

covered till an advanced period of childhood, and though the child remains mute the real cause is neither readily acknowledged nor properly attended to. Children who have lost their hearing after the acquisition of the power of speech cannot be included in the class of deaf mutes; the impression which language has made on their minds gives to them a marked superiority over those who are deaf from birth.

Such a calamity as the deprivation of hearing must be productive of great and varied disadvantages, as it totally excludes the mind from an extensive class of ideas and associations. It is then not to be wondered at that this state of social isolation should occasionally give rise to moroseness and despondency, and that external objects should inspire little sense of surprise or admiration. They are simply objects recognized by their form, colour, and texture, and the emotions they raise are different both in character and in intensity from those experienced by hearing children. This physical defect has not, however, any necessary connection with the presence or absence of intellectual capacity, or with the active principles of our nature. There is only the want of one of the natural and most important avenues to intellectual development, with its primary consequence of dumbness, and its secondary one of social isolation. Still, the denial of all such knowledge as can be derived through the medium of the ear is somewhat atoned for by the quickened influence of other senses, especially that of sight. Thus the visible marks of attention the deaf and dumb receive from others,—their caresses, frowns, and smiles,—all make a corresponding impression on their tender minds, and as they grow older they watch the looks and gestures of those near them with a keenness unknown to other children, so that the slightest change of expression does not escape their observation. Their affections are stimulated and their passions excited much in the same way as in other children.

The proportion of children born deaf was formerly supposed to be much smaller than it really is. Cases have come to be known in largely increased numbers since institutions for the deaf and dumb have been established, and such statistical tables as are given in this article suggest the incorrectness of the popular supposition. The institutions which have been founded on their behalf have not only diffused correct information concerning their number, but by the gratifying success of the educational methods adopted have greatly contributed to dissipate prejudicial notions concerning their capacity to receive instruction, and to direct public sympathy towards the claims of this class. The latter office it is still needful that they fulfil, for prejudices yet exist against deaf mutes,—one of these being the general supposition that they are very vicious and hot-tempered. It may be admitted that some of them are so; and it may even be granted that the proportion of mutes with such dispositions is as high as in any other class of afflicted persons, for in the case of the deaf and dumb there are undoubtedly special circumstances of early life which tend in no small degree to such a result. The total inability of parents to deal with their abnormal peculiarities must be included among the causes which prejudicially affect their character; and the kindly-intended interference of neighbours with the parental management often proves morally injurious to them. Their discernment of right and wrong is equal to that of other children; and hence, when neighbours unwisely seek to screen them from merited punishment, a spirit of insubordination is excited, and sullenness or passionateness is induced. It should therefore be the parents' utmost endeavour, when punishment is to be administered, to treat these children impartially. It is most desirable also that external circumstances should be as favourable to them as possible, and

everything calculated to pollute their uncultivated minds kept from their acute powers of observation.

Causes.—The causes assigned for congenital deafness are consanguineous marriages, hereditary transmission, weak constitutions of parents, scrofula, climate, and the ill-health of the mother at a certain period of life. There is necessarily difficulty in ascertaining the real cause of deafness. That difficulty has its ground in the unwillingness of parents to admit that their children were born deaf. Their deafness is often attributed to some infantile disease, though the defect is congenital. On the other hand, when they have lost the sense of hearing at an early age, they may be included among the congenitally deaf. But all institutions for the deaf and dumb contain instances which illustrate scientific investigations, and establish the position that such causes as those now alluded to tend to induce and perpetuate the disease of deafness. In all cases of congenital deafness it will be found that there exists some disorganization of the organ of hearing itself, some obstruction in the internal ear or compression of the auditory nerve, whereby the vibrations of the ear are prevented from producing the required effect upon the internal parts of the ear, or from being communicated to the brain.

After-birth or acquired deafness occurs at all ages, and has its origin in such diseases as small-pox, measles, typhus, convulsions, paralysis, hydrocephalus, and other affections of the brain, and "scarlatina, which more frequently than any other disease leaves the patient deaf, in consequence of the inflammatory state of the throat extending to the internal ear, causing suppuration and destruction of the delicate apparatus on which hearing depends; such being the case, especial attention should be directed during the course of the disease to the state of the throat, so as to prevent if possible the inflammation extending." Vaccination has been the means of greatly decreasing the cases of deafness; and doubtless, as sanitary laws become more general, the introduction of perfect sewerage, pure water, and good ventilation, will all tend to lessen the liability to those zymotic diseases upon which deafness supervenes. Amongst other causes of deafness are cold, and severe blows or falls upon the head. It has been ascertained that the proportion is about 60 per cent. congenitally deaf to 40 per cent. accidentally so; and the census returns for 1871 show that of the 1054 inmates of 12 institutions of England and Wales 63 per cent. were congenitally deaf. Consanguineous marriages are perhaps the most fertile source of deafness, which fact is established by the numerous cases of deaf children who are the offspring of first cousins. It is not only so in England, but in other countries of Europe and in America. Dr Buxton says, "In an inquiry which I made some time ago, I found that about every tenth case of deafness resulted from the marriage of cousins." The Irish Commissioners' Report for 1871 says, "Too close consanguinity in the intermarriage of relatives, and also hereditary predisposition, have long been supposed to be causes of congenital deaf-muteism." The results obtained by the census of 1871 tend to establish these suppositions.

The following table from census returns for Ireland exhibits the amount of deaf-muteism where consanguinity of parents existed:—

	Congenital Deaf Cases.	Acquired Deaf Cases.	Total.
First cousins.....	80	5	85
Second cousins.....	60	3	63
Third cousins.....	31	1	32
Fourth cousins.....	7	0	7
Fifth and sixth cousins...	14	0	14
	192	9	201

Thus we find that, in 201 instances of relationship between the parents of mutes, 85 were in the degree of first cousins, 63 in that of second, 32 in that of third, 7 in that of fourth, and in 14 they were more remotely related.

Dr Bondin, at a meeting of the Academy of Sciences, Paris, noticed the following striking result of such unions:—

"Two brothers in perfect health, and well constituted men, had married two sisters, their cousins-german. The elder brother has had several children, one of whom is deaf and dumb. The other brother has had six children, the first, third, and fifth of whom can hear, while the second, fourth, and probably the sixth (an infant) are deaf and dumb.

The report of Dr S. M. Bemis of Louisville, Kentucky, to the American Medical Association on the subject of the influence of marriages of consanguinity on offspring and records the following results of 833 such marriages:—

Of the 3942 children of those marriages 1184 were defective in one way or another, viz.,—deaf and dumb, 145; blind, 85; idiotic, 308; insane, 38; epileptic, 60; scrofulous, 800; and deformed, 98; 883 died young; and the writer concludes by remarking, "I feel satisfied, however, that my research gave me authority to assume that over 10 per cent. of the deaf and dumb, and over 5 per cent. of the blind, and nearly 15 per cent. of the idiotic, in our State institutions for subjects of those defects, and throughout the country at large, are the offspring of kindred parents, or of parents themselves the descendants of blood intermarriages."

Another great cause of deafness is hereditary transmission. "It has clearly been ascertained," says Dr Harvey (*On the Ear*), "that the most common cause is a strumous and delicate habit of body, generally hereditary."

The subjoined table from the census returns for Ireland in 1871 proves that deaf-muteism is often transmitted by hereditary taint or family peculiarity. The table is divided into two sections,—the first showing where the disease is transmitted by the father, the second by the mother.

Mute relations on Father's side.

No. of Deaf Mutes in each family.	Great-Grandfather.	Great-Grandmother.	Grandfather.	Grandmother.	Granduncle.	Grandaunt.	Father.	Uncle.	Aunt.	Cousin.	Total.
One.....	1	1	...	...	5	2	5	12	8	59	93
Two.....	1	...	...	...	...	...	4	4	1	16	26
Three.....	...	...	2	...	...	...	1	1	2	10	16
Four.....	...	...	1	1	...	...	...	...	...	...	3
Five.....	...	...	...	...	...	...	...	...	...	2	2
											139

Mute relations on Mother's side.

No. of Deaf Mutes in each family.	Grandfather.	Granduncle.	Grandaunt.	Mother.	Uncle.	Aunt.	Cousin.	Total.
One.....	2	3	2	9	6	12	33	67
Two.....	...	3	...	2	2	3	23	33
Three.....	1	...	1	...	7	9
Four.....	2	1	...	3
Five.....	2	2
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The Commissioners' Report is as follows:—

"Although it has been shown that muteism is transmitted by hereditary taint, yet it very seldom descends directly from the parent to the offspring, which is manifest from the following results of the inquiry made respecting the marriage state of the congenitally deaf. After a minute investigation of this subject, we find 115 instances, 77 males and 38 females, of the marriages of congenital deaf mutes where either one or both parties were affected. In 81 instances we ascertained that only one of the parties was congenitally deaf, and that 264 children, none of whom were deaf and dumb, resulted from 67 such marriages; in the remaining 14 instances

there was no issue. We find four instances of the marriage of a congenital deaf mute with an acquired deaf mute, from three of which 7 children resulted, one of whom was deaf and dumb. There were 13 instances of the intermarriage of persons both of whom were deaf and dumb, and from 12 of these marriages 44 children resulted, of whom only one was deaf and dumb, and another was deaf only. The grand-parents of the former on the mother's side, and a grand-uncle of the father's, were also deaf and dumb. Of 315 children resulting from 87 of the afore-mentioned marriages, only two were deaf and dumb, and one deaf only. In a case of the intermarriage of congenital deaf mutes, although the husband's parents were second cousins and the wife's also related, and her sister deaf and dumb, yet none of the 8 children resulting from the marriage were in any way afflicted."

The Principal of the New York Institution says, "We can show that it is much the most common for the children of deaf and dumb parents to possess the faculties of which their parents are deprived; still, although the offspring may not be defective, they may likely inherit that peculiar taint of constitution by which the disease will be transmitted to future generations, which is so often the case."

Mr Turner, in a paper on *Hereditary Deafness*, gives the following table:—

Class.	Parents.	No. of Families.	No. of Children Deaf.	No. of Children Hearing.	Total.
1	One hearing and one congenitally deaf.....	30	15	77	92
2	One incidentally and one congenitally deaf.....	56	6	120	126
3	Both congenitally deaf.....	24	17	40	57
		110	38	237	275

From this it appears that in 86 families with one parent a congenital deaf mute there were 218 children, of whom 21 were deaf and dumb, or about one-tenth of the whole. In the 24 families with both parents congenital deaf mutes there were 57 children, of whom 17 were deaf and dumb, or about one-third of the whole. The proportion of deaf-mute children of parents both congenitally deaf is thus more than three times greater than of parents only one of whom is congenitally deaf.

The subjoined table shows the proportion of the families, constituted as above, who had deaf-mute children in them:—

Class.	Parents.	Families.	Families—
1	One hearing and one congenitally deaf...	30	One or more deaf and dumb in 5
2	One incidentally and one congenitally deaf	56	" " 4
3	Both congenitally deaf..	24	" " 9

The proportion of families having one congenitally deaf parent, with at least one deaf-mute child, is about one-tenth of the whole, while the proportion of the families having both parents congenitally deaf with a deaf-mute child or children is more than one-third of the whole. The above tables show the amount of deafness transmitted by the marriage of one congenitally deaf with one hearing person. The cases of deafness resulting therefrom are only one-tenth of the whole, whereas those from the intermarriage of deaf mutes are about one-third. Similar results could be obtained from reports of many of the institutions, but from what has already been stated on this cause of deafness, it appears that, while there is sufficient reason to justify the prohibition of the intermarriage of deaf mutes, the exceptional cases of deaf mute offspring as the result of unions of deaf mutes with hearing persons would not justify interference in such marriages.

History of Instruction.—In early times, it was an opinion maintained, even by philosophers, that the education of the deaf and dumb was not possible. It was then believed that language could only be acquired through the medium of the ear. The couplet of Lucretius is well known—

"To instruct the deaf no art could ever reach,
No care improve them, and no wisdom teach."

Parents, influenced by this belief, allowed their children to grow up without culture. They were abandoned to themselves, and exiled from the community of rational beings. To such a culpable extent was this prejudice carried, that it has been the practice in some countries to destroy children who remained at three years of age incapable of either hearing or speaking, and by the code of Justinian deaf mutes are declared to be incapable of civil acts. In France, the very birth of such children was accounted a sort of disgrace to the family from which they sprang, and the duties of humanity were deemed to extend no further in their behalf than to the maintenance of their animal existence, while they were carefully secluded from the eyes of the world either within the walls of the cloister or in some hidden asylum in the country. Abandoned thus early to their fate, and regarded as little better than idiots, it is not surprising that their future behaviour should have been such as might seem to justify the erroneous views which had prompted this ungenerous treatment. The progress in the art of instructing the deaf and dumb was in consequence greatly retarded; attempts to instruct them were scarcely known, and no school was established till the middle of the 18th century. In the 4th century, St Augustine, influenced by the *dictum* of Aristotle, expresses his unfavourable opinion respecting their ability to obtain any religious knowledge, remarking, "that deafness from birth makes faith impossible, since he who is born deaf can neither hear the word nor learn to read it." But in this enlightened age it has been fully proved that the neglect and forgetfulness to which these outcasts were formerly consigned were founded on very mistaken notions of their mental capacities.

The first instance of a deaf mute being instructed is mentioned by Bede in 685. No other case is met with till some centuries afterwards. Rodolphus Agricola, of Heidelberg, who was born in 1442, and died in 1485, makes mention in his *De Inventionem Dialecticam*, of an educated deaf mute; but this instance, and probably others, were discredited on the ground of their impossibility. Jerome Cardan, a native of Pavia, born in 1501, took a more philosophical view of the subject, and says, "Writing is associated with speech, and speech with thought, but written characters and ideas may be connected without the intervention of sounds;" from which he further argues that "the instruction of the deaf is difficult, but it is possible." It was no doubt this enlightened view that gave to the education of the deaf and dumb its first and greatest impulse. A Spanish Benedictine monk of the convent of Sahagun in Spain, named Pedro de Ponce, who was born in Valladolid in 1520 and died in 1584, is the first person who is recorded to have instructed the deaf and dumb and taught them to speak. He was fifty-six years old when Jerome Cardan died, and he had no doubt, from his association with Cardan, imbibed his principles. He has, however, left no work upon the subject, though it is probable that the substance of his method is contained in a book of Bonet, secretary to the constable of Castile, printed at Madrid in 1620 under the title of *Reduccion de las letras y artes para enseñar á hablar á los mudos*. In the time of Bonet the teaching of the deaf and dumb was becoming more general and was entered upon by several persons, both in Italy and in England. Dr John Bulwer, an English physician, and Dr Wallis, professor of mathematics in the university of Oxford, were both engaged in the work in England about the same time, though it is not accurately known to whom the honour of being its prime mover is due. The former published a treatise on the education of the deaf and dumb in 1648, several

years before Dr Wallis's valuable and able work had appeared. In the year 1669, some years after Dr Wallis's writings and practice of instructing the deaf and dumb had been known, Dr W. Holder, rector of Bletchington, published a work entitled *Elements of Speech, with an Appendix concerning Persons Deaf and Dumb*; in 1670 George Sibscote issued a *Treatise concerning those who are Born Deaf and Dumb*; and in the year 1680 George Dalgarno, a native of Aberdeen, published an able and philosophical work, under the title of *Didascalocophus, or the Deaf and Dumb Man's Tutor*, which was reprinted some years ago by the Maitland Club. This last-named work is considered by Professor Porter as "one of the most remarkable and important productions in the whole history of the art." To an early work of his, entitled *Ars Signorum*, both Bishop Wilkins and Dr Wallis were indebted, but they never mention his name. This ungenerous silence unfavourably contrasts with Leibnitz's frequent commendation of the work. Above all others, John Conrad Amman, a Swiss physician living at Amsterdam, distinguished himself by his ingenious and successful method of teaching the deaf and dumb to speak. He reduced the work to a fixed art or method, which he published in his *Surdus Loquens*, 1692, whereof an English translation was afterwards published by Daniel Foot.

In France the work of teaching the deaf and dumb was late in receiving the attention it deserved, in consequence of the still prevalent doubt as to its practicability, although many instances of success in other countries were generally known. It was not till about the middle of the 17th century that the subject was taken up with any interest. Vanin, a Father of the Christian Doctrine, made some attempts to alleviate the condition of the deaf and dumb, but his work was cut short by death. After him came Ernaud, Rodriguez Pereira, the Abbé Deschamps, and the Abbé de l'Épée. In Silesia, at the beginning of the 18th century, W. Kerger established his method on the principles of John C. Amman; and in 1718 George Raphael, a German, and contemporary with Kerger, published the system he had carried out in the education of three deaf mutes in his own family. All this interesting work had been accomplished before any public school for the deaf and dumb had been established; and it was not till 1760 that Abbé de l'Épée started the first school in Paris. About the same time Thomas Braidwood opened a school in Edinburgh; and in 1778 Heinicke in Germany founded another at Leipsic under the patronage of the Government, where he pursued the system of articulation and lip reading which forms the basis of instruction in the German schools of the present day. Thomas Braidwood made himself famous by his remarkable success. He was visited by Dr Johnson when on his tour to the Hebrides, who expressed himself highly gratified with the success in what he considered a great philosophical curiosity. In 1783 Braidwood left Edinburgh and opened a school at Hackney, near London, where he continued his arduous duties till 1806, when he died. Two of his sons became instructors of the deaf and dumb. A school was opened in Edinburgh by one of them in 1810, and the other started a school at Birmingham in 1825. In the year 1792 the first public school in Great Britain for the gratuitous education of the deaf and dumb was opened in Bermondsey, London, of which Dr Watson, the nephew of Thomas Braidwood, was for thirty-seven years the head instructor. Since the above date (1792) schools have been established in many of the principal towns of Europe and America.

Methods of Instruction.—All the institutions and schools for the education of the deaf and dumb employ one or other

of the two following methods—(1) that in which the sign language and manual alphabet form the basis of instruction, with articulation and lip reading to a greater or less extent, but, as a rule, only for the semi-mute, semi-deaf, and those of the congenitally deaf of good capacities, and who show an aptitude for it; and (2) that in which articulation and lip reading form the basis of instruction, and the sign language and the manual alphabet are used more or less as a means to the end. The former is the more general, and is carried out in all the schools of the United Kingdom (although in the London Asylum articulation and lip reading are professedly and systematically taught to every pupil), in America, and in some of the Continental schools. The latter is the one chiefly employed in the German and Austrian schools, and is followed in one or two private schools in London.

The signs in use in all schools are of two kinds—the natural, and the conventional or arbitrary. The former are those with which all deaf mutes are familiar before coming to school, and which they use in ordinary intercourse with their friends. The latter are chosen and systematized by the teachers of the several schools, and, in combination with the natural signs, are employed to convey ideas of a complex nature. Every action, the visible part of which can be imitated by gesture, admits easily of being so expressed, as the action of eating by lifting the hand to the mouth followed by the motion of the jaws, and of sleeping by closing the eyes and reclining the head; the expression of different passions, of approbation or disapprobation, of surprise, curiosity, &c., may all be signified very intelligibly by modifications of the countenance. "It is in this simple manner," observes Dr Watson, "that two or more deaf persons are enabled to hold instant converse with each other though brought together from the most distant parts." Thus far these signs may be termed natural, but the naturally deaf do not stop with this language of pantomime. When they are fortunate enough to meet with attentive companions, especially where two or more deaf persons happen to be brought up together, it is astonishing what approaches they will make towards the construction of an artificial language. By an arbitrary sign fixed by common consent, or accidentally hit upon, they will designate a person, place, or thing, and this sign is ever after used by them as a proper name. It is impossible to give a verbal description of those signs, because they are as various as the fancies and circumstances of their inventors. Yet being grafted on the parent stock of natural and universal signs, they may in some measure be regarded as different dialects of the same language. But since it would be impossible by means of natural signs alone to convey to the minds of the deaf and dumb ideas of a complex nature, recourse must be had to that system of signs known as conventional or arbitrary. These signs have been extended and systematized on natural and philosophical principles by the several teachers of the deaf and dumb, and they differ in degree in all schools. It would be impracticable to maintain the same system of signs throughout, even should such be desirable, but it is of the utmost importance that those in use in each school should be so cultivated as to prevent any confusion of ideas by the improper use of them. It is by their aid chiefly that all instruction is carried on, and, as used by missionaries for the deaf and dumb, they are remarkably serviceable, there being always to be found, in an assembly of deaf mutes, many whose minds cannot be reached by any other means. Attempts are often made in the institutions for the deaf and dumb to dispense with signs, and to use the manual alphabet alone after the pupils have acquired a certain proficiency in language. Although this would prove of immense educational advantage, attachment to the natural language of signs is so strong that it has always

been found as impracticable to make the change as to substitute articulation and lip reading. Signs to the educated deaf and dumb should be as crutches to the halt—to be used only when occasion requires.—otherwise their constant use will tend to enfeeble rather than strengthen the intellect. In the sixth report of the American Asylum at Hartford, Connecticut, the following is given as an answer of a deaf mute to the question, "Which do you consider preferable—the language of speech or of signs?"—

"I consider to prefer the language of signs best of it, because the language of signs is capable of to give me elucidation and understanding well. I am fond of talking with the deaf and dumb quickly, without having the troubles of the voice: therefore the language of signs is more still and calm than the language of speech, which is full of falsehood and trouble."

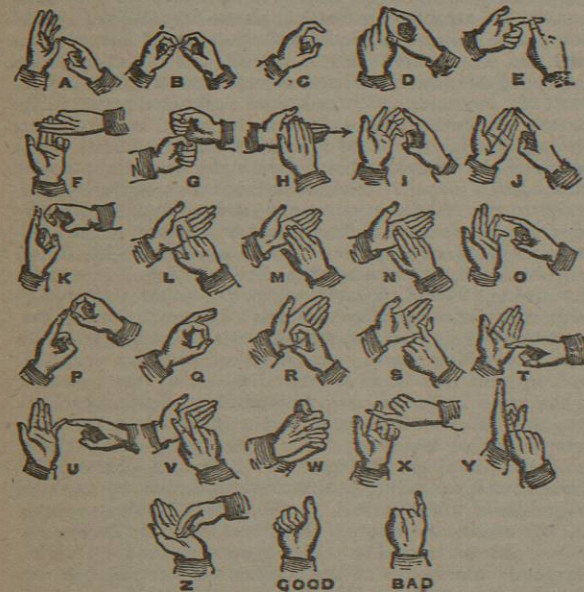
The Abbé de l'Épée, to whom teachers of mutes are greatly indebted for the methodical and ingenious system of signs, altogether mistook their function as a means of educating the deaf and dumb and in consequence his method failed entirely. He gave to each word its peculiar and appropriate gesture in the natural order of the language; and by the intervention of these gestures he succeeded in enabling his pupils to transcribe whole pages of the most abstract disquisitions. The substance and diction of these, however, were not theirs but his own, and, of course, the gestures, which they had mechanically associated with certain characters, conveyed to them no notion of the real signification of those characters. Notwithstanding the radical and glaring defects of De l'Épée's method, which could have had no utility to those who followed it, the ostentatious display he made (which was of a nature particularly calculated to impose upon superficial observers) excited the astonishment and applause of a host of spectators; and, being seconded by the impulse of his religious zeal and beneficent character, it soon raised him to a high degree of reputation. His fame spread all over Europe, and his lectures and exhibitions attracted everywhere crowds of enthusiastic admirers. Some, however, saw through the delusion. At a public exhibition of the pupils of the Abbé Storck, who were taught according to this method at Vienna, Nicolai, an Academician of Berlin, proposed to the Abbé to require one of his pupils to describe in writing the action he was about to perform. The challenge being accepted, the Academician struck his breast with his hand, upon which the deaf and dumb boy wrote the words, "hand, breast." Nicolai withdrew satisfied with this proof of total failure. It was evident that, notwithstanding their apparent knowledge and their quickness in writing down any question together with its answer, both had been equally dictated by their master, in the same language of gesture, but without any corresponding ideas or the exertion of any intellectual faculty, except that of memory. They were utterly incapable of composing a single sentence of their own accord; and it was found, accordingly, that their spontaneous answers to questions were limited to the monosyllables yes and no, of which it is even doubtful whether they fully understood the meaning. The proper method by which the pupils' knowledge of the construction of language can be tested is by dictating the lesson in the sign language in the manner in which deaf mutes themselves use it, without any regard to logical or grammatical distinctions. Most pupils after a few months' instruction will be able to write down a very fair piece of composition if dictated by the method as employed by the Abbés de l'Épée and Storck, but without understanding its meaning. The following instance will at once explain the way in which the sign language is employed by the teachers, and used amongst the deaf and dumb themselves:—

Let it be supposed that a girl had been seen by a deaf mute child to drop a cup of milk which she was carrying home. He would relate the incident in the following order of sign words. Saw-I-girl-walk-cup-milk-carry-home-drop. This mode of dictating is the only sure road to the acquisition of language by those who have nothing but the natural language of gesture and feature to assist them.

The value of the language of signs is well expressed by the principal of the Ohio Institution for the Deaf and Dumb, who says:—

“The use of good scaffolding must attend the erection of every building. As scaffolding in architecture so is the sign language in deaf mute education, and only tyros in architecture or education would dispense with either. The riper the experience the deeper the conviction comes of the necessity and usefulness of the sign language, and in its use we find the corner stone of all deaf mute institutions. The cultivation of it and its effective use is the only peculiar, although not the chief qualification of the teacher. He will teach written language by the sign, laying aside the latter as soon as the ready use of the former has been secured. It is not necessary to descant upon the beauty, the grace, or the power of the sign language. The mute has no other, and the teacher must use and improve it as best he may.”

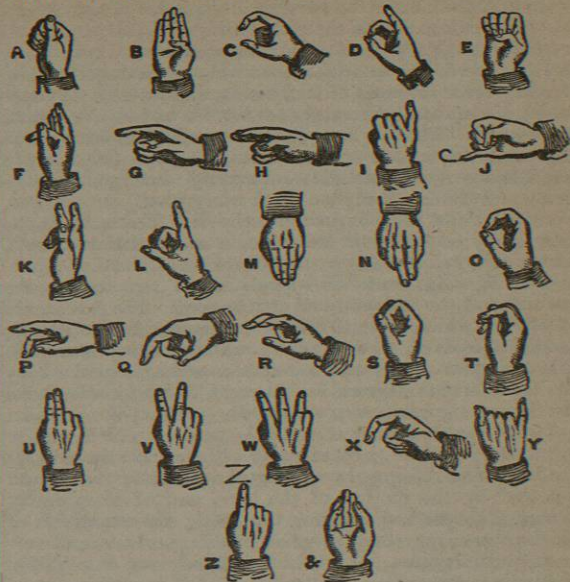
The first lesson in which the pupils are instructed on their entrance into school is the mode of visible communication known as the finger or manual alphabet. There are two kinds of this,—the *doubled-handed* alphabet, where the letters are expressed by the dispositions of the fingers of both hands, and the *single-handed*, in which the letters are formed with the fingers of one hand. It is supposed that the former was derived from a finger-alphabet which appeared in a work by Dalgarno; and the latter is said to have been invented in Spain, and appears to have been published in a work by Bonet to which the Abbé de l'Épée was much indebted.



The Double-handed Alphabet, as in use in most of the schools for the deaf and dumb in England.

Talking with the fingers is an art easily acquired and retained, or recovered if lost, and it furnishes a ready substitute for pen or pencil; but it must not be forgotten by those familiar with it that the extent to which the deaf mute will be able to understand any communication will depend entirely upon the state of his education, or upon his knowledge of language. The deaf and dumb when

properly instructed converse with the utmost rapidity by this method; habit enables them to follow with the eye



The Single-handed Alphabet, as used in the American and Continental schools, and also in one or two English schools.

motions which to others would be too rapid for observation. They readily catch at the meaning of a word or question before it is half spelt.

Articulation.—Another very important branch of the education of the deaf and dumb is that system by which deaf mutes are taught to speak and to understand the speech of others by merely watching the motion of the vocal organs. This method is by no means novel, as it has long been practised in some of the schools in England, and the earliest attempts to teach the deaf and dumb to speak appear to have been as successful as those in modern times. We learn from the Venerable Bede's *Ecclesiastical History* (quoted by the Abbé Carton in his *Annual of the Deaf and Dumb and Blind*) that a deaf man was taught to pronounce words and sentences by John, bishop of Hagulstadt (Hexham), in the year 685; and from that time we meet with only isolated cases, till the latter part of the 18th century, when Samuel Heinicke established a school where this system formed the basis of instruction.

It would at first sight appear scarcely credible that a person, without the guidance of the sense of hearing, would be able, merely by watching the position and actions of the organs of the voice, to utter articulate sounds, with any tolerable perfection. Experience, however, has shown that this accomplishment, though laborious and tedious of acquisition, is not attended with extreme difficulty. Great patience, perseverance, and kindness are qualifications necessary on the part of the teacher to ensure success in ordinary cases, and the degree of success will greatly depend upon the number of children among whom the teacher has to divide his attention. A wide difference must ever be perceptible between the speech of the deaf and those who hear. This artificial speech is laborious and constrained. It frequently conveys the idea of pain as well as effort, and as it cannot be regulated by the ear of the speaker, it is often too loud, and generally monotonous, harsh, and discordant. It is often from this cause scarcely intelligible except to those who are accustomed to its tones. The

system of articulation and lip reading prevails in the German and other Continental schools, where this art has been cultivated with greater success than in England, which must be attributed to the adaptability of the German language to this peculiar mode of acquiring speech; the decision of this question, as far as it concerns any particular individual, must, however, depend in a great measure on peculiar circumstances, such as condition in life and future destination, &c. Children congenitally deaf, of good capacity, with a well-toned voice, can make surprising progress in the hands of private tutors; but the limited success which has attended this method of instruction with numbers has not induced teachers to introduce it generally into large institutions, but rather to restrict it to special cases. Most of the German teachers consider that articulation is necessary for the acquisition of thought, and can be successfully taught to the majority of the deaf and dumb; but most teachers of experience in England hold quite the opposite opinion, and teach it only to the semi-mute and semi-deaf. This subject continues to be much disputed, and the question, whether or not it should form a part of the course of the education of the deaf and dumb, and, if so, to what extent, is still keenly discussed. The American institutions have sent over to Europe from time to time some of their most distinguished instructors to investigate the methods carried on in the English and Continental schools. They made most minute examinations of the different systems, and were somewhat disappointed to find that the German system so-called did not possess such advantages over theirs, or the French system, as they had been led to expect. Mr Gallaudet, in his report to the board of directors of the Columba Institution for the Deaf and Dumb, says:—“Nothing in my foreign investigations has led me to question the character of the foundation on which the system of instruction pursued in our American institutions is based. It is plainly evident, from what is seen in the articulating schools of Europe and from the candid opinions of the best instructors, that oral language cannot, in the fullest sense of the term, be mastered by a majority of deaf mutes.” The following is the opinion of the Rev. George Day:—“As a regular part of a system of public instruction, its introduction into our institutions, I am persuaded, would be a serious misfortune.” Mr Hawkins (for many years a teacher in the London school), who may be said, in this connection, to represent the consensus of English authorities, says:—“Scarcely more than one in thirty attains anything approaching success.”

The experience of Dr Watson, for many years principal of the London Asylum, is decidedly in favour of its utility. In support of his opinion he states the following argument, which must doubtless be allowed to have some weight:—

“The more numerous are the means of observation, the more perfect will be the recollection, or, in other terms, the more frequent the recurrence of words and their corresponding ideas to the mind. Thus, persons who can hear, speak, read, and write retain a discourse much better, and have far greater facility in expressing themselves, than persons who possess only two of these faculties, that is, illiterate persons, who can hear and speak, but who cannot read or write. Now, as deaf and dumb persons educated without articulation can only have two of the means, viz., the third and the fourth, that is, the impressions made upon the eye by characters and the action of the hand in writing, can it be questioned that we render them an essential service by adding the actions of the organs of speech, a very powerful auxiliary, since by it words become, as it were, a part of ourselves, and more immediately affect us? In learning the pronunciation of letters, a very important operation is going on in the mind of a deaf person, namely, the association and understanding of the figures of written or printed character with certain movements or actions of the organs of speech. The very habit of regarding the one as the representative of the other paves the way for considering combinations of those actions or characters, as the sign of things or ideas—that is, significant

words, written or articulate. We who hear consider words chiefly as sound; the deaf who have learned to speak consider them rather as actions proceeding from themselves. And this gives language to them a sort of tangible property, which is of vast importance both as respects its retention in the memory, and one of its most important uses, the excitation of ideas in their own minds. On this account the time, the labour, and attention, necessary to articulate speech by those who are dumb through want of hearing, would be well bestowed, even if their speech were not intelligible to others.”

In America oral teaching is now receiving much attention. It has been introduced into several of the existing institutions, and two or three schools have been established in which the German system is exclusively carried out, and in order to facilitate the acquisition of articulate speech, the ingenious method called “Visible Speech,” invented by Mr Melville Bell, has been introduced.¹ In England, also, there are several ardent advocates of the oral system.

Time of School Attendance.—After the foregoing sketch and criticism of the different methods which have been adopted for the education of the deaf and dumb, it is natural to inquire what general end in their education is proposed by teachers, and what principal aims in conformity with that end should be regarded. Obviously the fundamental object should be to qualify the pupils to hold ready communication with persons who, having the faculties of hearing and speech, employ the current language of the country for the purposes of mutual intercourse. They must above all things be taught the use of ordinary language, both as an instrument for expressing their own thoughts and for understanding those of others. This qualification, it is evident, is absolutely necessary to their becoming members of that community from which by nature they would have been excluded, and to which it is our chief aim to restore them.² Teachers are not agreed as to the age at which the deaf and dumb should commence their education with the greatest benefit, nor yet as to the term required for school attendance. It is the opinion of some that infant schools for the deaf and dumb would prove of immense advantage in compensating for the extra length of time requisite to acquire anything like a perfect knowledge of the English language, but others are strongly opposed to these for social, physical, and intellectual reasons,—socially, as it tends to alienate the children from their parents; physically, as being naturally of delicate constitutions they require the years of childhood to be invigorated, and so to be fitted to undergo the strain of a regular and systematic course of instruction; and intellectually, as it has been found by experience that children of an early age have not that power of comprehension or memory to enable them to advance with satisfaction. Doubtless, they would benefit somewhat by coming to a school for the deaf and dumb for a short time daily; but as the deaf-mute population is so scattered, very few would be able to avail themselves of such a privilege. The only available remedy would be their attendance at ordinary schools for a stated time daily, where they would be disciplined and taught—the girls to sew, knit, and write, and the boys to write and draw. By this suggestion it is not meant to affirm the possibility of educating deaf mutes along with hearing children. The plan has been tried but has not been successful. The constant observation of the deaf mutes of the superiority of others over them tends to dishearten and depress them, and as they are at

¹ Mr Bell has also invented an instrument called a Phonograph, which he says has been found useful for educational purposes, as was demonstrated by a young deaf and dumb pupil from the Boston institution.

² Most institutions experience some difficulty in securing and then retaining able and efficient teachers, as the sphere of labour in the profession is so circumscribed and the salaries offered are far from being an equivalent remuneration for the sacrifice of brighter prospects and the depressing influence of the work.

all times too apt to be discouraged by the consciousness of their own defect, it should be the teacher's duty cheerfully to stimulate and encourage them to advancement.¹

An infant school was formed in connection with the Manchester Institution for the deaf and dumb some years ago, but from the report for 1876 it appears that there were only two children under the age of seven, out of a total of 149 pupils, in the two departments. Most of the institutions admit children from seven to nine years of age, and it is the opinion of teachers of experience that at that age it is most suitable to commence instruction. Still, before they are eligible for an institution of the deaf and dumb, much may and ought to be done by the parents for their improvement.

The first and primary aim of the teacher is to get at the minds of the pupils, and for this end it is of immense advantage that they should be brought up together, so that they may acquire and maintain the language of signs. The acquisition enables them to convey to one another much and varied information, which proves of great service in the hands of the teacher in the class-room; and further, through this intercommunication the influence of example operates with due force in stimulating them to intellectual exertions.

The length of time required at school for the education of the deaf and dumb must be determined by the capacities of the pupils, and perhaps even more by their position in life. Of course, they require a much longer time than hearing children to compensate for their deprivation. Still those who have to begin to earn their daily bread by the labour of their hands at about the age of fourteen (if of good capacity) leave the school with a store of varied and useful knowledge. They are able to understand directions given to them, to hold intercourse with others, to express their opinions on ordinary affairs—in short, they are raised from a wretched and forlorn condition to that of intelligent and moral beings, and as such their future progress will be proportional to their own diligence, and will be impeded by no obstacles except those which their own exertions are now competent to remove.

Occupations.—Most of the deaf and dumb soon after leaving school are put to some trade. They will be found to be engaged in all kinds of employment except those to which hearing and speech are indispensable. The deprivation of hearing is no barrier to learning most trades, and the deaf and dumb acquire them with the same facility and show the same expertness as others. As a rule, they are very steady, and apply themselves with assiduity to their work; for while the attention of those who can hear is often distracted in the workshop, they steadily keep to their task, as they well know that talking implies for them cessation from labour. There is at times a little difficulty to get employers for them, as they require more attention to be initiated into their trades.

The following extract from an interesting work on the deaf and dumb by the Rev. S. Smith enumerates many of the trades in which they are engaged:—

"Deaf and dumb soldiers and policemen are not existent; there is however a rifle volunteer, whose father being an old soldier drilled him well so that he is now able to join in general practice. Amongst the males, besides various labouring employments, the trades of shoemaking and tailoring predominate, but beyond these

¹ In one school only, namely, Donaldson's Hospital in Edinburgh, are the deaf and dumb brought up together with hearing children, but even there it has never been thought practicable to instruct them in the same class-room. The benefit derived by the deaf and dumb from such a system is very slight in an educational point of view, but socially it is of great advantage, as it draws them out of that isolation to which they are naturally so prone, and fits them to hold free and ready intercourse with strangers in after life; and besides, the association largely tends to spread the mode of deaf-mute communication throughout the country, as the hearing children learn to communicate freely with them.

there is a diversity of occupation. We have bakers, blacksmiths, bookbinders, brassworkers, bricklayers, brickmakers, brush-makers, cabinetmakers, carpenters, carvers on wood and stone, cigar-makers, compositors, coopers, cork-cutters, cutlers, engravers on wood and metals, French polishers, gardeners, gilders, glass writers and stainers, harness makers, saddlers, hatters, japanners, jewellers, law writers, optical and philosophical instrument makers, pattern designers, print and map colourers, printers both lithographic and letterpress, turners, typefounders, watch-dial painters, wire drawers, &c. We also find artists—lithographic, photographic, heraldic—and some in the highest branches both in oil and water colours; also a sculptor of great ability who produced a beautiful composition in competition for the Wellington memorial prize, who also once stood second for a gold medal, and who has most satisfactorily executed statuettes of Wellington, Peel, Raglan, Havelock, &c.² There are, besides, two heraldic painters, who have studios of their own, and are amongst the best of their art in London, with others who are rising in great proficiency. Two of the artists in oil, although but young and at present students, have executed pictures which have been accepted by the British Institution, the Suffolk Academy, and in one instance by the Royal Academy. In more intellectual occupations we find several gentlemen in the civil service, respecting one of whom, who has gained a superior position in his office, it has been remarked to us by some whose duties bring them into contact with him, "that notwithstanding his affliction they can do business better with him than any other clerk in the establishment." There is a young gentleman making himself noted as an entomologist; some are teachers of the deaf and dumb, occasionally even principals of institutions; and the highest instance we know of is a barrister, not a pleader of course, but who is eminent as a conveyancer. In the employment of females there is not so much variety; some are engaged in domestic work, others are artificial florists, bookfolders and sewers, brush-drawers, cigar makers, corset makers, dress and mantle makers, fringe and tassel makers, laundresses, muslin workers, milliners, sewing machinists, straw bonnet makers, tailoresses, &c. We also know one who is a compositor, another a lady's maid, and a third who is employed in a telegraph office."

From this it will be seen that to the educated deaf mute nearly all trades are open, and the reports from their masters to the several institutions are generally most favourable.

The census returns for 1871 give the following table of occupations of deaf and dumb in England and Wales and Scotland:—

Classes.	England and Wales.	Scotland.
1. Professional	120	26
2. Domestic	376	76
3. Commercial	118	70
4. Agricultural	728	240
5. Industrial	2995	921
6. Indefinite and non-productive.....	1718	654
Total.....	11,518	2087

Institutions.—Most of the institutions for the deaf and dumb in England have originated in the benevolent interest of a few individuals of the localities in which they are established. They are supported by public annual subscriptions, donations, legacies, and fees of pupils for board and education. The principals are held responsible for the educational department and for internal management, while the affairs of the institutions are directed by committees selected from the subscribers. Trades are taught to the boys in some of the schools, while all the pupils have to do some industrial work, and the girls are taught household work, sewing, and knitting. The children are admitted either gratuitously or by payment of fees, varying in amount in the several institutions, some of which grant apprentice fees and otherwise assist the children on leaving school.

The London Asylum was the first public school in England for the gratuitous education of the indigent deaf and dumb. It was projected by the Rev. J. Townsend and Rev. H. Mason, rector of Bermondsey, London. On the 14th November 1792 the school was opened with four pupils

² Among those who passed the recent Cambridge Local Examinations with honours in classics and mathematics was a deaf-mute lad under 16 years of age, named Farrar.

with Dr Watson as principal. Its existence becoming more generally known, the number of candidates for admission increased so greatly beyond the means of accommodation that a larger and more commodious building was found to be absolutely necessary. An appeal for funds to erect such a building was made and liberally responded to, and an eligible plot of ground was taken in the Old Kent Road, London; and on the 11th of July 1807 the late duke of Gloucester laid the foundation stone of the new building. Since its foundation 4094 children have been admitted. In 1862 a branch was started at Margate, and after twelve years' experience the committee of management were influenced to erect a permanent building for the accommodation of 150 children. It was formally opened by the Prince of Wales on the 19th of July 1876, with Mr R. Elliott as head master. The asylum, with the branch at Margate, is supported by voluntary contributions, legacies, donations, and dividends from stock. The average income is about £12,000 a year. There are at present 317 pupils in attendance, who come from all parts of the kingdom. The ages of admission are 8½ to 11½, and the children are elected by votes of the subscribers; and, with a view to assist that class of the deaf and dumb whose friends are able to pay for their board, the committee receive children upon the payment of £25 per annum. Those children whose parents or guardians are unable to put them to some useful trade on leaving school are apprenticed by the charity. Since 1811 the number of children apprenticed has been 1515, and the total amount of premium £14,632, 16s.

Various institutions for similar objects have been formed on the Continent. The asylum for the deaf and dumb at Paris, which was formerly under the management of the Abbé Sicard, has for its object not only to enable the pupils to communicate their ideas and to form the understanding, but also to qualify them to earn their subsistence. On quitting the asylum they are all capable of following a trade or profession. Their apprenticeship begins on their first entering the institution, and is terminated when their education is finished.

Institutions, formed more or less upon the model of that at Paris, have been established in Portugal, Spain, Italy, Switzerland, Baden, Würtemberg, Bavaria, Austria, Saxony, Hesse-Cassel, Nassau, Hanover, Brunswick, the Free Towns of Germany, Belgium, Holland, Denmark, Sweden, Russia, Poland, the United States of America, Canada, Mexico, and Bengal, to say nothing of those in Great Britain and France. The American annals of 1873 give us 35 American institutions for the education of the deaf and dumb, containing a total of 4253 pupils—namely, 2393 males and 1860 females, 378 of whom are semi-mutes. The latter number includes all the deaf who have acquired language through the ear. In Canada there are 4 institutions with 292 pupils, of whom 220 are males and 72 females. Out of this number 17 are semi-mutes. The first institution for the education of deaf mutes in America was opened on the 15th April 1817. The circumstances which led to its establishment are as follows:—

A deaf-mute little girl in the family of Dr Cogswell, an eminent physician in Hartford city, attracting some attention, it was soon afterwards found that there were other deaf mutes in the country. It was decided to send some one abroad to acquire the art of educating them; and to establish a school for this purpose funds were raised, and the Rev. F. H. Gallaudet, D.D., was selected for this work. He left the United States, May 15, 1816, to execute this mission intrusted to him. The Institution was incorporated by the Connecticut Legislature in May 1816, under the name of the Connecticut Asylum for the Education of the Deaf and Dumb.

Mr Gallaudet returned to America in August 22 of the same year, accompanied by Mr L. Clerc, a deaf-mute pupil of the Abbé Sicard. They immediately commenced collecting funds to start the school. The enterprize excited general interest, and individuals and churches

contributed liberally. The sum of \$12,000 was raised in the course of a few months, \$5600 having been obtained in Massachusetts, above \$2000 of which was collected in the city of Boston. After this school had been founded, the need of other schools was at once felt; and the New York Institution was opened in 1818, that in Pennsylvania in 1822, the one in Kentucky in 1823, Ohio school in 1829; and others followed till the number reached to 35, the last of which, a day school, was opened at Cleveland, Ohio, in 1871.

In America, and in almost every country in Europe except Great Britain and Ireland, the state successfully undertakes the instruction of the deaf and dumb. All the institutions are munificently supported by large annual appropriations from the local legislatures, the state regarding it as a primary duty that the deaf and dumb, the blind, &c., shall not be excluded from those educational privileges accorded to every member of the community.

In a spirit of enlightened liberality, highly creditable to the United States, the Government of that country adopts the deaf and dumb as "wards of the commonwealth," and in the most generous manner acquits itself of its obligation towards them. The following facts have been taken from the official reports of some American institutions:—

The number of pupils in the Indiana Institution in the year 1870 was 186; for these the State had granted a sum of 50,000 dollars, which is equal to £10,400, or £56 per annum for each pupil. A still further sum of 42,500 dollars, or nearly £9,000 sterling, was given for the erection of some additional buildings which the requirements of the Institution demanded. Every other State in the Union provides for its deaf-mute ward with similar generosity.

It is to be hoped that the day is not far distant when the deaf and dumb in Great Britain and Ireland may be congratulated on the inauguration by the legislature of a humane and beneficent policy on their behalf.

In many of the large towns where institutions are established, associations in aid of the deaf and dumb are springing up and carrying on most important and valuable work. Their first business is to seek out neglected children and to get them placed in some special school. Situations are procured for those on leaving school whose parents are unable to do anything for them, and the education commenced at the institutions is carried on by means of lectures; and as little benefit is to be got by attending the ordinary church services, meetings are held on Sundays, when suitable religious exercises are performed, portions of Scripture explained, and an address given by spelling with the assistance of such signs as may be found necessary. The missionaries connected with these associations call upon them at their homes, in this way making themselves familiar with their condition; the sick are visited and receive consolation; and the distressed, infirm, and aged are assisted. These associations, while rendering assistance to the deserving, endeavour to make them help themselves, and help only at the point where otherwise they would be lost; and it has been made a rule that when one loses his place through any fault of his own, he cannot claim the assistance of the association to find another for him. There seem to be few societies which have a greater claim on public sympathy; and that it deserves recognition is testified by the great good it is doing to this neglected and isolated class of persons, many of whom would otherwise have probably acquired habits of idleness and intemperance.

In the English census returns for 1871 we find that only 529 deaf mutes, out of a total of 11,518, of whom 51 were imbeciles and 26 blind as well as deaf and dumb, were inmates of workhouses in England and Wales. That small proportion affords evidence of the fact that by means of education the deaf and dumb may be transferred from the dependent and burdensome class into the self-supporting class of the community.