

acquired characteristics. When the deafness of adventitiously deaf parents does reappear in the offspring we may suppose that the physical anomaly or tendency to disease of which deafness was the result was probably congenital in the parent, though actual deafness did not appear until some period later in life.

Deaf persons having deaf relatives, however they are married, and hearing persons having deaf relatives and married to deaf partners, are very liable to have deaf offspring. (Probably hearing persons having deaf relatives and married to hearing partners are subject to the same liability, but while many instances of marriages of this kind resulting in deaf offspring have been observed, no thorough and systematic investigation of them has yet been made.) However the marriages of the deaf are classified with respect to the deafness or hearing of one or both of the partners, or with respect to the congenital or adventitious character of the deafness, the percentage of marriages resulting in deaf offspring and of deaf children born therefrom is almost invariably highest where both of the partners had deaf relatives, next highest where one of them had deaf relatives and the other had not, and least where neither had deaf relatives. Where neither of the partners has deaf relatives, even though both of them are congenitally deaf, the liability to deaf offspring is very slight, perhaps not greater than in ordinary marriages. While congenital deafness, then, may be a *prima facie* indication of a liability to deaf offspring, it is not to be accepted as a conclusive evidence of such liability; but the possession of deaf relatives does seem to be a trustworthy indication of a liability to deaf offspring. If a deaf person, whether congenitally or adventitiously deaf, has deaf relatives, that person, however married, is liable to have deaf offspring, the liability being much greater, however, in the case of the congenitally deaf than of the adventitiously deaf; and if a deaf person, either with or without deaf relatives, marries a person, whether deaf or hearing, who has deaf relatives, the marriage is liable to result in deaf offspring. If both partners have deaf relatives, the physical conditions tending to produce deafness, whatever they may be, are liable to be transmitted from both parents, and the probability of deaf offspring is therefore largely increased; but even where only one of the partners has deaf relatives the liability to deaf offspring is still considerable.

The following table gives a summary of the 3,078 marriages having one or both of the partners deaf, from which the conclusions above stated are derived. The table shows the number of marriages of each class, the number and percentage of each class resulting in deaf offspring, the number of children born from the marriages of each class, and the number and percentage of them that were deaf. The fifth and sixth columns of this table, giving the percentage of marriages resulting in deaf offspring and the percentage of deaf children born therefrom, indicate at a glance the comparative liability to deaf offspring of the several classes of marriage. The extremes of liability are found in the two classes last named in the table.

| Marriages of the deaf. | NUMBER OF MARRIAGES. | | NUMBER OF CHILDREN. | | PER-CENTAGE. | |
|-----------------------------------------------|----------------------|------------------------------|---------------------|-------|----------------------------------------|----------------|
| | Total. | Resulting in deaf offspring. | Total. | Deaf. | Marriages resulting in deaf offspring. | Deaf children. |
| One or both partners deaf..... | 3,078 | 300 | 6,782 | 588 | 9.7 | 8.6 |
| Both partners deaf..... | 2,377 | 320 | 5,072 | 429 | 9.2 | 8.4 |
| One partner deaf, the other hearing..... | 509 | 75 | 1,532 | 151 | 12.5 | 9.8 |
| One or both partners congenitally deaf..... | 1,477 | 194 | 3,401 | 413 | 13.1 | 12.1 |
| One or both partners adventitiously deaf..... | 2,212 | 124 | 4,701 | 199 | 5.6 | 4.2 |
| Both partners congenitally deaf..... | 335 | 83 | 779 | 202 | 24.7 | 25.9 |

| Marriages of the deaf. | NUMBER OF MARRIAGES. | | NUMBER OF CHILDREN. | | PER-CENTAGE. | |
|-----------------------------------------------------------------------------------|----------------------|------------------------------|---------------------|-------|----------------------------------------|----------------|
| | Total. | Resulting in deaf offspring. | Total. | Deaf. | Marriages resulting in deaf offspring. | Deaf children. |
| One partner congenitally deaf, the other adventitiously deaf..... | 814 | 66 | 1,820 | 119 | 8.1 | 6.5 |
| Both partners adventitiously deaf..... | 845 | 30 | 1,720 | 40 | 3.5 | 2.3 |
| One partner congenitally deaf, the other hearing..... | 191 | 28 | 528 | 63 | 14.6 | 11.9 |
| One partner adventitiously deaf, the other hearing..... | 310 | 10 | 713 | 16 | 3.2 | 2.2 |
| Both partners had deaf relatives..... | 437 | 103 | 1,060 | 222 | 23.5 | 20.9 |
| One partner had deaf relatives, the other had not..... | 541 | 36 | 1,210 | 78 | 6.6 | 6.4 |
| Neither partner had deaf relatives..... | 471 | 11 | 1,044 | 13 | 2.3 | 1.2 |
| Both partners congenitally deaf; both had deaf relatives..... | 172 | 49 | 429 | 130 | 28.4 | 30.3 |
| Both partners congenitally deaf; one had deaf relatives, the other had not..... | 49 | 8 | 105 | 21 | 16.3 | 20.0 |
| Both partners congenitally deaf; neither had deaf relatives..... | 14 | 1 | 24 | 1 | 7.1 | 4.1 |
| Both partners adventitiously deaf; both had deaf relatives..... | 57 | 10 | 114 | 11 | 17.5 | 9.6 |
| Both partners adventitiously deaf; one had deaf relatives, the other had not..... | 167 | 7 | 357 | 10 | 4.1 | 2.8 |
| Both partners adventitiously deaf; neither had deaf relatives..... | 284 | 2 | 550 | 2 | .7 | .3 |
| Partners consanguineous..... | 31 | 14 | 100 | 30 | 45.1 | 30.0 |

Consanguinity of Parents.—Heads of schools for the deaf, observing that a considerable number of their pupils are the children of parents related by blood, generally believe that consanguineous marriages are a frequent cause of deaf-mutism. Of 13,271 pupils in American schools, 1,028, or 7.75 per cent., were the children of first cousins. We do not know the proportion of marriages of first cousins to all marriages, but it is probably considerably less than 7.75 per cent.; if so, we may conclude that such marriages are more likely to result in deaf offspring than ordinary marriages. The reason is, probably, not that consanguineous marriage in itself is a true cause of deaf-mutism, but that in some families there exists a tendency to deafness, and when two persons belonging to such a family marry, the tendency is transmitted to their offspring with increased intensity, and deaf-mutism is the result. The disastrous effects of deaf-mutes marrying their relatives are shown in the 31 cases above cited, 45 per cent. of which resulted in deaf offspring, producing 30 deaf children out of 100. In 18 of these cases one of the partners was a hearing person; if the other partner had also been hearing, but a member of the same family, the results would probably have been equally unfortunate. Even when no hereditary tendency to deafness is known to exist in a family, relatives should generally be advised not to marry; for, as Mr. George H. Darwin suggests, no man knows with certainty, until toward the end of life, what ills may be hidden in his edition of the family constitution.

Social Circumstances.—Unfavorable social circumstances, poverty, and ignorance may probably be classed among the indirect causes of deaf-mutism, since the proportion of deaf-mutes among these classes seems to be greater than in the whole community. This is a matter of common observation rather than of statistical record, but it is certainly reasonable to suppose that negligence, damp and ill-ventilated dwellings, insufficient nourishment, the lack of proper medical treatment, and other evils springing from poverty and ignorance, may combine with more direct causes to produce deafness.

Mountainous Regions.—The large percentage of deaf-mutes in Switzerland, as compared with all other countries of which we have statistics (see Extent of Deaf-

Mutism, *supra*), and of the more mountainous regions of Switzerland, Austria, France, Spain, and Germany, as compared with the lower and more level districts (45 in 10,000 in Berne, Lucerne, and Wallis, to 24.5 in the whole of Switzerland; 30.6 in Salzburg, Steiermark, and Carinthia, to 9.7 in all Austria; 24.5 in the Alpine departments of France to 6.26 in the whole country; 10.4 in South Germany to 6.05 in North Germany) shows that there must be some influence in mountainous countries which, in some manner, tends to cause deaf-mutism. The opponents of consanguineous marriages charge the result to the kinship of the parents, who are said to be more likely to be related to each other than in the lowlands, on account of the scanty means of communication between different districts; others, who attach much importance to social conditions, ascribe it to the poverty of mountainous regions, and the close, unhealthy houses in which the people live in winter; others to the dampness and coldness of the climate; others to the use of certain waters, which, it is said, are also a cause of the goitre, cretinism, and other anomalies often found in Switzerland in the same families with deaf-mutism. We must await a fuller knowledge of all the causes of deaf-mutism, and of all the circumstances of mountaineers, before we can explain this phenomenon satisfactorily.

Other Remote Causes.—Other remote causes which appear to have some influence in producing deaf-mutism are general debility, alcoholism, and syphilis in one or both of the parents, and influences exerted during pregnancy. It is difficult to prove any of these causes statistically, because, as Hartmann and Mygind have remarked, the reports are often uncertain, and also because we have no statistics as to other large groups of individuals with which to draw comparison. It seems probable, however, that deaf-mutism, as Féré insists, is often the result of diseases of the nervous system, and that diseases of this character in the parent may affect the offspring in such a way as not only to produce congenital deafness, but also to render the children more likely to become deaf from other diseases after birth. Alcoholism especially has been noted in a good many parents of deaf children, both of those congenitally and of those adventitiously deaf; probably the proportion of persons addicted to drink who have deaf children is greater than the proportion of persons thus addicted is to the community at large. Granting that a connection exists between alcoholism and deaf-mutism, the question still remains whether the cause of the deaf-mutism is alcoholism or a morbid condition of the nervous system of which the alcoholism is a symptom and result.

Fright or some other influence acting on the mind of the mother during pregnancy is frequently assigned by parents or friends as a cause of deaf-mutism, and striking narratives, especially with respect to gesticulating deaf-mutes seen by the mother for the first time during that period, are related in support of the theory. Inasmuch, however, as further inquiry usually brings to light other causes which seem to be adequate, we need not accept this as a true cause. On the other hand, injuries to the mother producing abnormal compression of the embryo and thus arresting the development of some parts, may perhaps occasion deaf-mutism. Dr. Saint-Hilaire attributes some cases of deafness in illegitimate children to the mother's efforts to conceal her condition by extremely tight lacing during pregnancy.

Diseases and Accidents.—Turning to the causes which more unmistakably produce deafness after hearing is known to have existed, statistics show that it so often follows certain diseases and accidents as to leave no room for doubt that these diseases and accidents may be counted as true causes, though there are probably often ante-natal influences which combine with these causes to produce the result. The assigned causes of 16,769 cases of adventitious deafness, according to the census of 1890, were as follows:

| | |
|------------------------------------------|-------|
| Inflammation and abscess of the ear..... | 1,033 |
| Other diseases of the ear..... | 157 |
| Smallpox..... | 72 |
| Measles..... | 1,021 |
| Scarlet fever..... | 4,799 |

| | |
|----------------------------------------------|-------|
| Diphtheria..... | 222 |
| Whooping-cough..... | 361 |
| Mumps..... | 106 |
| Malarial and typhoid fevers..... | 771 |
| Paralysis..... | 132 |
| Scrofula..... | 337 |
| Meningitis..... | 3,278 |
| Hydrocephalus..... | 61 |
| Other diseases of the brain..... | 220 |
| Diseases of the throat and air passages..... | 1,354 |
| All other diseases..... | 2,845 |
| Blows and falls..... | 671 |
| Other accidents..... | 500 |
| Quinine..... | 147 |

Scarlet fever is the most frequently assigned cause for deafness, including more than one-fourth of the whole number for whom the causes are reported. Next come meningitis and hydrocephalus, being about 18 per cent. Other percentages are: Diseases of the throat and air passages, 7.5 per cent.; measles, 5.5 per cent.; malarial and typhoid fevers, 4 per cent.; scrofula, 2 per cent.; whooping-cough, 2 per cent.; diphtheria, 1 per cent.; mumps, 0.6 per cent.; accidents, 7 per cent.

In a list of the causes of deafness of 12,380 pupils who have attended American schools for the deaf, meningitis, instead of scarlet fever, stands at the head with 24 per cent., and scarlet fever comes next with 23 per cent. Other causes do not differ greatly from the percentages given above.

Correlation of Deaf-mutism with Blindness, etc.—According to the census of 1890, 295 persons in the United States were deaf-mute and blind, 409 deaf-mute and insane, 1,373 deaf-mute and feeble-minded, 62 deaf-mute, blind, and insane, and 137 deaf-mute, blind, and feeble-minded. It is probable that a considerable number of those returned as deaf-mute and feeble-minded were not really deaf, but were mute from mental incapacity; that some of those reported as deaf-mute and blind were persons whose hearing or sight or both had failed in their old age; and that many reported as deaf-mute and insane were uneducated deaf-mutes whose social condition and environment were such as would tend to produce insanity.

There is no doubt, however, that there does really exist in a considerable number of cases a correlation between deaf-mutism and these other misfortunes, which is perhaps to be attributed to a diseased condition of the nervous system inherited from neuropathic or alcoholic parents. Even when deafness alone appears, the other defects referred to are sometimes found in other members of the same family.

Another circumstance bearing upon this question is brought out in a table of the census returns of 1890 showing that the ratios of the congenitally deaf, the congenitally blind, and the congenitally feeble-minded increase or decrease together in a majority of the several States and Territories of the Union. Virginia and North Carolina, for instance, which stood highest of all the States in the ratio of deaf-mutes, were also among the highest in the ratios of the blind and feeble-minded, while the States and Territories west of the Rocky Mountains had the lowest ratio of all three classes.

This correlation of deaf-mutism with other misfortunes in the same person or in other members of the family has led Dr. Saint-Hilaire to regard deaf-mutism as a form of degeneracy, and Dr. Féré has observed in the pupils of the Paris Institution and other deaf-mutes who have come under his observation some of the recognized marks of degeneracy. No doubt there are deaf-mutes who may properly be classed as degenerates, but we do not find in the facts presented by these writers any sufficient reason for regarding deaf-mutism in general as a form of degeneracy.

MENTAL CONDITION AND CHARACTERISTICS.—With respect to mental condition and characteristics, the division of the deaf into several distinct classes, mentioned at the beginning of this article, is of the greatest importance. Semi-mutes, who have acquired an idiomatic use of spoken language before hearing was lost, retain to a greater or less degree the modes of thought and mental characteristics of hearing persons. They think in words and express themselves easily and naturally in the language of their childhood. In the course of time, especially

if they are not encouraged to use the voice in conversing with others, they may lose their memory of sound and may cease to pronounce words mentally; but even then, if they have learned to read and write, words in their written or printed form will serve them as natural and convenient instruments of thought.

Since semi-mutes, on account of their deafness, cannot, as a rule, be educated in common schools, and their number in any community is usually too small to justify the establishment of special schools for them, they are educated with deaf-mutes, many of the processes of instruction beyond the elementary stage being equally applicable to both classes; but the semi-mute always has a great advantage over his deaf-mute classmate in his command of language. This distinction, though it is often explained by candid teachers, is not always understood by visitors to the school-room; and the public are thus sometimes misled as to the actual attainments of deaf-mutes. In mental vigor, and in the acquisition of general knowledge, the true deaf-mute, notwithstanding he is heavily handicapped in respect to language, will not infrequently surpass the semi-mute; but most of the cases of remarkable facility in composition and of great success in articulation that astonish the indiscriminating public at exhibitions, belong to the class of semi-mutes, as do also nearly all the deaf persons who have distinguished themselves in later life as authors and poets.

Between the semi-mute and the congenital deaf-mute, but more closely allied with the latter than the former, stands the "quasi-congenital" deaf-mute. He retains no conscious memory of words; he must acquire written language or vocal speech by the same laborious processes as if he had never heard; in his attempts at composition he makes the same curious mistakes as the congenital deaf-mute; and yet it is a fact often observed by teachers that children of this class do learn language more easily and successfully, and adapt themselves more readily to the modes of thought of hearing persons, than those who are born deaf or lose their hearing soon after birth. When we remember how vivid are the impressions of childhood, how full a vocabulary, and how much fuller a comprehension of language as spoken by others, a bright child obtains during the first two or three years of his life, it is not strange if the mental condition of one who loses hearing when he has reached this age is essentially different from that of one who has never heard. The wonder is rather that, of the immense mental and linguistic acquisitions he has made through the sense of hearing, so little appears to remain.

The uneducated deaf-mute who has never heard, or whose hearing has been lost in early infancy, has no knowledge whatever of the language of words. This lack of language is the key to his mental condition and characteristics. He has an intelligent mind; he observes, reasons, and forms conclusions; but his train of thought, being carried on by means of mental pictures and rude gestures, is imperfect and incomplete, while his reasoning, being based upon his own limited range of observation uncorrected by the superior wisdom and wider experience of others, is apt to lead him to erroneous conclusions. Careful inquiries made of educated deaf-mutes with respect to their ideas before instruction have elicited the fact that, although—like young children in general—they usually accept the phenomena of nature as a matter of course, and do not trouble themselves concerning their origin, yet they do sometimes reflect on these subjects and frame for themselves various fanciful explanations of the means by which the more striking natural phenomena are produced; as, for instance, that the wind is blown from a great bellows, that the rain is poured down through small holes in the sky, that snow is ground out like flour from a celestial mill, that thunder and lightning are the discharges of cannon, that the stars are candles or lamps lighted every evening, that death is caused by the medicine administered to the sick person, etc., etc. None seem to have arrived at the idea of the existence of the soul, nor of a God, nor of immortality; and there are only two instances on record in which they

have reflected at all upon the origin of the world and its inhabitants. One girl, who had reached the age of fifteen before coming to school, said that she "had tried to think about it, but could not"; she "thought the people came from the South"; and one very intelligent boy, at the age of nine years, having gained from his own observation an idea of the descent from parent to child, the propagation of animals, and the production of plants from seeds, struggled long and earnestly with the question whence came the first man, the first animal, and the first plant; but, like many wiser men, without reaching any satisfactory conclusion.

The deaf-mute very early invents a language of signs sufficient for the expression of the common wants of his every-day life, and if he has intelligent friends who are ready to aid his attempts at the exchange of ideas in this way, or if he associates with other deaf-mutes, this language will be extended and elaborated to a high degree. It becomes his usual mode of thought; and while he may, after long years of effort by his teachers and himself, learn to think more or less in spoken or written words, the language of signs always remains his easiest and most natural method not only of expression but of thought. The language of words written or spoken is for him something strange, foreign, artificial; he may master it as the hearing student masters a foreign tongue, so that he will think in it to some extent, use it with considerable freedom, and read it understandingly and profitably; but, except in very rare cases of peculiar education and environment, the language of gesture is, and always remains, the vernacular of the deaf-mute.

The language of words being a foreign language to the deaf-mute, he is liable, even after years of instruction, to make mistakes in its use. Such mistakes of course become less frequent as his education advances; but the deaf-mute who has never heard, or who has lost his hearing in early infancy, rarely, if ever, acquires such a mastery of language as to employ it in speech or writing with the same readiness and freedom as persons who learn to speak in childhood through the hearing. The peculiarities in his phraseology are sometimes called "deaf-mutisms," and their origin has been ascribed by some writers to the inversions of the sign language; but their main cause, like that of the blunders of foreigners, is merely an incomplete knowledge of the language of words.

The characteristics of an uneducated deaf-mute, especially when in unfavorable social circumstances his natural language of signs has not been developed beyond its most rudimentary stage, are what might be expected. Cut off from communication with his kind, misinterpreting alike the order of nature and the actions of his fellow-men, he is apt to become melancholy, suspicious, treacherous, and cruel. The neglect on the part of parents and friends which, from any motive whatever, allows the deaf-mute child to grow up in this condition, when, as in the United States, the benefits of education are freely offered to all, is simply criminal.

A wisely conducted education, giving the deaf-mute writing or speech as a means of communication, and imparting just views of his relations to God and his fellow-men, tends to correct the defects above mentioned, and enables him to take his proper place in the world as an active and useful member of society.

MORBIDITY.—Since the maladies that cause deafness are in some cases the result of an imperfect physical constitution, and in others leave a previously sound constitution debilitated and impaired, we should expect to find the percentage of morbidity in persons of this class higher than among hearing persons. We have few records on this point except those of our schools, and the latter not in a statistical form; but it is the general testimony of the heads of schools that their pupils, as a rule, enjoy excellent health—quite as good as the average health of hearing children. This is probably due to the regular habits, wholesome food, well-ventilated rooms, good sanitary arrangements, and out-of-door exercise afforded by institution life, which counteract any unfavorable constitutional tendencies that may exist.

Tuberculosis was formerly regarded as a disease to which deaf-mutes were peculiarly liable, since statistics collected by Porter and Peet in this country, Wilde in Ireland, and Müller in Germany showed that a large proportion of deaths were due to this cause, but within recent years tuberculosis has not been observed to be especially prevalent among the deaf. The mortality from this cause in former times was probably due to bad sanitary conditions and to infection.

It is sometimes asserted that the lungs of deaf-mutes are ill developed on account of their lack of exercise in speech. But, aside from the fact that deaf children do generally use their voices considerably, making a great variety of sounds, the expansion of the lungs in respiration, as Hartmann says, really suffices for their proper development. A careful examination of the lungs of the students of Gallaudet College at Washington, with a view to cautioning them against violent gymnastic exercises in case of pulmonary weakness, showed only one out of fifty with any tendency in that direction.

MORTALITY.—There are no comparative tables on a scale sufficiently extended to enable us to form a definite conclusion as to the mortality of deaf-mutes as compared with hearing people. In Denmark during the years 1879-88 the mortality among adult deaf-mutes corresponded pretty nearly to the mortality among the laboring classes in Copenhagen, whose death rate was the highest of any class in Denmark; a result which Mygind attributes to their unfavorable social and sanitary conditions. The total numbers, however, were too small to be conclusive. At first thought it might be supposed that deaf-mutes are more liable than hearing persons to fatal accidents in the street, on the railway, etc., on account of their inability to hear warnings of danger; but this liability is probably more than offset by their greater habit of caution in such places. It is to be hoped that the necessary statistics for determining the rate of mortality of deaf-mutes may soon be afforded, for at present some insurance companies refuse to accept risks on their lives and others charge them more than the usual rates.

MARRIAGE.—Since the education of deaf-mutes has become general, marriage among them has ceased to be rare, especially in America. Of 27,924 pupils who attended American schools for the deaf up to the year 1890, statistics gathered during the past decade show that 6,460, or 23 per cent., have been married, and the actual per cent. of the married deaf in this country is probably much higher than that.

Marriages of deaf-mutes are slightly less productive than ordinary marriages. The proportion of 3,078 marriages of the deaf in America without offspring was 14.1 per cent., and the average number of children to each mother was 2.61.

In 72 per cent. of the marriages of the deaf recorded in America both of the partners were deaf. As has been shown above under "Heredity," marriages of this kind are not more liable to result in deaf offspring than those in which one of the partners is deaf and the other a hearing person; that they are more likely to be happy marriages, owing doubtless to the strong bond of mutual fellowship growing out of the similar condition of husband and wife, the ease and freedom with which they communicate with each other, and the identity of their social relations and sympathies, is proved by the statistics of divorces and separations. In the marriages of the deaf in America, where both of the partners were deaf, the proportion of the divorces and separations reported was 2.5 per cent.; where one of the partners was deaf and the other a hearing person, the proportion was 6.5 per cent.

In the case of deaf-mutes having no deaf relatives there is little, if any, danger that deafness will reappear in the offspring provided they marry persons, whether deaf or hearing, who have no deaf relatives. The liability to deaf offspring when either or both of the partners in marriage have deaf relatives has been mentioned above under "Heredity."

OCCUPATIONS.—Uneducated deaf-mutes can and do perform unskilled labor, but the competition here is so

great, and they are at so much disadvantage in various ways as compared with hearing persons, that, though they are sometimes self-supporting, they are often more or less a burden upon their friends or upon the community.

With educated deaf-mutes the case is very different. In all of the large American schools the importance of industrial instruction is fully recognized and several hours of each day are devoted to this purpose. The occupations taught are, for the boys, baking, barbering, basket-making, blacksmithing, book-binding, bricklaying, broom-making, cabinet-making, carpentry, chair-making, cooper, engraving, farming, floriculture, gardening, glazing, harness-making, horticulture, mattress-making, painting, paper-hanging, plastering, photography, printing, shoe-making, tailoring, and wood-turning; for the girls, cooking, domestic and ornamental sewing, both with and without the machine, dress-making, ironing, knitting, millinery, shirt-making, tailoring, and the folding and stitching of sheets for the book-binder. Instruction in clay-modelling, drawing, decorating, etc., enables some of both sexes to engage in various pursuits of industrial art and in pure art. In some instances the pupils are made thorough masters of their trades while at school, so that they immediately command remunerative positions upon graduating; and even in the greater number of cases in which they merely acquire the principles of a trade, familiarity with the use of tools, dexterity, and habits of industry, they find it much easier to master the business afterward, or to learn some new trade, than would be possible if no attention had been paid to industrial education.

The list of occupations pursued by educated deaf-mutes includes not only the industries above mentioned as taught at school, but almost every pursuit that does not require the actual use of hearing and speech. The great majority are engaged in various branches of skilled industry; some are artists, or workers in industrial art; while among the more intelligent and highly educated, especially those who have enjoyed the advantages of the College at Washington, are many government clerks, many teachers of the deaf, several clergymen preaching to the deaf, and several editors, publishers, merchants, inventors, chemists, and lawyers.

LEGAL RIGHTS AND RESPONSIBILITIES.—Under the Justinian Code, deaf-mutes who could not read and write were classed with the insane and idiotic, and had therefore no legal rights nor responsibilities. A better comprehension of their mental condition has led to considerable modification of their legal status, so far at least as their rights are concerned. It has been decided repeatedly, both in England and America, that an uneducated deaf-mute who possesses sufficient intelligence to express his ideas, wishes, and intentions by signs can make contracts, execute deeds, dispose of property by gift or by testament, and give evidence in court. The degree of intelligence and facility of communication can usually be determined by the testimony of acquaintances or of experienced teachers of the deaf.

The uneducated but not unintelligent deaf-mute who commits crime against property—usually theft—is generally and properly held responsible for the act; but in the case of serious crime against the person—as, for instance, homicide under the provocation of cruelty—his moral and legal responsibility is not so easy to determine. In such cases, which have been unhappily frequent in proportion to the number of this class of persons, judges and juries, especially in view of the death penalty, have naturally shrunk from the decision that the deaf-mute without any education was morally and legally responsible, and he has either through an appeal by his counsel to the old law classing deaf-mutes with the insane and idiotic escaped trial altogether, or through the sympathy or the disagreement of the jury been acquitted.

Educated deaf-mutes who can communicate with others orally or by writing, occupy the same position before the law as hearing persons.

SCHOOLS FOR THE DEAF IN THE UNITED STATES.—There are 115 schools for the deaf in the United States, containing (November 10th, 1900) 10,608 pupils. Fifty-

seven of these schools, with 9,504 pupils, are public boarding schools supported by the several States; of the remaining pupils, 708 are in public day schools and 396 in denominational and private schools. The various methods of instruction used in these schools may be defined as follows:

I. *The Manual Method.*—Signs, the manual alphabet, and writing are the chief means used in the instruction of the pupils, and the principal objects aimed at are mental development and facility in the comprehension and use of written language. The degree of relative importance given to these three means varies in different schools; but it is a difference only in degree, and the end aimed at is the same in all.

II. *The Manual Alphabet Method.*—The manual alphabet and writing are the chief means used in the instruction of the pupils, and the principal objects aimed at are mental development and facility in the comprehension and use of written language. Speech and speech-reading are taught to all of the pupils in one of the schools (the Western New York Institution) recorded as following this method.

III. *The Oral Method.*—Speech and speech-reading, together with writing, are made the chief means of instruction, and facility in speech and speech-reading, as well as mental development and written language, is aimed at. There is a difference in different schools in the extent to which the use of natural signs is allowed in the early part of the course, and also in the prominence given to writing as an auxiliary to speech and speech reading

in the course of instruction; but they are differences only in degree, and the end aimed at is the same in all.

IV. *The Auricular Method.*—The hearing of semi-deaf pupils is utilized and developed to the greatest possible extent, and, with or without the aid of artificial appliances, their education is carried on chiefly through the use of speech and hearing, together with writing. The aim of the method is to graduate its pupils as hard-of-hearing speaking people instead of deaf-mutes. (This method, which has recently been brought to the notice of physicians by the experiments of Urbantschitsch, Bezold, and others, has been used in American schools for many years, but it is regarded as desirable for only a small proportion of the pupils.)

V. *The Combined System.*—Speech and speech-reading are regarded as very important, but mental development and the acquisition of language are regarded as still more important. It is believed that in many cases mental development and the acquisition of language can be best promoted by the Manual or the Manual Alphabet method, and, so far as circumstances permit, such method is chosen for each pupil as seems best adapted for his individual case. Speech and speech-reading are taught where the measure of success seems likely to justify the labor expended, and in most of the schools some of the pupils are taught wholly or chiefly by the oral method or by the auricular method.

The following table gives all the schools for the deaf in the United States existing in the year 1890, with their location, date of opening, and methods of instruction:

A.—PUBLIC SCHOOLS (NOT INCLUDING DAY SCHOOLS).

| Name. | Location. | Date of opening. | Methods of instruction. |
|---------------------------------------------------------------------------------|------------------------------------------|------------------|---------------------------|
| 1 American School for the Deaf | Hartford, Conn. | 1817 | Combined. |
| 2 New York Institution for the Instruction of the Deaf and Dumb | New York, N. Y. (a) | 1818 | Combined. |
| 3 Pennsylvania Institution for the Deaf and Dumb | Mount Airy, Philadelphia, Pa. | 1820 | Oral and manual alphabet. |
| 4 Kentucky Institution for the Education of Deaf-Mutes | Danville, Boyle Co., Ky. | 1823 | Combined. |
| 5 Ohio Institution for the Education of the Deaf and Dumb | Columbus, Ohio | 1829 | Combined. |
| 6 Virginia School for the Deaf and the Blind | Staunton, Va. | 1839 | Combined. |
| 7 Indiana Institution for the Education of the Deaf and Dumb | Indianapolis, Ind. | 1844 | Combined. |
| 8 Tennessee Deaf and Dumb School | Knoxville, Tenn. | 1845 | Combined. |
| 9 North Carolina Institution for Education of the Deaf and Dumb and the Blind | Raleigh, N. C. | 1845 | Combined. |
| 10 Illinois Institution for the Education of the Deaf and Dumb | Jacksonville, Ill. | 1846 | Oral and manual alphabet. |
| 11 Georgia School for the Deaf | Cave Spring, Ga. | 1846 | Combined. |
| 12 South Carolina Institution for the Education of the Deaf and the Blind | Cedar Spring, S. C. | 1849 | Combined. |
| 13 Missouri School for the Deaf | Fulton, Callaway Co., Mo. | 1851 | Combined. |
| 14 Louisiana Institution for the Education of the Deaf and Dumb | Baton Rouge, La. | 1852 | Combined. |
| 15 Wisconsin School for the Deaf | Delavan, Walworth Co., Wis. | 1852 | Combined. |
| 16 Michigan School for the Deaf | Flint, Mich. | 1854 | Combined. |
| 17 Mississippi Institution for the Education of the Deaf and Dumb | Jackson, Miss. | 1854 | Combined. |
| 18 Iowa School for the Deaf | Council Bluffs, Iowa. | 1855 | Combined. |
| 19 Texas Deaf and Dumb Asylum | Austin, Texas. | 1857 | Combined. |
| 20 Columbia Institution for the Deaf and Dumb | Kendall Green, Washington, D. C. | 1857 | Combined. |
| A. Kendall School for the Deaf | Kendall Green, Washington, D. C. | 1857 | Combined. |
| B. Gallaudet College | Kendall Green, Washington, D. C. | 1858 | Combined. |
| 21 Alabama Institute for the Deaf | Talladega, Ala. | 1858 | Combined. |
| 22 California Institution for the Deaf and the Blind | Berkeley, Alameda Co., Cal. | 1860 | Combined. |
| 23 Kansas School for the Deaf | Olathe, Kansas | 1861 | Combined. |
| 24 Le Couteux St. Mary's Institution for the Improved Instruction of Deaf-Mutes | Buffalo, N. Y. (2253 Main Street) | 1861 | Combined. |
| 25 Minnesota School for the Deaf | Faribault, Rice Co., Minn. | 1863 | Combined. |
| 26 New York Institution for the Improved Instruction for Deaf-Mutes | New York, N. Y. (904-922 Lexington Ave.) | 1867 | Oral. |
| 27 Clarke School for the Deaf | Northampton, Mass. | 1867 | Oral. |
| 28 Arkansas Deaf-Mute Institute | Little Rock, Ark. | 1868 | Combined. |
| 29 Maryland School for the Deaf and Dumb | Frederick City, Md. | 1868 | Combined. |
| 30 Nebraska Institute for the Deaf and Dumb | Omaha, Neb. | 1869 | Combined. |
| 31 St. Joseph's Institute for the Improved Instruction of Deaf-Mutes | Portland, Me. | 1869 | Combined. |
| 32 West Virginia Schools for the Deaf and the Blind | Romney, Hampshire Co., W. Va. | 1870 | Combined. |
| 33 Mystic Oral School for the Deaf | Mystic, Conn. | 1870 | Oral. |
| 34 Oregon School for Deaf-Mutes | Salem, Oregon | 1870 | Combined. |
| 35 Maryland School for the Colored Blind and Deaf | Baltimore, Md. (649 W. Saratoga St.) | 1872 | Combined. |
| 36 Colorado School for the Deaf and the Blind | Colorado Springs, El Paso Co., Colo. | 1874 | Combined. |
| 37 Central New York Institution for Deaf-Mutes | Rome, Oneida Co., N. Y. | 1875 | Combined. |
| 38 Western Pennsylvania Institution for the Instruction of the Deaf and Dumb | Edgewood Park, Allegheny Co., Pa. | 1876 | Combined. |
| 39 Western New York Institution for Deaf-Mutes | Rochester, N. Y. (345 N. St. Paul St.) | 1876 | Man. alph. |
| 40 Maine School for the Deaf | Portland, Me. (79-85 Spring St.) | 1876 | Combined. |
| 41 Rhode Island Institute for the Deaf | Providence, R. I. (184 East Ave.) | 1876 | Oral. |
| 42 New England Industrial School for Deaf-Mutes | Beverly, Mass. | 1879 | Combined. |
| 43 South Dakota School for Deaf-Mutes | Sioux Falls, Minnehaha Co., S. Dak. | 1880 | Combined. |
| 44 Pennsylvania Oral School for the Deaf | Scranton, Pa. | 1883 | Oral. |
| 45 New Jersey School for the Deaf | Trenton, N. J. | 1883 | Combined. |
| 46 Utah State School for the Deaf and Dumb | Ogden, Utah | 1884 | Combined. |
| 47 Northern New York Institution for Deaf-Mutes | Malone, Franklin Co., N. Y. | 1884 | Combined. |
| 48 Florida State School for the Blind and the Deaf | St. Augustine, Fla. | 1885 | Combined. |
| 49 New Mexico Asylum for the Deaf and the Dumb | Santa Fé, N. M. | 1885 | Manual. |
| 50 Washington School for Defective Youth | Vancouver, Wash. | 1886 | Combined. |

A.—PUBLIC SCHOOLS (NOT INCLUDING DAY SCHOOLS).—Continued.

| Name. | Location. | Date of opening. | Methods of instruction. |
|-----------------------------------------------------------------------------------|------------------------------------------------------|------------------|-------------------------|
| 51 Deaf, Dumb, and Blind Institute for Colored Youth | Austin, Tex. | 1887 | Manual. |
| 52 Albany Home School for the Oral Instruction of the Deaf | Armour Ave. near 41st St., Pine Hills, Albany, N. Y. | 1889 | Oral. |
| 53 Deaf and Dumb Asylum (of North Dakota) | Devils Lake, Ramsey Co., N. Dak. | 1890 | Combined. |
| 54 Home for the Training in Speech of Deaf Children before they are of School Age | Philadelphia, Pa. (c) | 1892 | Oral. |
| 55 Montana School for Deaf and Blind | Boulder, Mont. | 1894 | Combined. |
| 56 North Carolina School for the Deaf and Dumb | Morganton, Burke Co., N. C. | 1894 | Combined. |
| 57 Oklahoma Institute for the Deaf and Dumb | Guthrie, Oklahoma | 1898 | Manual. |

(a) Washington Heights, 163d Street and Broadway. (b) This institution has three branches; one situated at Westchester, another at Fordham (772 East 188th Street), and another at Brooklyn (113 Buffalo Avenue). (c) Belmont Avenue, corner Monument Avenue.

B.—PUBLIC DAY SCHOOLS.

| Name. | Location. | Date of opening. | Methods of instruction. |
|-------------------------------------------------|---------------------------------------------------|------------------|-------------------------|
| 1 Horace Mann School for the Deaf | Boston, Mass. (178 Newbury St.) | 1869 | Oral. |
| 2 Wicker Park Public Day School for the Deaf | Evergreen Ave. near Robey St. | 1879 | Combined. |
| 3 Hartigan Public Day School for the Deaf | Wrightward and Ashland Aves. | 1879 | Combined. |
| 4 Prescott Public Day School for the Deaf | 157 Monroe St. | 1875 | Combined. |
| 5 Monroe Street Public Day School for the Deaf | Chicago, Ill., Corner 70th St. and Yale Ave. | 1896 | Oral. |
| 6 Yale Public Day School for the Deaf | Chicago, Ill., Corner Sedgwick and Division Sts. | 1896 | Oral. |
| 7 Lyman Trumbull Public Day School for the Deaf | Chicago, Ill., Corner 54th St. and Ingleside Ave. | 1896 | Oral. |
| 8 Kozminski Public Day School for the Deaf | Chicago, Ill., 4634 Ashland Ave. | 1897 | Oral. |
| 9 Seward Public Day School for the Deaf | Chicago, Ill., Hum. Blvd. and Armitage Ave. | 1898 | Oral. |
| 10 Darwin Public Day School for the Deaf | Chicago, Ill., Ashland Av. near North Ave. | 1898 | Oral. |
| 11 Burr Public Day School for the Deaf | Chicago, Ill., 21st St. near Robey St. | 1898 | Oral. |
| 12 Froebel Public Day School for the Deaf | Cincinnati, Ohio (719 W. Sixth St.) | 1875 | Manual. |
| 13 Cincinnati Public School for the Deaf | St. Louis, Mo. (a) | 1878 | Combined. |
| 14 St. Louis Day School for the Deaf | St. Louis, Mo. (a) | 1878 | Combined. |
| 15 Milwaukee Public Day School for the Deaf | Milwaukee, Wis. (b) | 1883 | Oral. |
| 16 Oral School of Cincinnati | Cincinnati, Ohio (719 West 6th St.) | 1886 | Oral. |
| 17 Evansville Day School for the Deaf | Evansville, Ind. (High School Building) | 1886 | Combined. |
| 18 Wausau Day School for the Deaf | Wausau, Wis. | 1890 | Oral. |
| 19 Cleveland Day School for the Deaf | Cleveland, Ohio (c) | 1892 | Oral. |
| 20 Manitowoc Day School for the Deaf | Manitowoc, Wis. | 1893 | Oral. |
| 21 Sheboygan Day School for the Deaf | Sheboygan, Wis. | 1894 | Oral. |
| 22 Detroit Day School for the Deaf | Detroit, Mich. (d) | 1895 | Oral. |
| 23 Eau Claire Day School for the Deaf | Eau Claire, Wis. | 1895 | Oral. |
| 24 Fond du Lac School for the Deaf | Fond du Lac, Wis. | 1895 | Oral. |
| 25 Marinette School for the Deaf | Marinette, Wis. (1532 Main St.) | 1895 | Oral. |
| 26 Oshkosh School for the Deaf | Oshkosh, Wis. (Library building) | 1895 | Oral. |
| 27 Appleton School for the Deaf | Appleton, Wis. | 1896 | Oral. |
| 28 Green Bay Day School for the Deaf | Green Bay, Wis. | 1898 | Oral. |
| 29 Black River Falls School for the Deaf | Black River Falls, Wis. | 1897 | Oral. |
| 30 Superior Day School for the Deaf | West Superior, Wis. | 1897 | Oral. |
| 31 Neillsville Day School for the Deaf | Neillsville, Wis. | 1899 | Oral. |
| 32 Los Angeles Oral School for the Deaf | Los Angeles, Cal. | 1898 | Oral. |
| 33 Loraine County Oral Deaf School | Elyria, Lorain Co., Ohio | 1898 | Oral. |
| 34 Ashland Day School for the Deaf | Ashland, Wis. | 1898 | Oral. |
| 35 Stevens Point Day School for the Deaf | Stevens Point, Wis. | 1898 | Oral. |
| 36 Streator Day School for the Deaf | Streator, Ill. | 1898 | Oral. |
| 37 La Crosse Day School for the Deaf | La Crosse, Wis. | 1899 | Oral. |
| 38 Dayton School for the Deaf | Dayton, Ohio (corner Brown and Hess Sts.) | 1899 | Combined. |
| 39 Derinda School for the Deaf | Derinda, Ill. | 1899 | Oral. |
| 40 Oakland Oral Day School for the Deaf | Oakland, Cal. (11th and Jefferson Sts.) | 1899 | Oral. |
| 41 Sparta Day School for the Deaf | Sparta, Wis. | 1899 | Oral. |
| 42 Grand Rapids Day School for the Deaf | Grand Rapids, Mich. | 1899 | Oral. |
| 43 Muskegon Day School for the Deaf | Muskegon, Mich. | 1900 | Oral. |
| 44 Menominee Day School for the Deaf | Menominee, Mich. | 1900 | Oral. |

(a) Corner Ninth and Wash streets. (b) Corner Seventh and Prairie streets. (c) 1304 Wilson Avenue. (d) Wilkins School Porter Street. (e) The first Public Day School for the Deaf in Chicago was opened in 1875 in a rented building on Van Buren Street.

C.—DENOMINATIONAL AND PRIVATE SCHOOLS.

| Name. | Location. | Date of opening. | Methods of instruction. |
|---------------------------------------------------------|--------------------------------------------|------------------|-------------------------|
| 1 German Evangelical Lutheran Deaf and Dumb School | North Detroit, Wayne Co., Mich. | 1873 | Combined. |
| 2 St. John's Catholic Deaf-Mute Institute | St. Francis, Wis. | 1876 | Combined. |
| 3 F. Knapp's Institute | Baltimore, Md. (851 and 853 Hollins St.) | 1877 | Oral. |
| 4 The McCowen Oral School for Young Deaf Children | Chicago, Ill. (6550 Yale Ave.) | 1883 | Oral. |
| 5 Epphata School for the Deaf | Chicago, Ill. (409 S. May St.) | 1884 | Combined. |
| 6 Marie Consilia School for the Deaf | St. Louis, Mo. (1849 Cass Ave.) | 1885 | Combined. |
| 7 Sarah Fuller Home for Little Children Who Cannot Hear | West Medford, Mass. (93 Woburn St.) | 1888 | Oral. |
| 8 Notre Dame School for the Deaf | Cincinnati, Ohio (a) | 1890 | Combined. |
| 9 Deaf-Mute Institute of the Holy Rosary | Chinchuba, St. Tammany Parish, La. | 1890 | Combined. |
| 10 St. Joseph's Deaf-Mute Institute for Boys | Longwood Place, South St. Louis, Mo. | 1892 | Combined. |
| 11 Wright-Humason School | New York, N. Y. (42 West 76th St.) | 1894 | Oral. |
| 12 St. Joseph's School and Home for Deaf-Mutes | North Temescal, Cal. | 1895 | Combined. |
| 13 St. Francis Xavier's School for the Deaf | Baltimore, Md. (903 McColloh St.) | 1897 | Combined. |
| 14 Boston School for the Deaf | Jamaica Plain, Mass. (9-11 St. Joseph St.) | 1899 | Oral. |

(a) Sixth Street, between Sycamore and Broadway.