ON THE HEALTH OF DEAF-MUTES.

A PAPER

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BY

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ON THE HEALTH OF DEAF-MUTES.

We are assembled here in the hope of mitigating that greatest of earthly trials, total deafness. That we may gain from the experience of the past some suggestions for future guidance, I propose to call your attention to the question, whether the health of Deaf-Mutes differs materially from that of others, and by what means we may improve it. (See Programme, Section IV., Question 4.)

Even to those who have no special knowledge of this subject, it cannot be surprising that the health of the deaf and dumb is in general far from satisfactory.

Let us inquire into the reasons for this. The congenitally deaf, whether from consanguinity of parents or not, frequently inherit besides deafness other constitutional defects. Many are strumous: many suffer in early life from rickets (rachitis), epilepsy, water on the brain (hydrocephalus), or other head affections. They are also specially prone to diseases of the scalp, to a discharge from the ear, giving rise to the peculiar and offensive odour, so often noticed in school-rooms where they are taught. They are also very subject to chilblains. And many, who show none of these defects, grow up stunted and feeble, and die in early manhood of consumption, or some other deteriorative disorder.

Those who become deaf in infancy or early childhood,—in consequence of scarlet fever, measles, meningitis, convulsions connected with dentition, or other acute diseases,—owe their defective hearing in most cases, less perhaps to the special virulence of the disease than, to the vulnerability or feebleness of their constitution.

We have, therefore, in both classes of cases an antecedent probability that the deaf will be found to be below the average in health and longevity.

A hearing and speaking child is able to explain causes of discomfort as they arise, and thus get them removed. With a deaf child, an unusually observant parent or attendant is needed to detect and remedy such ailments before they have had time to lead to established evil. As the eye, when devoid of sensation, becomes inflamed from the lodgment, beneath the lids, of irritants which would not be allowed to remain for a moment in a healthy eye, so the child, unable to explain what is wrong, is subject to the hurtful influence, until real injury results.

We come now to consider the question—What circumstances are there (besides those just alluded to) peculiar to the state of deaf-mutism that tend to the deterioration of health, or to the development of disease?

This subject needs to be looked at with some detail.

First and foremost we must consider the differences as regards the respiratory act.

Deaf-mutes breathe, as a rule, mainly through the open mouth. The nose thus becomes useless for respiratory and almost useless for olfactory purposes, and thus the appearance of the countenance is entirely altered. I will not now describe the changes that result from mouth-breathing, to the ear itself, further than to say that there is in consequence a closure of the eustachian tube, with secondary injury of the tympanic cavity.

One object of the sense of smell is to give warning of the presence of noxious matters in the air; and on the principle that "Fore-warned is fore-armed," we are thus, if breathing be conducted through the nose and the nasal membrane is in healthy action, able to escape from or to remove the evil influences around.

The sense of smell is rarely active in deaf-mutes. Both taste and smell are sometimes destroyed by the same illness that destroys the hearing, and in mouth-breathers these two senses are always deficient.

Air entering directly through the mouth into the respiratory passages is apt to be too dry, for it is one of the objects of the complicated arrangements of the nose to supply to the inspired air that degree of aqueous saturation best suited for respiration.

The infractuosities of the nasal organs serve also to catch the suspended particles of solid matter, which, if allowed to enter the bronchial tubes, set up irritation, and, as will be shown, are a fertile source of chronic disease.

The contact of dry unsifted air irritates the

pharyngeal mucous membrane, and sets up chronic catarrh, which spreads upwards to the nose and downwards to the windpipe and lung.

From the nasal it extends to the ophthalmic mucous membrane, and from the pharynx through the eustachian tube to the tympanum. Granular sore throat, tumefaction of the nasal membrane, conjunctivitis and tympanic obstructions are hence developed.

We will now inquire what are the special pulmonary defects most often met with among deaf-mutes.

Dr. Buxton, whose large experience is well known, informs me that among adult deaf-mutes chronic cough, with copious secretion, is exceedingly common. The sound of the cough is usually hoarse and abnormal, and the expectoration is removed with some difficulty.

It has not been my lot to take medical charge of any institution for the deaf, but in a large out-patient practice at two of our London Metropolitan hospitals, a considerable number of deaf-mutes have come under my care.

At the Brompton Hospital for Consumption and Diseases of the Chest the number of deaf-mutes has been considerable. Out of a total of 20,000 patients seen by me at the hospital, the proportion of deaf-mutes was much larger, probably two or three times as large as among an almost equal number of out-patients at a General Hospital (King's College Hospital), with which I was connected.

It is pretty generally admitted that the deaf are specially prone to pulmonary diseases, and that much of the high mortality of deaf-mutes is traceable to disorders of the respiratory and circulatory systems: and it might therefore be naturally expected that a Chest Hospital would afford a better opportunity of investigating such cases than could be furnished by a General Hospital.

The cases seen varied of course in character, but a considerable number of them (I greatly regret my inability to furnish Statistics on this subject) were cases of chronic bronchial disease analogous to that found among millers, stonemasons, and those engaged in other dusty occupations, and I think it probable that further observations will lead to the conclusion that the mouth breathing, to which allusion has been made, is instrumental in the production of this state. Particles of dust, which should have been kept from the lungs by the nasal membrane, have gained uncontested entrance to the bronchial tubes, and have set up chronic change, leading eventually to destructive disease.

The cases were almost without exception marked by deterioration, the pulmonary disorder being due to defective vitality, and chronic atomic tissue change.

These deaf patients had, for the most part, grown up under circumstances little calculated to develop a healthy constitution, and in many cases they fell victims to disease which would not have proved fatal to those of average constitutional power and vitality.

The flat chest, narrow shoulders, imperfectly expanded lungs might be traced in many of these poor people to a combination of unfavourable circumstances, such as inherited feebleness, defective hygiene, neglected physical and mental training, and insufficient food. What wonder then that they failed to hold their own against so many evil influences?

In hospital practice I never met with a patient educated under the "German" system. This cannot be a matter of surprise, as the "German" system has not hitherto extended in England among the poor.

May we not trust that this reproach will be speedily removed, now that evidence is attained amongst us proving conclusively the vast superiority of this system, not only for the rich who can command long-continued and highly-skilled training, but especially for the poor? By this means the poor are fitted to earn their own living, and to take their place in the race of life amongst those who can hear as well as speak, and with whom the deaf are no longer debarred from holding converse, and entering almost on equal terms upon the fight for existence.

We pass now to our third inquiry. Do deaf-mutes die young?

Mr. J. Copplestone, in his work "How to educate the Deaf and Dumb," writes:—"In all returns of deaf and dumb the numbers above the age of fifteen rapidly diminish." "This," says the Census Report, "can be accounted for only by their mortality being at a higher rate than that of the general population."

"Notwithstanding this statement we have not yet met with any Assurance Table in which a higher premium is required for the assurance of deaf-mutes than for other persons. Whether this may be considered as indicative of the want of accurate information on the subject, or whether deaf-mutes are treated as exceptional cases and are specially arranged for, we cannot determine. The fact has, however, for many years been well established, that disease and decline are the natural results of that constant restless irritation from an imprisoned mind which arrests healthy development of mind and body."

It is not to be wondered at that no Assurance Table should be accessible, for the number of deaf-mutes desiring to assure their lives must be too limited to suggest the need for a special Table for their benefit. It may be mentioned, however, that in one instance brought under my notice a higher premium was charged, on the ground, mainly, that a greater liability to street accidents existed for those whose ears could not warn them of approaching danger.

In America, where the railway lines are to a large extent unprotected by railings, the deaths from accident among the deaf and dumb are in excess of the English mortality.

On referring to the Census Returns (1871) we find that 40 per cent. of the deaf and dumb are between the ages of five years and twenty; 50 per cent. between twenty and sixty; and 7 per cent. from sixty upwards. After the age of forty-five a rapid diminution occurs

in the number; and the number of those who attain the age of seventy is very small.

The late Dr. Peet, of New York, writing for an American publication, says:—"The difference against the health of deaf and dumb children and youths, as compared with the general population of the same ages, is but too distinctly accounted for by the prevalence of pulmonary disease among the former, the result of the scrofulous habit which characterises so many of them; and which is often the remote or immediate cause of deafness. The period of greatest danger being once passed, they often attain a good old age. Taking seventy deaths (in a 'sign' school), sixty-seven were from disease; of these twenty-five were by pulmonary disease."

The Maryland Census of 1850 showed that the deaths by consumption, between the ages of ten and thirty, were 136 out of 1,071, only one sixth; while among the deaf and dumb of the same ages their proportion appears to be more than one third.

Professor Porter, of Hartford, United States, ascertained that of eighty-four deaths by disease among the former pupils of that school, of which the causes were known, forty-one were from consumption or kindred diseases.

Sir William Wylde states that of 217 deaths of deaf-mutes in Ireland, seventy-seven were from consumption.

The Rev. Samuel Smith, of S. Saviour's Church for the Deaf and Dumb, in Oxford Street, London, writes to me (25th March, 1880) as follows:—"In reply to your inquiries I am able to state as the result

of my observation during nearly twenty-five years' work amongst the adult deaf and dumb of London, that very few attain any great age, and that a very large proportion of those who have died have been taken away by disease of the lungs. I know of no public statistics of the subject, and I do not keep any special records of such cases, though if I had time to go over my diaries, I could, perhaps, obtain a good deal of information on the subject."

Having shown that the state of Deaf-mutism tends to the deterioration of health, the development of diseases of the lungs, and the shortening of life, we will now endeavour to show that methods by which the free use of the lungs, by varied and regulated speech, may be secured, should be encouraged in every way, not for educational purposes alone, but to raise the standard of health among these afflicted ones, and thus render their infirmity a useful stimulant to the activity of body and mind.

Dr. Müller remarks, that, as many of the deaf at the age of from fourteen to sixteen become consumptive, exercise of the vocal organs is of advantage to expand and strengthen the chest.

Mr. Kinsey, principal of the Training College for Teachers of the Deaf on the "German" system, at Ealing, says that lung disease may in all probability be avoided by teaching articulation at an early age, and adds that if the lungs have been idle from birth, and mouth respiration indulged in up to the tenth year, "the seeds of mischief are already producing fruit."

The late Mr. Arnold, of Riehen, was of the same opinion, and he cites the case of a pupil troubled with difficult and painful respiration, which disappeared after a few months' exercise in speech.

Mr. Schönthiel, Head Master of the Jews' Home for the Deaf and Dumb, in London, mentions that by means of the "German" system they are saved from premature death, brought on through insufficient action of the lungs.

Dr. Hirsch, of Rotterdam, points out that "the articulated language presents the greatest advantages. It expands the chest, brightens the intellect, and the countenances of those who speak are much nobler than of those who express themselves only by signs."

Mr. J. Burton Hotchkiss, now a Professor in the National College for Deaf-Mutes at Washington, U.S.A., himself a semi-mute, wrote in July, 1870:—"The mute being deprived of his voice, loses the strengthening effect a constant use of it has upon the lungs, and is thereby rendered more liable to lung disease. Hence health, strength, and long life, depend upon the cultivation of the voice. After my first year at Hartford, I was several times attacked by lung fever and kindred complaints, and now, with the knowledge that the years bring, I attribute it in a great degree to an almost total disuse of my voice, and a failure to substitute any exercise that would have the same expanding action upon the lungs. And I find that I have never enjoyed better health than since my resumption of speech, but it is perhaps too much

to attribute it all to this cause. And yet I cannot but believe that, so far as my lungs are concerned, I do not ascribe too much to a happy habit into which I have fallen of reading aloud to myself some pages daily. This habit I carried to excess while in college, and no doubt afforded some amusement to the professors by my oratorical declamations, but it was almost the sole means by which I preserved my speech during the years I was surrounded by deaf mutes only. I would say to all semi-mutes, 'Go ye, and do likewise!'" And yet I am told by Mr. Kinsey, that this Mr. Hotchkiss would not, when he saw him a few years ago, learn to lip-read, possibly because there was no one to teach him, and he shirked the tedious business of trying to teach himself.

As evidence of improved vitality in those being taught by the "oral" system it is said that "whereas chilblains were common to all the inmates of the Glasgow Institution in the winter season, *now* they only attack those who are being taught by the 'Silent' system; the other pupils, although similarly circumstanced as to food, &c., remaining free from this annoyance."

In a pamphlet on "Teaching the Dumb to Speak," by James Patterson Cassells, M.D., M.R.C.S., London, he writes:—"It develops the brain and the intellect, awakens the emotional elements of our nature, manifesting this in the increased love of home, and in the *intelligent expression of the child's face;* gives to the person so taught a degree of status nearly equal to his more fortunate

fellows, because his friends and companions have no new language to learn in order to communicate with him; gives him also the ability of earning his living in the ordinary marts of labour, and, therefore, a greater degree of independence—of gaining knowledge by increased and unfettered intercourse with those who associate with him; domesticates him; improves his general health and hearing, if there be any of it left, *and, lastly, it lessens the chance of affections of the lungs, and thereby prolongs life.*"

Dr. Buxton informs me:—"Among the very large number of deaf persons whom I have known, including some who were pupils in Braidwood's Private Academy at Hackney, before the London Asylum was founded, and some of Dr. Watson's earliest pupils in that institution, the longest-lived amongst them have been (1) Those who had been taught articulation on the Braidwood-Watson principle with so much success as to be able to use it regularly in their own home circles; and (2) Those whose domestic relationship had been with the hearing, not the deaf, and whose whole life was marked and impressed by (so to speak) hearing influences, not deaf ones."

Speaking at the Conference of Head Masters, held in London, in July, 1877, Mr. Howard, Head Master of the Yorkshire Institution, Doncaster, said:—"As regards the health, he believed that the play given to the lungs in exercising the voice, and the increased amount of oxygenation thereby engendered, gave to the blood of the pupil a stimulus which promoted its

more vigorous circulation, and tended to ward off many of the complaints to which the deaf and dumb are liable. Since the introduction of oral gymnastics, *i.e.*, exercises of the voice, shouting, &c., into the Doncaster Institution, the number of cases of chilblain, which previously often partook of the nature of large open sores, had considerably diminished."

In a work on the Deaf and Dumb by the late Mr. Joseph Toynbee, F.R.S., published in London, in 1858, we read:—"The influence of the use of the vocal organs upon the general health has, I think, scarcely been sufficiently considered in the education of the deaf and dumb. Sir H. Holland, with his usual acuteness, has placed the subject in its full light. He says, 'Might not more be done in practice towards the prevention of pulmonary diseases, as well as for the improvement of the general health, by expressly exercising the organs of respiration, that is, by practising according to some method, those actions of the body, through which the chest is alternately in part filled or emptied of air? Though suggestions to this effect occur in some of our best works on consumption, as well as in the writings of certain Continental physicians, they have hitherto had less than their due influence, and the principle as such, is little recognised or brought into general application. In truth, common usage takes, for the most part, a directly opposite course, and under the notion or pretext of quiet, seeks to repress all direct exercise of this important function in those who are presumed to

have a tendency to pulmonary disorders.' To this, I may be allowed to add, in reference to the deaf and dumb, that in those cases where the organs of speech are not used, *i.e.* where the lungs and the muscles of the chest and heart are not duly exercised by the act of articulation, the general health always suffers."

"Sous le rapport hygiénique, l'articulation a encore l'avantage de contribuer beaucoup au fonctionnement régulier des poumons, et son influence est salutaire sur les enfans sourds-muets, qui souvent ont un temperament plus au moins lymphatique." *Address of* M. Houdin, *President, Congrès National (re Deaf and Dumb) de Lyon, Septembre 28ième*, 1879.

Again, Professor Lewis B. Monroe stated at the Convention of Teachers of Visible Speech, U.S.A., 1874, "That pulmonary complaints were very common among deaf-mutes. He saw every reason why this should be so, when he considered that they were deprived of an important incentive to the use of the lungs—the power of speech. Few persons who were laughing, singing, and shouting all day long were conscious that these very exercises of the lungs were among the most healthful forms of physical exercise that could be practised. He would give such physical training as would expand the chest and give vigour to the respiratory muscles. . . . "

He remarked that:—"Very many deaf-mutes were awkward in their movements. He was convinced that this awkwardness was, to a greater or less extent, an expression of inward misproportion. There was an

incomplete and one side development of mind which manifested itself in corresponding eccentric motions. One means of bringing about a right mental balance would be the practice of graceful physical exercises. The child should be taught to stand and sit properly, and to carry the body in a becoming manner."

The exercises best fitted for the development of the chest, throat, and nasal passages, are all very simple if properly and regularly attended to.

For lung exercise in school, large india-rubber bladders are used, having wooden mouth-pieces fitted to them; these bladders are to be inflated at first with six or eight expirations of breath; finally, as the capacity of the lungs becomes larger, by stronger and more continued use of the respiratory muscles. The bladder is inflated by one, or at most two expirations: preliminary exercises are made use of in some cases of extreme weakness of respiratory power, *e.g.* blowing feathers, pieces of paper off the hand, &c.; also puffing at a light worsted ball suspended by a string. These latter exercises (except the ball) may be used for nasal expiration.

The best considered course of calisthenics possible for a deaf-mute taught by the "French" system, though of unquestionable value, would yet be far inferior to the practice of articulation, &c. under the "German" system.

It is the constant use of the larynx in speaking, shouting and laughing, necessitating a much larger amount of respiratory action, which is so beneficial. *Vocalisation*, calisthenics, drill, and vigorous out-door

games directed by the teacher or assistants (out of school) are most important factors in the success of the "German" system.

In "French" system schools, the children are usually left while at play to find games for themselves, and are apt to huddle together in the playground, playing at inane games of their own devising. If the teacher is present, he probably silences any noises they may make.

In a "German" school, on the other hand, it is deemed an essential part of the curriculum, that the teacher should superintend the games, and interest the children in them, until they are able to play unaided such games as are usual in other schools; and instead of discouraging the use of the voice, shouting and laughing are encouraged, for the value of such exercises is recognised in giving power and flexibility to the respiratory organs, and in aiding vocalisation by the free use of the voice.

Such exercises serve, too, to promote the healthy development of the chest. Thus deaf children are soon taught to play with nearly as much spirit and success as their hearing brothers.

It is sufficiently apparent from the preceding statements, how essential it is that the deaf should have the advantage of—

I. *Calisthenic exercises*, to give grace and ease to their movements.

II. *Gymnastic exercises*, systematically arranged and supervised, to develop the various parts of the muscular system, and,

III. Best of all, *vigorous out-door games*, such as are appreciated by all English youths, and which serve to give that pluck and hardihood which is an essential part of true manliness. Among the Germans, the gymnasium takes the place of the cricket field: the Germans are generally superior to the English in gymnastic exercises, but markedly inferior in games and sports, or in any trial of strength, such as running, walking, swimming and rowing.

For the deaf it is even more important than for others, that recreation time should be spent as much as possible in the open air, that every advantage may be secured for those who, as has been shown in the earlier part of this paper, are unequally "handicapped" in the race of life.

From the foregoing remarks, supported as they are by the opinions of men whose experience qualifies them to speak, and whose names must command the respect of the Congress, but one conclusion can be drawn, viz.: that there are maladies and morbid conditions to which deaf-mutes are especially prone, calling for special therapeutic and hygienic precautions (Section IV. Question 4), and that, foremost amongst the conditions calculated to improve the health and prolong life, must be placed the removal of the *dumbness*, and the practice of the vocal and respiratory organs, as secured under the best "German" system modes of education.

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