 | 12 | 1 | 13 | ..... | 2 | 11 | ..... |
| Brewers and maltsters | 3 | 2 | 1 | 2 | ..... | 1 | 3 | ..... | 3 | ..... | ..... | 3 | ..... |
| Distillers and rectifiers | 3 | 3 | ..... | ..... | ..... | 3 | 3 | ..... | 2 | 1 | ..... | 3 | ..... |
| Lumber and its remanufactures | 730 | 392 | 338 | 383 | 66 | 281 | 714 | 16 | 709 | 21 | 31 | 698 | 1 |
| Cabinetmakers | 180 | 119 | 61 | 71 | 18 | 91 | 180 | ..... | 178 | 2 | 11 | 169 | ..... |
| Coopers | 92 | 46 | 46 | 51 | 10 | 31 | 91 | 1 | 91 | 1 | 2 | 90 | ..... |
| Saw and planing mill employees | 110 | 39 | 71 | 70 | 9 | 31 | 109 | 1 | 107 | 3 | 6 | 104 | ..... |
| Other woodworkers | 348 | 188 | 160 | 191 | 29 | 128 | 334 | 14 | 333 | 15 | 12 | 335 | 1 |
| Metals and metal products other than iron and steel | 204 | 107 | 97 | 121 | 21 | 62 | 201 | 3 | 201 | 3 | 3 | 201 | ..... |
| [illegible] | 19 | 12 | 7 | 10 | 3 | 6 | 18 | 1 | 19 | ..... | ..... | 19 | ..... |
| [illegible] | 35 | 18 | 17 | 18 | ..... | 17 | 35 | ..... | 35 | ..... | ..... | 35 | ..... |
| [illegible] | 17 | 11 | 6 | 9 | 1 | 7 | 16 | 1 | 15 | 2 | ..... | 17 | ..... |
| Tin plate and tinware makers | 65 | 23 | 42 | 45 | 9 | 11 | 64 | 1 | 65 | ..... | 1 | 64 | ..... |
| Other metal workers | 68 | 43 | 25 | 39 | 8 | 21 | 68 | ..... | 67 | 1 | 2 | 66 | ..... |
| Paper and printing | 606 | 480 | 126 | 202 | 95 | 309 | 547 | 59 | 604 | 2 | 49 | 553 | 4 |
| Bookbinders | 54 | 42 | 12 | 18 | 4 | 32 | 34 | 20 | 54 | ..... | 3 | 51 | ..... |
| Boxmakers (paper) | 18 | 14 | 4 | 6 | 2 | 10 | 12 | 6 | 18 | ..... | 2 | 16 | ..... |
| [illegible] | 27 | 24 | 3 | 13 | 8 | 6 | 27 | ..... | 27 | ..... | 2 | 25 | ..... |
| [illegible] | 31 | 18 | 13 | 14 | 3 | 14 | 24 | 7 | 30 | 1 | ..... | 30 | 1 |
| [illegible] | 476 | 382 | 94 | 151 | 78 | 247 | 450 | 26 | 475 | 1 | 42 | 431 | 3 |
| Textiles | 2,214 | 1,101 | 1,113 | 1,296 | 260 | 658 | 505 | 1,709 | 2,150 | 64 | 127 | 2,084 | 3 |
| Bleachery and dye works operatives | 13 | 3 | 10 | 10 | 1 | 2 | 13 | ..... | 13 | ..... | ..... | 13 | ..... |
| [illegible] | 45 | 21 | 24 | 26 | 3 | 16 | 24 | 21 | 45 | ..... | 1 | 44 | ..... |
| [illegible] | 136 | 78 | 58 | 66 | 18 | 52 | 64 | 72 | 136 | ..... | 13 | 123 | ..... |
| [illegible] | 31 | 21 | 10 | 14 | 6 | 11 | 8 | 23 | 31 | ..... | 4 | 27 | ..... |
| Silk mill operatives | 15 | 9 | 6 | 7 | 2 | 6 | 4 | 11 | 15 | ..... | 2 | 13 | ..... |
| Woolen [illegible] | 86 | 35 | 51 | 61 | 6 | 19 | 54 | 32 | 86 | ..... | 3 | 82 | 1 |
| Other textile [illegible] | 24 | 11 | 13 | 15 | 2 | 7 | 15 | 9 | 20 | 4 | 2 | 22 | ..... |
| Dressmakers | 706 | 314 | 392 | 466 | 74 | 166 | 2 | 704 | 690 | 16 | 29 | 677 | ..... |
| Hat and cap makers | 26 | 14 | 12 | 14 | 2 | 10 | 16 | 10 | 26 | ..... | ..... | 26 | ..... |
| Milliners | 53 | 16 | 37 | 38 | 7 | 8 | 2 | 51 | 53 | ..... | 5 | 48 | ..... |
| Seamstresses | 604 | 306 | 298 | 347 | 78 | 179 | 1 | 603 | 565 | 39 | 41 | 563 | ..... |
| Shirt, collar, and cuff makers | 34 | 24 | 10 | 13 | 3 | 18 | 8 | 26 | 34 | ..... | 3 | 31 | ..... |
| Tailors and tailoresses | 402 | 236 | 166 | 190 | 53 | 159 | 283 | 119 | 400 | 2 | 21 | 379 | 2 |
| Other textile workers | 39 | 13 | 26 | 29 | 5 | 5 | 11 | 28 | 36 | 3 | 3 | 36 | ..... |
| Miscellaneous industries | 1,049 | 497 | 552 | 648 | 104 | 297 | 925 | 124 | 1,019 | 30 | 50 | 997 | 2 |
| Broom and brush makers | 45 | 29 | 16 | 25 | 5 | 15 | 43 | 2 | 41 | 4 | 4 | 41 | ..... |
| Charcoal, coke, and lime burners | 6 | 1 | 5 | 6 | ..... | ..... | 6 | ..... | 4 | 2 | ..... | 6 | ..... |
| [illegible] | 126 | 29 | 97 | 108 | 4 | 14 | 126 | ..... | 120 | 6 | 4 | 121 | 1 |
| [illegible] | 18 | 9 | 9 | 11 | 2 | 5 | 8 | 10 | 18 | ..... | 2 | 16 | ..... |
| [illegible] | 248 | 55 | 193 | 208 | 19 | 21 | 243 | 5 | 248 | ..... | ..... | 248 | ..... |
| [illegible] | 27 | 10 | 17 | 19 | 3 | 5 | 27 | ..... | 27 | ..... | 1 | 26 | ..... |
| Photographers | 55 | 28 | 27 | 35 | 6 | 14 | 47 | 8 | 55 | ..... | ..... | 55 | ..... |
| Rubber factory operatives | 12 | 10 | 2 | 5 | 2 | 5 | 9 | 3 | 12 | ..... | 1 | 11 | ..... |
| Tobacco and cigar factory operatives | 233 | 162 | 71 | 93 | 36 | 104 | 205 | 28 | 225 | 8 | 17 | 215 | 1 |
| Upholsterers | 56 | 31 | 25 | 31 | 5 | 20 | 55 | 1 | 56 | ..... | 1 | 55 | ..... |
| Other miscellaneous industries | 223 | 133 | 90 | 107 | 22 | 94 | 156 | 67 | 213 | 10 | 20 | 203 | ..... |

TABLE LXXIV.—THE DEAF ENGAGED IN EACH OCCUPATION AND CLASS OF OCCUPATIONS, BY SCHOOL ATTENDANCE AND KIND OF SCHOOL ATTENDED.

| OCCUPATION. | Total. | SCHOOL ATTENDANCE. | | | KIND OF SCHOOL ATTENDED. | | | |
|---|---|---|---|---|---|---|---|---|
| | | Attended school. | Did not attend school. | Not stated. | Special. | Other. | Both. | Not stated. |
| All occupations | 32,142 | 26,030 | 3,950 | 2,162 | 8,163 | 8,821 | 125 | 8,921 |
| Agricultural pursuits | 14,068 | 10,668 | 2,294 | 1,106 | 2,578 | 4,016 | 23 | 4,051 |
| Agricultural laborers | 2,016 | 1,270 | 630 | 116 | 569 | 493 | 6 | 202 |
| Dairymen and dairywomen | 29 | 23 | 1 | 5 | 2 | 8 | | 13 |
| Farmers, planters, and overseers | 11,428 | 8,897 | 1,598 | 933 | 1,908 | 3,324 | 16 | 3,649 |
| Gardeners, florists, nurserymen, etc | 330 | 268 | 32 | 30 | 46 | 102 | | 120 |
| Lumbermen and raftsmen | 51 | 47 | 1 | 3 | 22 | 12 | | 13 |
| Stock raisers, herders, and drovers | 147 | 120 | 15 | 12 | 22 | 59 | 1 | 38 |
| Turpentine farmers and laborers | 4 | 3 | 1 | | | 1 | | 2 |
| Wood choppers | 52 | 30 | 16 | 6 | 8 | 13 | | 9 |
| Other agricultural pursuits | 11 | 10 | | 1 | 1 | 4 | | 5 |
| Professional service | 1,080 | 1,037 | 16 | 27 | 315 | 349 | 26 | 347 |
| Actors, professional showmen, etc | 23 | 22 | 1 | | 10 | 5 | 1 | 6 |
| Architects, designers, draftsmen, etc | 46 | 44 | 1 | 1 | 8 | 20 | 4 | 12 |
| Artists and teachers of art | 114 | 111 | 1 | 2 | 56 | 36 | 1 | 18 |
| Clergymen | 116 | 105 | 4 | 7 | 8 | 44 | 1 | 52 |
| Dentists | 20 | 20 | | | 2 | 9 | | 9 |
| Electricians | 18 | 17 | 1 | | 4 | 7 | | 6 |
| Engineers (civil, etc.) and surveyors | 43 | 40 | | 3 | 2 | 15 | 2 | 21 |
| Journalists | 54 | 51 | 2 | 1 | 7 | 25 | 2 | 17 |
| Lawyers | 90 | 87 | 2 | 1 | 2 | 32 | 1 | 52 |
| Literary and scientific persons | 40 | 40 | | | 2 | 21 | 2 | 15 |
| Musicians and teachers of music | 39 | 36 | 2 | 1 | 1 | 25 | | 10 |
| Officials (government) | 62 | 59 | 1 | 2 | 6 | 23 | | 30 |
| | 106 | 99 | | 7 | 3 | 36 | | 60 |
| | 294 | 293 | 1 | | 204 | 46 | 12 | 31 |
| | 15 | 13 | | 2 | | 5 | | 8 |
| Domestic and personal service | 5,316 | 3,903 | 988 | 425 | 1,369 | 1,328 | 12 | 1,194 |
| Barbers and hairdressers | 122 | 110 | 7 | 5 | 64 | 24 | | 22 |
| Bartenders | 9 | 9 | | | 2 | 5 | | 2 |
| Boarding and lodging house keepers | 125 | 100 | 11 | 14 | 9 | 36 | | 55 |
| Hotel keepers | 96 | 73 | 10 | 13 | 6 | 31 | | 36 |
| [illegible] | 230 | 181 | 28 | 21 | 57 | 63 | 1 | 60 |
| [illegible] | 74 | 63 | 8 | 3 | 8 | 20 | | 35 |
| [illegible] | 2,718 | 2,015 | 483 | 220 | 741 | 651 | 5 | 618 |
| [illegible] | 452 | 299 | 112 | 41 | 88 | 103 | 1 | 107 |
| [illegible] | 57 | 43 | 8 | 6 | 6 | 19 | | 18 |
| Restaurant keepers | 21 | 16 | 3 | 2 | 2 | 7 | | 7 |
| Saloon keepers | 26 | 20 | 2 | 4 | 1 | 6 | | 13 |
| Servants and waiters | 1,303 | 909 | 309 | 85 | 368 | 342 | 5 | 194 |
| Soldiers, sailors, and marines (U. S.) | 3 | 3 | | | | 2 | | 1 |
| Watchmen, policemen, firemen, etc | 48 | 37 | 3 | 8 | 5 | 10 | | 22 |
| Other domestic and personal service | 32 | 25 | 4 | 3 | 12 | 9 | | 4 |
| Trade and transportation | 2,236 | 1,979 | 119 | 138 | 349 | 727 | 15 | 888 |
| Agents | 231 | 212 | 8 | 11 | 33 | 73 | 3 | 103 |
| Bankers and brokers | 119 | 103 | 3 | 13 | 6 | 34 | | 63 |
| Boatmen and sailors | 45 | 33 | 6 | 6 | 4 | 10 | | 19 |
| Bookkeepers and accountants | 124 | 119 | 1 | 4 | 18 | 54 | 1 | 46 |
| Clerks and copyists | 263 | 251 | 8 | 4 | 84 | 84 | 3 | 80 |
| Commercial travelers | 33 | 32 | 1 | | 7 | 11 | | 14 |
| Draymen, hackmen, teamsters, etc | 206 | 165 | 21 | 20 | 34 | 63 | 1 | 67 |
| Foremen and overseers | 3 | 2 | | 1 | | 2 | | |
| Hostlers | 47 | 28 | 16 | 3 | 7 | 16 | | 5 |
| Hucksters and peddlers | 66 | 55 | 4 | 7 | 15 | 17 | | 23 |
| Livery stable keepers | 30 | 26 | 3 | 1 | 3 | 12 | | 11 |
| Merchants and dealers (except wholesale) | 710 | 643 | 22 | 45 | 70 | 232 | 5 | 336 |
| Merchants and dealers (wholesale) | 7 | 7 | | | 2 | 3 | | 2 |
| Messengers and errand and office boys | 13 | 9 | 2 | 2 | 2 | 4 | | 3 |
| Officials of banks and companies | 22 | 19 | | 3 | 1 | 6 | 1 | 11 |
| Packers a[illegible] | 26 | 23 | 2 | 1 | 12 | 7 | | 4 |
| Porters a[illegible] | 39 | 28 | 8 | 3 | 14 | 11 | | 3 |
| Salesmen [illegible] | 77 | 69 | 1 | 7 | 16 | 21 | 1 | 31 |
| Steam railroad [illegible] | 106 | 87 | 12 | 7 | 7 | 37 | | 43 |
| Stenographers | 15 | 15 | | | 3 | 5 | | 7 |
| Street railway [illegible] | 1 | 1 | | | | | | 1 |
| Telegraph and [illegible] | 3 | 3 | | | | 2 | | 1 |
| Telegraph and [illegible] | 16 | 15 | 1 | | | 10 | | 5 |
| Undertakers | 13 | 13 | | | 3 | 4 | | 6 |
| Other persons in trade and transportation | 21 | 21 | | | 8 | 9 | | 4 |
| Manufacturing and mechanical pursuits | 9,442 | 8,443 | 533 | 466 | 3,552 | 2,401 | 49 | 2,441 |
| Building trades | 2,000 | 1,778 | 102 | 120 | 539 | 545 | 8 | 686 |
| Carpenters and joiners | 1,121 | 985 | 59 | 77 | 258 | 282 | 4 | 441 |
| Masons (brick and stone) | 203 | 170 | 17 | 16 | 26 | 69 | 1 | 74 |
| Painters, glaziers, and varnishers | 399 | 377 | 7 | 15 | 183 | 107 | 3 | 84 |
| Paper hangers | 30 | 25 | 3 | 2 | 3 | 12 | | 10 |
| Plasterers | 59 | 45 | 9 | 5 | 7 | 14 | | 24 |
| Plumbers and gas and steam fitters | 20 | 20 | | | 5 | 10 | | 5 |
| Roofers and slaters | 7 | 6 | | 1 | | 2 | | 4 |
| Mechanics (not otherwise specified) | 161 | 150 | 7 | 4 | 57 | 49 | | 44 |
| Chemicals and allied products | 20 | 19 | | 1 | 7 | 6 | | 6 |
| Oil well and oil works employees | 16 | 15 | | 1 | 3 | 6 | | 6 |
| Other chemical workers | 4 | 4 | | | 4 | | | |

TABLE LXXIV.—THE DEAF ENGAGED IN EACH OCCUPATION AND CLASS OF OCCUPATIONS, BY SCHOOL ATTENDANCE AND KIND OF SCHOOL ATTENDED—Continued.

| OCCUPATION. | Total. | SCHOOL ATTENDANCE. | | | KIND OF SCHOOL ATTENDED. | | | |
|---|---|---|---|---|---|---|---|---|
| | | Attended school. | Did not attend school. | Not stated. | Special. | Other. | Both. | Not stated. |
| Clay, glass, and stone products | 129 | 118 | 5 | 6 | 50 | 36 | ..... | 32 |
| Brick and tile makers, etc | 26 | 24 | 1 | 1 | 9 | 9 | ..... | 6 |
| Glassworkers | 24 | 24 | ..... | ..... | 12 | 6 | ..... | 6 |
| Marble and stone cutters | 70 | 62 | 4 | 4 | 24 | 19 | ..... | 19 |
| Potters | 9 | 8 | ..... | 1 | 5 | 2 | ..... | 1 |
| Fishing and mining | 350 | 279 | 42 | 29 | 52 | 117 | ..... | 110 |
| Fishermen and oystermen | 85 | 67 | 15 | 3 | 4 | 31 | ..... | 32 |
| Miners and quarrymen | 265 | 212 | 27 | 26 | 48 | 86 | ..... | 78 |
| Food and kindred products | 297 | 263 | 18 | 16 | 84 | 99 | ..... | 80 |
| Bakers | 103 | 96 | 4 | 3 | 49 | 25 | ..... | 22 |
| Butchers | 91 | 80 | 6 | 5 | 14 | 40 | ..... | 26 |
| Butter and cheese makers | 6 | 6 | ..... | ..... | 2 | 1 | ..... | 3 |
| Confectioners | 36 | 32 | 2 | 2 | 7 | 13 | ..... | 12 |
| Millers | 49 | 39 | 5 | 5 | 7 | 15 | ..... | 17 |
| Other food preparers | 12 | 10 | 1 | 1 | 5 | 5 | ..... | ..... |
| Iron and steel and their products | 869 | 763 | 48 | 58 | 228 | 241 | 5 | 289 |
| Blacksmiths | 348 | 295 | 30 | 23 | 35 | 117 | 1 | 142 |
| Iron and steel workers | 183 | 162 | 9 | 12 | 84 | 38 | 2 | 38 |
| Machinists | 216 | 196 | 4 | 16 | 74 | 56 | 1 | 65 |
| Steam boiler makers | 54 | 47 | 2 | 5 | 4 | 17 | ..... | 26 |
| Stove, furnace, and grate makers | 7 | 7 | ..... | ..... | 4 | 2 | ..... | 1 |
| Tool and cutlery makers | 26 | 24 | 1 | 1 | 10 | 6 | ..... | 8 |
| Wheelwrights | 24 | 22 | 2 | ..... | 9 | 3 | 1 | 9 |
| Wireworkers | 11 | 10 | ..... | 1 | 8 | 2 | ..... | ..... |
| Leather and its finished products | 955 | 868 | 46 | 41 | 569 | 142 | 3 | 154 |
| Boot and shoe makers and repairers | 794 | 724 | 36 | 34 | 505 | 111 | 3 | 105 |
| Harness and saddle makers and repairers | 110 | 97 | 8 | 5 | 43 | 18 | ..... | 36 |
| Leather curriers and tanners | 41 | 38 | 1 | 2 | 15 | 12 | ..... | 11 |
| Trunk and leather-case makers, etc | 10 | 9 | 1 | ..... | 6 | 1 | ..... | 2 |
| Liquors and beverages | 19 | 16 | 2 | 1 | 11 | 2 | ..... | 3 |
| Bottlers and soda water makers, etc | 13 | 12 | 1 | ..... | 7 | 2 | ..... | 3 |
| Brewers and maltsters | 3 | 2 | ..... | 1 | 2 | ..... | ..... | ..... |
| Distillers and rectifiers | 3 | 2 | 1 | ..... | 2 | ..... | ..... | ..... |
| Lumber and its remanufactures | 730 | 666 | 37 | 27 | 338 | 152 | 5 | 171 |
| Cabinetmakers | 180 | 175 | 3 | 2 | 118 | 27 | 1 | 29 |
| Coopers | 92 | 79 | 7 | 6 | 34 | 20 | ..... | 25 |
| [illegible] | 110 | 97 | 8 | 5 | 28 | 38 | 1 | 30 |
| [illegible] | 348 | 315 | 19 | 14 | 158 | 67 | 3 | 87 |
| Metals and metal products other than iron and steel | 204 | 187 | 11 | 6 | 88 | 43 | 2 | 54 |
| [illegible] | 19 | 18 | 1 | ..... | 12 | 4 | ..... | 2 |
| [illegible] | 35 | 35 | ..... | ..... | 17 | 5 | ..... | 13 |
| [illegible] | 17 | 15 | 2 | ..... | 10 | 4 | ..... | 1 |
| [illegible] | 65 | 59 | 4 | 2 | 15 | 23 | ..... | 21 |
| Other metal workers | 68 | 60 | 4 | 4 | 34 | 7 | 2 | 17 |
| Paper and printing | 606 | 591 | 6 | 9 | 443 | 81 | 9 | 58 |
| Bookbinders | 54 | 51 | 1 | 2 | 38 | 9 | ..... | 4 |
| Boxmakers (paper) | 18 | 18 | ..... | ..... | 10 | 4 | ..... | 4 |
| Engravers | 27 | 27 | ..... | ..... | 21 | 2 | 1 | 3 |
| Paper and pulp mill operatives | 31 | 25 | 4 | 2 | 13 | 7 | ..... | 5 |
| Printers, lithographers, and pressmen | 476 | 470 | 1 | 5 | 361 | 59 | 8 | 42 |
| Textiles | 2,214 | 1,950 | 161 | 103 | 781 | 642 | 13 | 514 |
| Bleachery and dye works operatives | 13 | 11 | 1 | 1 | 3 | 5 | ..... | 3 |
| Carpet factory operatives | 45 | 36 | 7 | 2 | 14 | 11 | 1 | 10 |
| Cotton mill operatives | 136 | 110 | 19 | 7 | 53 | 25 | ..... | 32 |
| Hosiery and knitting mill operatives | 31 | 26 | 3 | 2 | 15 | 8 | ..... | 3 |
| Silk mill operatives | 15 | 13 | 2 | ..... | 6 | 5 | ..... | 2 |
| Woolen mill operatives | 86 | 71 | 7 | 8 | 24 | 30 | 1 | 16 |
| Other textile mill operatives | 24 | 20 | 3 | 1 | 10 | 5 | ..... | 5 |
| Dressmakers | 706 | 663 | 22 | 21 | 227 | 255 | 5 | 176 |
| Hat and cap makers | 26 | 23 | 3 | ..... | 11 | 4 | ..... | 8 |
| Milliners | 53 | 46 | 2 | 5 | 13 | 15 | ..... | 18 |
| Seamstresses | 604 | 512 | 61 | 31 | 191 | 175 | 4 | 142 |
| Shirt, collar, and cuff makers | 34 | 30 | 2 | 2 | 21 | 6 | ..... | 3 |
| Tailors and tailoresses | 402 | 358 | 24 | 20 | 188 | 86 | 2 | 82 |
| Other textile workers | 39 | 31 | 5 | 3 | 5 | 12 | ..... | 14 |
| Miscellaneous industries | 1,049 | 945 | 55 | 49 | 362 | 295 | 4 | 284 |
| Broom and brush makers | 45 | 36 | 5 | 4 | 19 | 8 | 1 | 8 |
| Charcoal, coke, and lime burners | 6 | 5 | 1 | ..... | ..... | 3 | ..... | 2 |
| Engineers and firemen (not locomotive) | 126 | 102 | 15 | 9 | 14 | 39 | ..... | 49 |
| Glovemakers | 18 | 16 | 1 | 1 | 5 | 1 | ..... | 10 |
| Manufacturers and officials, etc | 248 | 229 | 2 | 17 | 29 | 92 | ..... | 108 |
| Model and pattern makers | 27 | 25 | 2 | ..... | 8 | 10 | ..... | 7 |
| Photographers | 55 | 54 | ..... | 1 | 22 | 16 | 1 | 15 |
| Rubber factory operatives | 12 | 11 | 1 | ..... | 8 | 2 | ..... | 1 |
| Tobacco and cigar factory operatives | 233 | 215 | 10 | 8 | 122 | 59 | 1 | 33 |
| Upholsterers | 56 | 55 | ..... | 1 | 26 | 13 | ..... | 16 |
| Other miscellaneous industries | 223 | 197 | 18 | 8 | 109 | 52 | 1 | 35 |