CRITICAL REVIEW

DEAF MUTISM.

By J. KERR LOVE, M.D.

DEAF Dumbness or Deaf Mutism is one of the oldest accurate diagnoses. Pliny the Elder (died 79 A.D.) tells us "neither are any born deaf who are not also dumb." Alexander of Aphrodisias (a city of Caria in Asia Minor), a medical writer of the early part of the third century, definitely states that the absence of hearing in the deaf mute is the cause of the dumbness. In spite of this early and accurate diagnosis, medical men left the deaf mute severely alone for nearly 1800 years. In the meantime, the deaf mute was not quite neglected. He was taught to use a language of signs, to spell on his fingers, to write and even to speak so successfully that the speech enthusiasts among the teachers want us to give up the term deaf mute and to substitute the term "the deaf." But the term deaf mute remains in use because it describes *that amount of deafness which, occurring in childhood, involves dumbness.* The writer, a quarter of a century ago, applied the term "surdism" to this degree of deafness. The term has not found favour. It has a real use for those who wish to assign a cause without including its effect, but it will not displace the older and more inclusive term "deaf mutism."

Itard,[1] Physician to the Royal Deaf and Dumb Institution in Paris (1821), wrote on Deaf Mutism. He dealt both with the pathology and treatment. For the most part he found the ears of deaf mutes normal. In a few cases he describes changes in the middle ear, and in one a change in the auditory nerve. His treatment was crude, *e.g.* application of hot irons to the mastoid process, which seem to have been used in cases of middle-ear deafness; but treatment in those days was crude, and in the absence of a well defined pathology could not be successful. It is with a distinct feeling of relief that we turn to Dr W. Kramer[2] of Berlin who, in 1853, told us some very wholesome truths about the deaf and dumb. He states that "hitherto no single deaf mute has been cured, that is to say, has been rendered capable of communicating like a person who hears well with his fellow-men in an unrestrained manner by hearing under all circumstances." Could his century-old statement be clearly put before the too hopeful parents of deaf mute children, what an amount of hope and fear would subside, and how the quack would wilt! In any case let the doctors read it and remember that the exceptions to it are so few that in our prognosis we had better forget them. But this careful and honest observer makes a curious

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statement; whilst assigning "original defects of conformation" as pre-eminently the cause of deaf mutism, he says, "In the strict sense of the term this cannot be called hereditary predisposition, for as yet no instance is known of deaf and dumb parents having produced deaf and dumb children." This was twenty-five years before Mendel wrote and sixty-five years before Mendel's work was known. Even the statisticians had not begun to speak.

The work of E. Schmalz,[5] in 1838, dealing with German statistics, and that of Wilde[3] embodying the Irish statistics (census of 1851), although far from accurate, begin to define the relative sizes of the groups of acquired and congenital deaf mutism. In no department of work are statistics more unsatisfactory; but the figures from census and from individual schools—for in the meantime these had begun to grow up both in Europe and America—soon established several facts:—

1. That about half the deaf and dumb were born deaf.
2. That of the other half most became deaf from some infectious disease, scarlet fever, measles, or meningitis.
3. That congenital deafness was far commoner amongst the children of the deaf born than amongst the children of the hearing.

The work of Dr William R. Wilde has been mentioned before. He was a Dublin surgeon who practised aural surgery, or aural medicine as our art was more correctly described, in the middle of the nineteenth century. His handling of the Irish statistics of the census of 1851 gives an exaggerated idea of the ratio of congenital to acquired deaf mutism, but he brings out strongly the influence of heredity and of consanguinity in the production of congenital deafness. True, he gave great weight to fright during the pregnancy of the mother as a cause of deafness in the child, but of course he was dealing with reports sent to him, and not with personal observation. Wilde does not seem to have examined the ears of deaf mute children on any considerable scale. He relegates his long article on "Deaf Mutism" to an appendix to his work on Aural Surgery.

In 1860, Joseph Toynbee[4] of London, in a chapter extending to little over twenty pages, discussed the deaf mute. Toynbee got the length of examining the ears of these children. Few of his predecessors got as far. He also gave a tabular view of the condition of the ears in thirty-six dissections of deaf mutes. We know now that nine out of ten deaf mutes are so because of disease or congenital defect in the cochlea or the auditory nerve, and that the middle and external ears are normal in the congenital cases. What was found in the middle ear was the result of scarlet fever, measles, etc., and was not characteristic of deaf mutism. The semicircular canals were sometimes wanting, the auditory nerves as "soft as mucus" or "harder than usual." The

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cochlea was never mentioned. How could it be? Corti only described the cochlea in 1851.

The most valuable statistics came from the schools. For long, these schools were residential institutions. There were few day schools even for those possessed of hearing. There was no compulsory education. The institution for the deaf mute was inevitable. He was an outcast; nobody understood him. Saints like De L'Epée gathered deaf children round them and not only taught them but fed and clothed them. Then committees took up the work of individuals and institutions were built. At first the latter were called asylums, and the term stamps the public attitude towards the deaf mute child. Now that the teachers had the deaf mutes they could study them. That was more than the doctors had done, and therefore the best statistics came from the schools or institutions.

Up till 1880 medical writing on "Deaf Mutism" was generally relegated to the last chapter of a book on diseases of the ear. In that year Arthur Hartmann[6] of Berlin wrote his work on *Deaf Mutism*, giving the deaf and dumb a whole book to themselves. The book was translated into English by Dr Cassells—the first aural surgeon to the Glasgow Royal Infirmary, a predecessor of the present writer. Hartmann knew the deaf mute child well, especially the living child. Mygind,[7] who wrote fourteen years later (1894), had no experience of living deaf mute children, but he devoted much space to the morbid anatomy of deaf mutism, and the latter is the most valuable part of his work. Both writers cover the whole medical field — Diagnosis, Statistics, Etiology, Morbid Anatomy, and Treatment. But there is one significant difference. Hartmann devotes nearly half of his book to the education of the deaf, whereas Mygind dismisses the subject of the selection of methods with the remark, "The solution of this problem must be left to pedagogues." However, he finishes his work with a well worded urgent appeal: "To submit all children who suffer from deafness, which threatens to cause or has caused deaf mutism, to a rational examination of the ears and of the adjacent mucous membranes, and eventually to make the existing diseases the subject of a rational treatment." Even this appeal is not enough. *It is the infectious diseases which cause the deafness which must be treated or prevented if the child is not to become deaf mute.* (See Special Report on the Prevention of Deafness sent by Scottish Society of Laryngology and Otology to the Scottish Board of Health.)

Bezold of Munich examined the hearing of deaf mutes by the continuous tone series, and established the somewhat remarkable fact that nearly all deaf born children have some hearing, the latter in islands at one or more parts of the musical scale. He found many cases of acquired deaf mutism with no hearing whatever—a result

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which does not surprise us, as, for instance, in meningitis, where perhaps the auditory nerve has been involved in its entire thickness. We have no large number of post-mortem examinations of the ears of hereditarily deaf children, but Bezold's observations point to defect in the cochlea. Helmholtz died before Bezold made his discovery of hearing islands in the ears of deaf mute children. With some justice he might have claimed Bezold's cases as corroborative of his "piano" theory of hearing, the theory of sympathetic vibration.

When the writer[8] began his work amongst deaf mute children in 1890, he found the field in Britain practically unoccupied except by the teacher and the missionary. The deaf mute child was an object of pity to the general public and a "subject" to the pathologist. I have tried to raise him to the rank of a patient, and to point the way to his ultimate disappearance. This line of enquiry raises two questions: (1) the classification of deaf mutes for educational purposes, and (2) the prevention of deafness. And first a word about the morbid anatomy of deaf mutism. Exact work here is intrinsically difficult because of the position and delicacy of the object to be examined—the cochlea. But worse than that—deaf mutes do not die of deafness, and if they are spared by the disease which takes away their hearing and makes them dumb they are spared a very long time; so when they die they are seldom attended by specialists who want to examine the internal ear. *A series of post-mortem examinations on undoubtedly deaf born children is the thing most wanted from the pathologist at present.*

Returning now to the classification of the deaf and its bearing on educational progress, we have seen, on the one hand, that most deaf born children have some hearing, and that many deaf mutes who have lost their hearing from disease are quite deaf. Yes, but the loss has often taken place after speech has been acquired and the speech in these so-called "semi-mute" children may be preserved and greatly extended by oral training. Then there are a good many deaf children who hear and distinguish vowels and a few who hear and distinguish consonants, and these exist amongst both the congenital and acquired classes. This residual hearing is of great value in the development of speech. *These semi-deaf children and the semi-mute above referred to should certainly be trained by the oral method. Both of these classes if properly taught will continue to use speech as the ordinary means of conversing with their fellow-men in after life.* For the rest, comprising most of the congenitally deaf, the latter statement is not true; speech may and I think should be taught, but the above result will not follow except in a few cases. I have written recently so fully in this Journal on the prevention of congenital deafness (see number for Sept. 1920) that I need only repeat that, where this condition is truly hereditary, it

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is probably Mendelian in incidence and often preventible by ordinary foresight on the part of those about to marry. In this connection a study of Dr Fay's work on *Marriages of the Deaf in America* is valuable. The prevention of acquired deaf mutism will not be attained by the study of the condition in the ear or within the brain causing the deafness. These are residual pathological products due to a process long extinct. *The original disease is almost always an infectious one, and it is to the prevention of this latter that we must look if we want to get rid of our acquired deaf mutism.*

Special mention should be made of syphilis. For a long time it has been recognised that this disease causes profound deafness in those who acquire it, and that their children often become deaf or blind, or both, during the early years of school life. The writer has shown that *this disease is a cause of congenital deafness* and has given several family trees demonstrating the fact. But this form of congenital deafness is probably not hereditary. The notification of such cases and the treatment of the entire family is urgently called for.

A few medical men have taught the deaf or have made valuable contributions to the literature of teaching. Such were Dr John Bulwer, an English physician, who wrote, in 1648, *Chironomia*, or the natural language of the hand, and *Philocophus*, a book on lip-reading; and Dr Amman, a Swiss physician who, however, practised in Amsterdam, and who wrote *Surdus Loquens*, the speaking deaf. In spite of these and earlier efforts by non-medical teachers we find about the middle of the eighteenth century the adjectives "German" and "French" applied to the oral and sign methods respectively. If the oral method is national at all it is Spanish; the sign method is as old as the first deaf mute child. Heinicke the German preached oralism, De L'Epée preached and elaborated signs; neither invented the means used. But the rôle of the medical man is not that of a teacher of the deaf. His is to study not only the ears, the hearing, the voice and the speech, but the whole deaf child, to apply this clinical knowledge in the interests of the deaf, and, above all, to seek for the causes of deafness and by their removal to make these special methods merely interesting recollections.

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