

SCIENCE

FRIDAY, JANUARY 30, 1891.

DEAF-MUTES: THEIR INTERMARRIAGE AND OFFSPRING.

DR. ALEXANDER GRAHAM BELL says (*Science*, Dec. 26, 1890), "I cannot agree with Dr. Gillett that it is not a very great calamity to have a deaf and dumb child." I never made that statement, and shall not make it now. What I have said is, that what was once a calamity is now, to those deaf persons who improve the privileges and opportunities they enjoy under our civilization, reduced to a very serious inconvenience. Dr. Bell says, "The deaf themselves surely will not indorse it." I am glad to say, and I hope Dr. Bell will be glad to know, that some very intelligent deaf persons whom I have the pleasure of knowing, and some others whom I have never seen, do indorse it in letters to me since its publication. One gentleman whom I never saw writes me, "I have read your article in *Science*, Dec. 26. Allow me, as a man deaf, to express my most hearty approval of all you protest against for ever holding up the deaf as victims of a terrible misfortune, and objects of commiseration and charity. As I read the article, so intensely do I sympathize with every word, that I could scarcely refrain from dancing around the room with delight." Another, whom I am proud to number among my former pupils, a man filling an honorable and important station in life, who has for many years been battling with the world and well maintaining his family, writes, "Now, my dear doctor, I want to thank you for your very able article in *Science*, Dec. 26. The whole mute population is under everlasting gratitude to you for the noble and able stand you have taken." A lady (married) writes, "I have read your article on the intermarriage of the deaf with deep interest. May the Lord inspire you more and more to plead the cause of the deaf, and show you in a way that will counteract the plausible reasoning of other learned men, who think they know just what is proper for us, and would legislate us into marriage with hearing persons, and rob us of more domestic happiness than their theories would secure us in a thousand years, if we could live to that age." Another gentleman, writing me with reference to my article, says, "I cannot look upon my deafness as a serious calamity or a grave misfortune; and I dare say that an older, better, and more experienced person than I — my dear, noble mother — will share my sentiments thus expressed. She may have thought it a great calamity when I became deaf in infancy, but she would not say so to-day." I could give others of similar import, but these will suffice to show that there is manly, self-reliant spirit in many of the deaf to a greater degree than some may have credited them with. I did not expect that any whose capital mainly consists of "grave misfortune" to work upon the sympathy of others, and many who have been educated to view themselves as specially unfortunate, would at once coincide with my view. I suppose that some think, as it seems Dr. Bell does, that most if not all of the deaf will cling to the idea, "I am a poor, unfortunate deaf-mute; somebody will take care of me." I fancy that I have had more experience along

the line of urging the deaf to self-reliance than some who write very glibly about "a very great calamity" and "a grave misfortune." If Dr. Gallaudet and Dr. Bell would get down from their high horses, and labor for a few years in daily intercourse with all classes and grades of deaf-mutes, possibly they might have a better appreciation of some difficulties encountered by the workers among the dull as well as the bright.

With reference to "the calamity of having a deaf and dumb child," having so often heard the tale of sorrow (unnecessary, as I believe, but nevertheless real) of parents, I do not wish to speak further than to say that with Gen. Benjamin F. Butler declaring the deaf-mute is only half a man; President Edward M. Gallaudet proclaiming deafness, always in spite of school and college education, a grave misfortune; and Dr. Alexander Graham Bell understood to be advocating measures looking to the elimination of the deaf from society, — it is no wonder that the iron enters the soul of the parent of such a child, and that he is filled with disappointment, and (I blush to write it) sometimes, as I have known, with shame. That deafness is primarily a calamity, I distinctly asserted in my article in *Science*, Oct. 31; but I am happy to know that educational skill and energy in the evening of the nineteenth century is abreast with human progress in other lines, and has immensely mitigated the misfortunes flesh is heir to, so that we are not obliged to hold on to the nomenclature of a by-gone age when we speak of the deaf, any more than we are to repudiate the railroad, the telegraph, the telephone, and cling to the old stage-coach and post-boy. No one can contemplate the present state of society without feelings of pride and gratification on many accounts, but to my mind there is no more powerful exponent of the advanced civilization of this age than is found in its educational and humanitarian measures. The education of the deaf is by no means the least of these. Indeed, it may well lay claim to the pre-eminence. Out of it have come some of the best methods of teaching that have been ingrafted upon the public-school system. It was the first of all the great humanitarian enterprises, and opened the way in the hearts of the people for that philanthropy that has reached the insane, the blind, the feeble-minded, and, it is hoped, will soon reach the epileptic. No one can too highly appreciate the change in the condition of the deaf. Others may think differently, and accordingly estimate their work. They are welcome to all the comfort resulting from their view, but I thus estimate my work. It is poor comfort to a parent to be told, that, after all that can possibly be done for his deaf child, his misfortune will be a grave misfortune still. Deliver me from further lacerating the heart already torn. It suits me far better to send a beam of hope and light into a family already invaded by foreboding, than gloom and despondency.

There is at this writing before me a letter from the mother of two deaf persons, now well settled in life, in which she says to the daughter, speaking of their early childhood and their deafness, "I thought it was an awful calamity, but I do not think so now; but, as Dr. Gillett says, in many cases I believe it has proved a blessing." This mother knows

whereof she affirms, for she has other children, now also in adult life, who hear. I sometimes wonder what must be the feelings of a refined, sensitive nature as he sees his class so unjustly represented, as if doomed to perpetual childhood, or as one without whom the world would be better off. I imagine him soliloquizing, "What kind of a being am I? The Scripture speaks of persons 'of whom the world was not worthy;' but mine is a class of persons whom some seem to deem unworthy to live, and Providence has made a mistake in giving us existence, and I will immediately set to work to help Providence do better hereafter." When criminals and paupers are exterminated, it will be time enough to take in hand honest people who are handicapped by mere physical defects. I would gladly, if I could, say to every parent that a deaf child in a family may be as cunning and lovely, and as much "a thing of beauty and a joy forever," if he is properly trained and treated, as the child who hears. Superintendents are often consulted as to the care of deaf children. Let them be careful not to make of such a consultation a quasi-coroner's inquest.

Dr. Gallaudet says the deaf will not allow me to compare their misfortune with baldness. If I have done the deaf any discourtesy by the allusion, which was not a comparison of the extent of their inconvenience, but was merely a citation of a class of persons who have a physical defect, I am willing to make due apology. Far be it from me to speak disrespectfully of the bald, whom I have held in the highest reverence since, when a child, I heard the story of the naughty boys, the bald-headed man, and the bears. I apprehended, when I made the allusion, that I should hear the growl of bears, but I did not expect that the first one would come prancing out of the office of a college president. Dr. Bell is disturbed by the qualification "in fly-time." I am willing to withdraw the "in fly-time," and leave the statement without qualification; for I believe that more suffering has resulted from insufficient head-covering in the way of catarrh, resulting in phthisis, pneumonia, la grippe, etc., than from deafness. Dr. Bell counts the cost of the deaf-mute to society; but what immense outlay has ensued from the above diseases in the way of medical attendance and supplies, and nursing, to say nothing of disorganized families, mourning and funeral expenses! Would that some scientist would organize a crusade against the intermarriage of the bald, for baldness is surely hereditary. A bald variety of the human race would be dreadful.

There is another fruitful field of benevolence open to an apostle of altruism. Carious teeth are an hereditary physical defect that has cost many times more suffering and financial outlay than deafness. Let some one anxious for the comfort of future generations expend a little energy here. I see no reason why, among the many sufferers from various physical defects, the deaf alone should be restricted in the exercise of preference in the most sacred of all human relations — the marriage relation — either by legal enactment or public opinion, which has almost the force of law. It is gratifying to know that Dr. Bell now distinctly avows that neither "he nor any one else proposes to inflict this cruelty" of legal enactment. I believe he never did; but the trend of much he has said has been in that direction, and his interviewers have been singularly unfortunate in misapprehending him. Others have advocated it, and have fortified their position by quoting statements of Dr. Bell. Dr. Bell has the tender, sympathetic heart of a humane man, and a sincere interest in the deaf, and would not intentionally wound one of them; but I am persuaded that he has caused pain that he

little thought of, both to the deaf and to their relatives and friends.

Many years before Dr. Bell appeared on the arena of deaf-mute work there was in the minds of many people a prejudice against the marriage of parties in whom the liability to produce deaf offspring existed. Thirty-two years ago, being with a party of deaf-mutes in an important city of northern Illinois, I remember a prominent gentleman in active business inveighing against such persons. In vain I endeavored to show him the mistake of his view. Within the last year the same gentleman and his wife have visited me with reference to receiving as a pupil his grandson, who is now one of my pupils. Comment is unnecessary. Twenty years ago a gentleman (*sic*), overlooking a company of my pupils, after asking a number of questions, said, "Every one of their parents ought to be in the penitentiary." Such sentiments are the result of intellectual confusion. Would it not be better for scientific men who have correct information to enlighten rather than confuse the public?

Dr. Gallaudet and Dr. Bell object to my "wholesale encouragement of the intermarriage of the deaf;" one advising the marriage of the deaf with hearing persons as the ideal marriage, and the other of the congenital with the non-congenital deaf. If I have done this, I have found no reason to regret it, for there have been within my observation more deaf offspring from each of the last two classes than from the intermarriage of the congenitally deaf. My advice to them is to contract marriage just as others do, with whomsoever they find that compatibility that insures a happy marriage, as a truly felicitous union is not chiefly dependent on physical conditions, insisting only that they be sure of a competence which will insure comfort. I think the most important caution for them is to beware of undue haste. One of their inalienable rights, as of others, is the pursuit of happiness; and I know of no better way of its pursuit than in a congenial conjugal relation. I should expect, as Dr. Bell does, a larger percentage of deaf births from deaf parentage than exists in society at large; but this is not because the parents are deaf, but because they belong to families in which the tendency to deafness inheres, other members of which are as likely to have deaf offspring as the deaf themselves, and who in fact do more frequently have such children, as is shown by the far greater number of other relationships to the deaf than of parent and child. If it is improper for the deaf to marry, it is as much so for their relatives to enter wedlock. In the year 1886 I made a computation of the deaf relationships to my then present and former pupils, numbering 1,886, which showed, that, while thirteen of them had deaf parents (the parents of only one were congenitally deaf), there were 1,209 other relationships, as brothers, sisters, uncles, aunts, cousins, etc.

I am sorry that Dr. Bell (*Science*, Dec. 26) considers this question from the low plane of mercenary considerations. "Two hundred dollars a head" seems to him a terrible outlay for the deaf, while the *per capita* for hearing persons is but twenty dollars *per annum*. There is a glaring fallacy in this comparison. The two hundred dollars charged to the deaf pays for his entire instruction and support, which is done for his hearing fellows in the home, the church, the school, the mart, the shop, the social circle, the lecture, and on the play-ground. Will Dr. Bell say that all this costs the hearing youth only twenty dollars a year? I trow not. If he thinks it will, let him ask some patrons of Vassar, Wellesley, the Pennsylvania Training School, or Mount Vernon Seminary, near his home, or any other re-

spectable academy where youth are entertained and educated, and this illusion will soon be dispelled. Why one who insists that the deaf are laboring under a "very great calamity" should so unfairly misrepresent their case seems to "unreflective minds" incomprehensible. It is no answer to say that all the hearing lad receives is paid for by his friends, while the public pays for what the deaf receive, since the accumulations of the rich are all received from the public; so that whether paid for directly by the public, or through the circuition of private intermediaries, it all comes out of the public.

Dr. Bell's figuring in the same number of *Science* is a most surprising feat of mathematical gymnastics. I should be sorry to think that all of his calculations and conclusions were as baseless as this. Quoting my statement that "not two per cent of the deaf are children of deaf parents," he immediately proceeds to speak of "Dr. Gillett's two per cent," and represents me as affirming what I explicitly denied. He might as well have figured on five or ten or twenty per cent, so far as any thing I have said is concerned, and would have evolved a much more imposing Jack o' lantern. Having a false premise, his calculations are worthless even if amusing. Unfortunately, many persons seeing them over his great name will be deceived by them.

I have never named any percentage of deaf offspring from deaf parentage. I do not know what it is. My observation is too limited. I doubt if any one knows. But I am quite sure that the marriage of a few congenital deaf-mutes "with one another" is not going to inoculate the whole world with the "very great calamity" of deafness. If he deserts the question as a practical one, and treats it merely as an interesting question of scientific inquiry upon heredity, I have comparatively little interest in it. It interests me chiefly as a practical question. As such I have given it some attention for a number of years. I can only study it in the light of the facts I have, which are almost wholly among my own pupils. I think it quite probable that different conclusions would be arrived at from the study of pupils in other institutions, and that probably they would agree in no two or three groups of deaf-mutes, or of pupils of the same institution in different decades and quarter-centuries, owing to the prevalence of different diseases that cause deafness, and the variance in their virulence at different times.

Dr. Bell repeats my interrogatory, "Shut out from church privileges, as preaching of the Word, prayer-meetings, socials, receptions, lectures, concerts, parties, what remains to them of all that makes life pleasurable to us?" The question is easy of answer. There is open to them a world of beauty and grandeur, full of fragrance and loveliness, the treasures of literature and art, which they may appreciate as highly, and enjoy as intensely, as those who hear.

"Sermons in stones,
Books in running brooks,
And good in every thing."

There are many needy and distressed to whom they can minister, receiving therefrom the highest satisfaction known to mortal man. Most of that which makes life noble and worth living is still attainable to them, if they improve their opportunities.

I regret that my knowledge of the past school-life of my pupils is not more complete than it is, and also that in my earlier experience I did not secure more exact statistics.

Sometimes it is extremely difficult to obtain the precise information desired. Occasionally positive refusals to give it are encountered. The vital statistics gathered at institutions for the deaf are usually taken from an educational standpoint, and consequently some deaf children who lost hearing very young are classed and recorded as congenitally deaf. For educational purposes this classification is very well; but for biological and anthropological study such statistics are defective, and cause confusion. For the study of heredity they are misleading. I am persuaded that we are far from having an accurate knowledge of some of the primal causes of deafness. One quite prolific cause has been entirely overlooked, owing to the delicacy of the subject, and the difficulty of acquiring correct information in such cases. It could be appropriately discussed in a medical journal, but in a popular periodical its consideration may not be acceptable.

The cause to which I refer is psychological, and the mode of its operation is obscure. Just how mind or spirit operates on matter we do not know, but the fact is undeniable. I am quite positive, from knowledge obtained during a long period of years, that prenatal impressions are responsible for many cases of deafness which have been attributed to other causes, including heredity and family predisposition. Within my observation there have been more cases of deafness from this cause than of deaf offspring from deaf parentage.

Dr. Bell inquires with reference to certain statistics I published five years ago. I am bound to admit, that, while at the time I thought them approximately correct, I have since gained additional information that somewhat changes conclusions from their study. I have had 2,158 pupils, of whom 1,580 have been discharged from the institution. No doubt a considerable number of these have contracted marriages of which I have not received information, but I have learned of the marriage of 378 of them. They were parties to 233 marriages.

Thirty-three married hearing partners. Of these, seven were congenitally deaf. Of thirty-two of these thirty-three couples, all the children could hear. Of one of these couples, the mother being congenitally deaf, two children could hear and two were born deaf.

Of thirteen couples, both parties were congenitally deaf. Of twelve of these couples, all the children could hear. Of one of these couples, two children could hear and one was born deaf.

Of fifty-one couples, one party was congenitally deaf, and one was adventitiously deaf. Of these fifty-one couples, one couple had one hearing and four adventitiously deaf children; one couple had one hearing and one adventitiously deaf child; three couples had one congenitally deaf child; one couple had two congenitally deaf children.

Of twenty-five couples, both parties were adventitiously deaf. Of twenty-three of these couples, all the children could hear; of one of these couples, one child could hear and one is congenitally deaf; of one of these couples, four children hear and one is adventitiously deaf.

But I have had other pupils whose parents, though deaf, were educated elsewhere. Two sisters born deaf were children of a deaf father and hearing mother. Two brothers — one congenitally and one adventitiously deaf — were the children of deaf parents; but whether the parents were congenitally or adventitiously deaf, I have been unable to learn. One boy was adventitiously deaf whose father was deaf, but of whose mother I have no information.

The foregoing may be tabulated as follows:—

PARENTS.	OFFSPRING.	
	Congenitally Deaf.	Adventitiously Deaf.
Both parents congenitally deaf.....	1	
One parent congenitally and one adventitiously deaf.....	5	5
One parent adventitiously deaf, one hearing.....	2	
Both parents adventitiously deaf.....	1	1
One parent hearing and one congenitally deaf.....	2	
Both parents deaf, but whether congenitally or non-congenitally unknown.	1	1
Father deaf, but whether congenitally unknown, but of mother no knowledge.....		1

Applying the above to the classification recommended by Dr Bell and approved by Dr. Gallaudet (*Science*, Nov. 28, 1890, p. 295), while it is difficult to decide as to which class some of them should be assigned, I should say that it appears as follows: in Class 1, two; in Class 2, twelve; in Class 3, five; and in Class 4, one.

Let the reader consider the above table, which comprises twenty deaf-mutes, three of whom were never among my pupils (thus leaving seventeen), and remember that it shows the deaf parentage of 2,158 deaf-mutes, and observe that only one of them is the child of parents both of whom were congenitally deaf, that ten are the children of parents one congenitally and one adventitiously deaf, and two the children of one hearing and one congenitally deaf parent, and ask who is advising the promotion of "a deaf variety of the human race." It is not the subscriber. I find no two per cent in this.

"Master, who did sin, this man, or his parents, that he was born" deaf? "Jesus answered, Neither has this man sinned nor his parents." PHILIP G. GILLET.

INDIAN PRESERVES.¹

THE demand for Indian preserves and jams has greatly increased during the past few years. In India, preserves and jellies are made of the pear, quince, mango, tamarind, date, banana, guava, and other fruits. In Singapore, pineapples are preserved whole; and in the Bahamas the manufacture is also carried on, on a large scale, to the extent of nearly 1,000,000 cans annually. Each can of fruit, before the sirup is added, weighs two pounds. From 12,000 to 14,000 can be filled in a day; and 25,000 pines are usually consumed daily during the season. In Singapore much enterprise has been shown in preserving tropical fruits. There are two or three firms who deal largely in them.

The Indian preserves were formerly much in request. Thus, in the thirteenth century the most renowned preserve was a paste made of candied ginger. Among other fruits, etc., preserved in their natural state, in sirup, crystallized with sugar, or made into jelly, are the pineapple, bread-fruit, ginger, jack-fruit, the papaw, mangosteen, pomeloe, guava, and nutmeg. Although in flavor and preparation these preserves may not equal those of Europe, they make an agreeable change.

The pineapple is one of the best of tropical fruits, although it is produced of a superior quality by European cultivators. Its sweet and acid flavor, and pleasant aroma, make it sought after by consumers of all classes. One house in Singapore ships about 70,000 tins of this fruit. Pineapple marmalade (thought by some

to be the most delicious preserve in the world) might also be sold at ten cents per pound in London.

There are two species of guava fruit.—the red guava; and the white, or Peruvian, guava. Both make excellent sweetmeat paste or jelly, which is very pleasant and nutritious, from its superior power of assimilation with the gastric juice, and perfect development of saccharine.

It is said that a hundred different preserves could be made from a judicious blending of the fruits of the East and West Indies and South America.

The jamun (*Syzygium jambolanum*), a sort of long, dark purple plum the size of a large date, makes excellent preserves, and has exactly the flavor of black-currant jelly, to simulate which large quantities are sent from India to England. It is also used for flavoring other jams.

The fruits of *Inocarpus edulis* are preserved in the Indian Archipelago. A sweet conserve is made in India of the fruits of *Terminalia Chebula*. Another is made of the fruits of *Phyllanthus distichus*, at Birbhum in Bengal. The acid calyces of the rosella (*Hibiscus sabdariffa*) are converted into an excellent jelly, which would be highly appreciated in England, if once introduced. Jam and jelly are made in Canada from the fruit of *Shepherdia argentea*.

The fruit of *Spondias*, not unlike a cherry, is made into jelly. The scarlet fruit of the quandong (*Fusanus acuminatus*), the size of a small peach, makes an excellent preserve for tarts in Australia.

The tamarind plum (*Dialium indum*) of Java has a pod filled with a delicate, agreeable pulp, much less acid than the tamarind. The golden drupes of *Spondias cytherea*, or *dulcis*, a native of the Society Islands, are compared, for flavor and fragrance, to the pineapple. The large acid fruits of the kai apple (*Aberia caffra*) of Natal can be converted into a good preserve of the red-currant jelly class. The fruit of *Cornea speciosa* is delicious: it is called "mangaba" by the Brazilians, and when ripe is brought in great quantities to Pernambuco for sale.

The fruit of the goumi, of Japan (*Elaeagnus edulis*), makes excellent preserves, fruit sirups, and tarts. The berries of *Pyrus aucuparia* and of *P. baccata* are made into comfits, conserves, and compôtes. The fruits of *Astrocarpum ayri*, of Brazil, are made into an excellent preserve, which is much esteemed in that country.

The fruit of the Chinese quince (*Diospyros amara*) is converted into sweetmeats, of which the Chinese are exceedingly fond.

The bread-fruit, in sirup or crystallized, may please native palates, but it is not likely to find favor in Europe, being flavorless, and more of a food-substance than a fruit.

Preserved ginger is popular in England, but is not much esteemed on the continent. The Spaniards eat raw ginger in the morning, to give them an appetite; and it is used at table fresh or candied. Among sailors it is considered antiscorbutic. The quantity of preserved ginger imported ranges annually from 1,500 to 2,500 hundredweight, value about \$17,500 to \$21,500. It forms the bulk of the succades received from the Chinese Empire, 18,000 to 20,000 hundredweight coming from Hong-Kong. Some ginger is also received from India. The mode of preparing it in the East is as follows: The racemes are steeped in vats of water for four days, changing the water once. After being taken out, spread on a table, and well pricked or pierced with bodkins, they are boiled in a copper caldron. They are then steeped for two days and nights in a vat with a mixture of water and rice-flour. After this they are washed with a solution of shell lime in a trough, then boiled with an equal weight of sugar, and a little white of egg is added to clarify. The ginger, candied or dried in sugar, is shipped in small squares of zinc. That preserved in sirup is sent out in jars of glazed porcelain of six and three pounds, and packed in cases of six jars. The quality called "mandarin" is put up in barrels.

The papaw (*Carica papaya*) is a fleshy, pulpy fruit, of an orange color, sweet and refreshing, which is eaten as the melon is in Europe. This fruit, however, in sirup or crystallized, has very much the taste of a turnip.

The mangosteen is a fruit about the size of a mandarin orange,

¹ From the Journal of the Society of Arts, London.