matorium. The process of cremation is no more incompatible with the idea of religious services to the dead than is our present method of inhumation in a tomb or in the bowels of the earth.

The religious rites could be performed in church or at the crematorium in a room especially consecrated to that purpose.

I am happy to notice that of late the opposition to cremation, on religious considerations, has considerably diminished. Some of its most enthusiastic advocates in our country are either clergymen or zealous members of the church. In Italy the opposition of the Catholic clergy has apparently entirely ceased, and in Rome itself a splendid crematorium has been built, and cremation is steadily on the increase—forty bodies have been cremated there during the last four months. By degrees, all objections based on considerations of a religious character will disappear, and I do not believe that at the present day an intelligent and enlightened member of the clergy, of whatsoever sect or creed, could be found honestly to oppose cremation on religious grounds. Ignorant and bigoted persons may, willingly or not, confound the two questions; not the intelligent and philanthropic.

In this utilitarian age the question of economy is not to be despised. Statistics show that the sums annually expended in the United States as funeral expenses exceed the value of the annual produce of all our gold and silver mines, and equal the amount of all the failures of our business houses of the country (Beugless). A decent burial costs not less than $100, exclusive of the price of the tomb or vault. How many families are daily impoverished by the excessive cost of interment incurred through false pride! How often expensive burials are given to those who in their lifetime lacked all the necessaries of life! The whole cost of cremation would not reach one-twentieth part of the price of an ordinary tomb and interment. As practised at present in Milan, the cost for cremating one body is only eight francs! But, from a general point of view, the great economy would be that of land and space occupied. The practice of cremation would eventually restore to the state or community vast amounts of valuable land now used as graveyards, which are lost to agriculture and industry. Under the present general system of interment the dead are gradually crowding out the living. Take, for instance, the city of London, with an annual death rate of only twenty-one per thousand; the number of deaths is about eighty-one thousand per annum. Have you calculated how much space is required for the annual burial of eighty-one thousand persons? At the limited rate of two feet by six per person, or twelve square feet per each grave, you can bury three thousand six hundred and thirty bodies to the acre; but this allows nothing for walks, roads, gardens, monuments, etc. On this crowded theory of three thousand six hundred and thirty graves to the acre, London's annual deaths will fill twenty-two and one-third acres. Of course, it practically requires four times as much space. Cremationists do not advocate the abolition of cemeteries now existing, but they claim that, through the process of cremation, cemeteries would cease to be nuisances and would become amply sufficient for all time to come. On the smallest lot of ground, an edifice in the shape of a columbarium, divided into compartments, would serve the same family for ages. It has been calculated that six millions of urns, each containing the ashes of one person, and placed in separate compartments, would not require twenty acres of land, including the flower beds, walks, etc. Greenwood Cemetery alone could receive no less than twenty million urns. Owners of lots in graveyards would not be slow to perceive the increased value of their property, since the space for an ordinary vault, twenty by twenty feet, could receive four hundred urns. The sale of a compartment or vault would yield greater profit than the sale of a whole lot could possibly now give, and cemeteries would never be full. Each and every church or temple could accommodate four thousand urns containing the ashes of as many persons, without any resulting injury, thus serving a religious purpose while being a legitimate source of income to the church (Beugless).

The generalization of cremation would render impossible the desecration of tombs and the theft of dead bodies, examples of which have been quite frequent of late in our country. Be it sufficient to recall the theft of the body of the late millionaire, A. T. Stewart, of New York, and the attempts made to steal the bodies of Presidents Lincoln and Garfield, without mentioning the many instances of body-snatching for the purpose of dissection, etc.

With that system in vogue the danger of being buried alive will no longer prey on our imagination. This danger is not chimerical. In a recent work published in Italy on the dangers of premature inhumation, no less than sixty-five well-authenticated cases of burial of living persons are related.

Again, cremation offers the advantage, the consolation, of being able to preserve and transport the ashes of those whom we have loved. Many of us will heartily join Rev. Burke Lambert, of England, in his opinion when he said, recently: "I have lost three very dear kinsfolk in remote quarters of the earth, and I would give everything I could command if I could receive their ashes and keep them by me in a vase."

Why should not the purification of human remains be intrusted to this rapid method, which frees the sepulchre of its horrible mysteries, and which in its comeliness retains a certain degree of poetry? For "Cremation," says Professor Gross, "is truly a beautiful method of disposing of the dead."

The process of cremation does not consist, as is erroneously believed, in the *burning* of a corpse. It is a mere incineration or reduction of the body to ashes by means of dry heat, reaching as high as 1,500° and 2,000° F. Neither fire nor flames ever come in contact with the corpse. All the smoke and volatile substances resulting from combustion pass through a heated absorbing retort and are immediately destroyed. The process has been described by ocular witnesses to be as follows: The body is borne into the chapel and placed on a catafalque, which stands in front of the altar. The section of the chapel floor upon which the body rests constitutes the floor of a lift or elevator. As the funeral service proceeds, the elevator invisibly and noiselessly descends, bearing the body to the basement in front of the incinerator, which by means of superheated air has been raised to a white heat within, at a temperature of about 1,500° F. As the door of the incinerator is opened to receive the body, the inrushing cold air causes the temperature to fall a little, and gives to the interior a beautiful rose tinge. The corpse, wrapped up in a sheet saturated with alum or asbestos, and placed on a metallic bed, passes over rollers into *a bath of rosy light*. The sheet delineates the form of the human body until incineration is complete, and the bones crumble into ashes under the mystic touch, as it were, of an invisible agent. This process may be called the etherealization or spiritualization of the human body. It requires about an hour per one hundred pounds of the original weight. A few pounds of clean, white ashes are dropped by means of a lever into the ash chamber below, and are drawn thence into an urn of terra-cotta, marble, alabaster, or other suitable material, and returned by means of the elevator to the catafalque. The service or ceremony being now over, the friends of the deceased find the ashes just where they had last seen the body of the departed, and may bear them thence to the columbarium or mortuary chapel, or set them on the border and plant violets, heartsease, and forget-me-nots in them from year to year. Each urn contains the ashes of but one person, as a rule, and has an appropriate inscription. The process is accompanied with no perceptible sound, smell, or smoke, and presents absolutely nothing that can offend the susceptibilities of the most fastidious.

Scarcely an instance, says Beugless, is known of anyone having witnessed the process as thus conducted who has not at once become a pronounced convert to cremation, whatever may have been his pre-existing prejudice.

Connected with the crematorium are rooms for post-mortem examinations and medico-legal researches, when deemed necessary.

Crematory temples, in many large cities of Europe, are of beautiful monumental architecture. Italy alone boasts of thirteen such temples. Milan has two. Those of the latter city and the one of Rome are of the grandest proportions. There exist to-day cremation societies in all countries of the world. There are not less than thirty-seven in Italy alone. The most important and most active is in Milan, which city is also the centre of the "Lega Italiana delle Società di Cremazione." The Cremation Society of Copenhagen numbers two thousand members, that of Holland twelve hundred members, that of Paris six hundred. There are also societies in Berlin, London, Dresden, Rio Janeiro, etc.; and in the United States there are not less than ten regularly incorporated organizations. Among their members are to be found some of our most distinguished citizens.

The greatest practical objection to the generalization of cremation was, until recently, the want of a proper apparatus for the *rapid* and *complete* incineration of bodies. That objection exists no longer—the problem is now solved by the late experiments made in Europe and in our own country. Great progress has been made in the different apparatuses. Venini's, which is used in Milan, Padua, Brescia, and Udine (Italy), seems, so far, to be the most perfect. It destroys most thoroughly all animal gases, is fumivorous (smoke-destroying), emits no smell, and its action is continuous. It is heated by *gas*, with variable oxidation, and its jets can be subdivided and concentrated on one point at will. By this apparatus the most rapid and hygienic, and at the same time least expensive, method of cremation has been obtained. As we have said before, the cost of cremating one body has been reduced in Milan to the sum of 8 francs ($1.60).

In Italy they have already built, in addition to their numerous beautiful crematorium temples in cities, large crematory furnaces (*forni collettivi*) for the cremation of bodies in time of war, especially of those who fall on the battlefields, and during epidemics for those who die from contagious or infectious diseases. These furnaces have been constructed according to Gorini's plan. It has been estimated that three of these *forni crematorii collettivi* could incinerate ten thousand bodies in three days.

A movable crematorium, on wheels, intended for an army in the field, or for localities in which crematory temples do not exist, has been invented by Captain Rey, of the Italian army, and has, upon trial, given perfect satisfaction. This apparatus, which can be easily drawn by two horses, does not cost over 3,000 francs ($600).

The main object of cremation societies, for some time to come, should be to enlighten public opinion, to remove all prejudices against cremation, and to prove that it can be practised without in the least wounding religious sentiment or susceptibilities. For, with so many powerful sanitary, philosophical, and economical arguments in favor of cremation, why is it that this essentially useful and hygienic measure is not more generally adopted in our country? Is it not simply on account of the ignorance, bigotry, and prejudice that surround us? Is it not the duty and mission of hygienists, philosophers, and sanitarians to attempt to enlighten the people, to advise legislation, to remove prejudice and false ideas, to prepare public opinion for the adoption of one of the greatest sanitary reforms of the age, which is intended to bring sanitary results of incalculable importance? Let our people understand and appreciate the immense benefit of cremation; let prejudice and bigotry be conquered. Cremation, once known, will become popular among us, and science will have made one more great step forward.

PRINCIPAL CREMATION SOCIETIES EXISTING IN ITALY, WITH DATE OF THEIR ORGANIZATION.

Milan	1876	Varese	1880	Padua	1881
Lodi (municipal institution)	1877	Domodossola	1880	Codogno	1881
Cremona	1877	Como	1881	Venice	1882
Udine	1879	Bologna	1881	Plaisance	1882
Rome	1879	Modena	1881	Leghorn	1882
		Pavia	1881	Novara	1882
Ancona	1882	Parma	1882	Pistoja	1883
Genoa	1882	Verona	1882	Siena	1883
Florence	1882	Pisa	1882	St. Remo	1883
Brescia	1882	Carpi	1882	Intra	1884
Turin	1882	Asti	1883		

Felix Formento.

DEAD FINGERS. See *Hand and Fingers.*

DEAF-MUTES. — DEFINITION AND CLASSIFICATION. The word "deaf-mutes" signifies, strictly speaking, persons who, having been born deaf or having lost their hearing in early life, have not acquired the power of speech. There is usually no defect in the vocal organs, except such imperfection of development as may be the result of lack of exercise; muteness is simply the consequence of deafness. Ordinary children learn to speak by hearing and imitating the sounds made by others; the deaf child does not hear such sounds, therefore does not imitate them, therefore remains mute.

The term "deaf-mutes" seems to have originated in the United States within the present century. The synonymous term generally employed in England and still frequently used in this country, is "deaf and dumb." Of these two designations, "deaf-mute" is the preferable one; for (1) the words "deaf and dumb" tend to perpetuate the popular error that deafness and dumbness are two distinct physical defects, instead of standing, as above explained, in the relation to each other of cause and effect; and (2) the word "dumb" is open to the further objection that it carries with it an implication of stupidity and brutishness, being associated in the minds of many people with disparaging allusions to the lower animals, as in the Scriptural expression "dumb dogs," and in Longfellow's reference to "dumb, driven cattle."

There are many persons usually spoken of as "deaf-mutes," or "deaf and dumb," and educated in institutions established for the instruction of this class, who are not properly described by either of these terms. Some of them, having lost their hearing by accident or disease, after they had learned articulate language, still retain their speech notwithstanding their deafness; others, formerly mute, have acquired the art of speech through the instruction of skilful teachers of articulation. Such persons are not really "dumb" or "mute," and their improper classification as such—especially in the case of those who have learned to speak before losing their hearing—gives rise to serious errors in the mind of the public concerning the nature of deaf-mute education and its results. The strictly correct designation for the whole class of persons under consideration in this article is "the deaf"; the term "deaf-mute" should be applied only to persons deaf from birth or infancy, who have not acquired the use of articulate speech.

Some deaf-mutes are either born deaf, or, losing their hearing in early infancy from unobserved causes, are supposed to have been so born; others become deaf from various diseases or from accidents. The deaf are thus divided into two great classes: the "congenitally" and the "adventitiously" deaf, or, as they are often called, "congenital deaf-mutes" and "adventitious deaf-mutes." Except when hearing is known to have existed, it is impossible to say positively to which of these classes a deaf-mute belongs (see Proportion of Congenital and Adventitious Cases, *infra*); the distinction nevertheless is an important one.

Among the adventitiously deaf, a large proportion lose their hearing in early childhood, before they have learned articulate language; in other cases in which some progress in speaking has been made, the length and severity of the disease that causes deafness, often temporarily affecting the brain at the same time, seem to efface the language previously acquired; and in others the neglect of parents and friends to aid and encourage the deaf child in the extraordinary efforts necessary for the retention of speech after hearing is lost, produces the same result. Such persons are sometimes called "quasi-congenital deaf-mutes." Speech as well as hearing is gone, and they as truly belong to the class of "deaf-mutes" as if they had never heard.

Many persons have lost their hearing by accident or disease, after having acquired the use of articulate speech, and retain this speech more or less perfectly notwithstanding their deafness. If the loss of hearing occurs in adult life, they usually escape the improper classification with deaf-mutes above referred to; but if it happens in childhood, so that they cannot be educated in the usual manner of hearing children, but must be sent to special schools for instruction, they are erroneously included among deaf-mutes. Many of the processes of deaf-mute instruction are, it is true, equally applicable to persons of this class, and they may therefore properly be associated with deaf-mutes for the purpose of education; but they differ from deaf-mutes essentially, not only in having the ability to express themselves orally, but still more in their natural mode of thought, which is in words and not in gestures. This difference is fully recognized by all teachers of the deaf, who in this country distinguish the members of this class by the useful and convenient, though not accurately descriptive, title of "semi-mutes."

The deaf may be further classified according to the degree of their deafness. Deafness varies all the way from a slight difficulty in hearing to the inability to perceive the loudest sounds. Persons in whom the defect is so slight as to allow of their education through the ear in ordinary schools, are not regarded as deaf-mutes, and do not come within the scope of the present article; they may be designated as simply "hard of hearing." The whole class of the deaf, aside from the hard of hearing, are divided into "the totally deaf" and "the semi-deaf." The totally deaf may belong either to the congenital or to the adventitious classes, and the same is true of the semi-deaf.

The term "mute" is often used as synonymous with deaf-mute, but it should be avoided as less exact, since it may also refer to persons who hear, but are not able to speak on account of feeble mental power or of some defect in the vocal organs. It is open to the further objection that it suggests to many minds an undertaker's assistant at a funeral. Persons "mute" or "semi-mute," but not deaf, are, of course, not to be included among deaf-mutes, and are not suitable candidates for admission to schools for the deaf. If, as is usually the case, their deafness is due to defective mental power, they may properly be sent to a school for the feeble-minded, where the skilful efforts of devoted teachers often succeed in awakening the dormant intellect, imparting speech, and restoring the child to society.

Extent of Deaf-mutism.—For a large part of the world we have, of course, no statistics of deaf-mutism; but during several decades most of the countries of Europe and North America have included such statistics in their census returns. The returns from different countries, and from different parts of the same country, show remarkable differences in the extent of deaf-mutism. These differences are doubtless due in part to the greater accuracy with which the census is taken in some places than in others; but it is probable that place of residence, race, and modes of living have considerable influence. Mountainous regions give a larger proportion of deaf-mutes than low, level countries; the Caucasian than the African race; Jews than Christians; the poor and ignorant than the intelligent and well-to-do classes. Switzerland has the largest proportion of any country of which we have returns, 2,402 deaf-mutes in every million inhabitants; Australia has the lowest, 371 in every million. In the United States, according to the census of 1890, the proportion is 648 in every million.

Proportion of Males and Females.—In each million of population of the United States, of the same sex, according to the census of 1890, there were 702 male and 595 female deaf-mutes. Out of each thousand deaf-mutes there were 552.5 males and 447.5 females. The census returns of all other countries show a similar excess of male over female deaf-mutes. The greater liability of male children to ear and brain disease has been assigned as a reason for this excess, but the reason for such greater liability, if it really exists, has not been explained.

Proportion of Congenital and Adventitious Cases.—The census returns of 1890 give 41.5 per cent. of the total number of deaf-mutes in the United States as congenitally deaf, 50.5 per cent. as adventitiously deaf, and 8 per cent. as unknown. This result differs from that of all previous United States censuses, which make the congenitally deaf in the majority, as do also the censuses of foreign countries. On the other hand, statistics of pupils in schools for the deaf, in America and Europe alike, give an excess of adventitious over congenital cases. Of 23,931 pupils in American schools for the deaf, 9,842, or 41 per cent., were reported as congenitally deaf, and 14,089, or 59 per cent., as adventitiously deaf. These school statistics are unquestionably more trustworthy than census returns in general, inasmuch as the inquiries made by heads of schools on the admission of pupils are more intelligent and careful than those of the census enumerators.

It should be remembered, however, that all statistics concerning congenital and adventitious deafness are somewhat questionable, for the fact of congenital deafness cannot be determined with absolute certainty in any case. At the moment of birth it is impossible to find out whether the power of hearing exists or not, though a few days later, probably, this can be ascertained by applying proper tests. Generally, the fact of deafness is not discovered until the child arrives at the age when children usually begin to talk; at that time it is impossible to say whether the deafness has existed from birth or has occurred at some subsequent period. If the child has suffered from some unmistakable disease that is known to be a frequent cause of deafness, the case is likely to be recorded as adventitious; it may possibly, however, have been congenital. If, on the other hand, no such disease has been observed, the case is likely to be recorded as congenital; but it is, perhaps, quite as likely that the hearing has been lost in consequence of some unnoticed inflammation of the mucous membrane of the tympanic cavity or of the air passages occurring soon after birth, or at some subsequent time before the deafness was discovered. Deafness truly congenital is probably of much rarer occurrence than is indicated by even the most trustworthy statistics, and the only adventitious cases of which we can be sure are those of persons of whom it is known that they have heard at some period of their lives. It is to be understood, therefore, that "congenitally deaf," as a rule, really means "supposed to be congenitally deaf," and that "adventitiously deaf," in some cases, means "supposed to be adventitiously deaf." Of the adventitiously deaf a large proportion lose their hearing under five years of age.

Causes of Deaf-mutism.—The immediate cause of mutism, in the great majority of persons who do not speak, is simply deafness. (See Definition and Classification, *supra*.) Where this is not the case, as occasionally occurs in children improperly brought to schools for the deaf, there is usually some mental defect which has prevented the development of speech. Such mutism "is the result of the absence either of ideas or of reflex action in the motor organs of speech. In the former case, imbeciles have nothing to say; in the latter, they feel no desire to speak." Very rarely, indeed, it happens that mutism is due to some defect or paralysis of the vocal organs that interferes with articulation. But as neither of these groups of "hearing mutes" belongs to the class of deaf-mutes, they do not come within the scope of the present topic. Since deafness is the immediate cause of mutism in all deaf-mutes, in order to ascertain the causes of deaf-mutism we must inquire into the causes of deafness.

The causes of deafness may be divided into direct and indirect causes. The direct causes are the defects in the organ of hearing, whether congenital or adventitious, which prevent the perception of sound. The indirect causes are the circumstances of environment, disease, or accident, either ante-natal or post-natal, or both, accompanying or preceding deafness in so large a number of cases as to give us reason to suppose that they have an

important influence in producing those defects. The causes of which I shall speak are those that have been observed by teachers of the deaf, or gathered by them from the statements of the parents and friends of the children brought to them for instruction.

In discussing this subject it has until recently been usual, setting out with the classification of deaf-mutes into congenital and adventitious cases, to ascribe all the former to ante-natal, and all the latter to post-natal, causes. This distinction cannot be maintained. There are probably both congenital and adventitious cases (though a much smaller number of the former than is generally supposed), and there are, doubtless, both ante-natal and post-natal causes; but (see Proportion of Congenital and Adventitious Cases, *supra*) it is impossible in any case of supposed congenital deaf-mutism to say certainly that it is not adventitious, while, as will appear below, there is reason to believe that ante-natal causes often combine with post-natal to produce adventitious deafness. Every case should be considered by itself; just as careful inquiry should be made, on the one hand, concerning all possible ante-natal causes in cases known to be adventitious as in those supposed to be congenital, and, on the other, concerning all possible post-natal causes in cases supposed to be congenital as in those known to be adventitious. This has not usually been done; when it is, we may expect to arrive at a much clearer understanding of the causes of deafness than has yet been reached.

Heredity.—The first, and probably the most effective, indirect cause of deaf-mutism is heredity. This is sometimes questioned, for the reason that deaf-mute parents do not, as a rule, have deaf-mute children; but, aside from the fact that the exceptions to this rule are of themselves numerous enough to establish the principle of heredity, its existence is clearly proved by the large number of deaf-mutes who are related to one another by blood. Out of 17,833 pupils who attended American schools for the deaf, 7,516, or 42 per cent., were reported as having deaf relatives. Many of these cases had more than one deaf relative, making the groups of related deaf-mutes much fewer than the total number of related deaf-mutes reported; but they none the less forcibly illustrate the tendency of deafness to prevail in certain families—a tendency which can be explained only by the principle of heredity. As Prof. W. K. Brooks has profoundly observed, "an inherited characteristic may or may not have been manifested by the parents or other ancestors. If it is more common either among the ancestors or the brothers and sisters and cousins of the organism than it is in the race at large, it is an inherited characteristic."

Of 2,245 deaf persons reported as congenitally deaf, 1,461, or 65 per cent., had deaf relatives; of 3,953 reported as adventitiously deaf, 794, or 20 per cent., had deaf relatives. The large proportion of cases supposed to be congenital, among those having deaf relatives, indicates that the hereditary tendency to deafness, where it exists, is generally so strong as to produce the result—whether independently or in conjunction with some other indirect cause that is not observed—either before or soon after birth; while the considerable number of known adventitious cases having deaf relatives shows that the inherited tendency not infrequently awaits the concurrence of some disease, perhaps not hereditary in its character, before manifesting itself. It should be remembered also that, though we speak of hereditary deafness, what is inherited in any case of deafness, whether congenital or adventitious, is not really deafness, but some anomaly of the auditory organs or of the nervous system, or the tendency to some disease, of which deafness is but the result or the symptom.

While the principle of heredity is thus clearly established as an indirect cause of deafness, it is the fact that in a great majority of cases the defect is not transmitted by deaf parents to their children. Still, marriages of the deaf are more likely to result in deaf offspring than ordinary marriages. Of 3,078 marriages of deaf persons in America, one or both of the partners being deaf, the results of which are known, 300, or nearly 10 per cent., resulted in deaf offspring; of the 6,782 children born of these marriages, 588, or 8.5 per cent., were deaf. The percentage of ordinary marriages resulting in deaf offspring is not known; it is certainly less than one per cent. The results above stated are in accordance, on the one hand, with the law of heredity that a physical anomaly or an unusual liability to certain diseases existing in the parent tends to be transmitted to the offspring, and, on the other hand, with the law of heredity that the offspring tend to revert to the normal type.

For the hereditary transmission of the physical condition that results in deafness, it is not necessary that both of the partners in marriage should be deaf. On the contrary, taking the deaf as a whole, without regard to the character of the deafness, marriages in which both of the partners are deaf are not more liable to result in deaf offspring than those in which one of the partners is deaf and the other a hearing person. Of 2,377 marriages in which both partners were deaf, 220, or 9.25 per cent., resulted in deaf offspring; of 599 marriages in which one partner was deaf and the other hearing, 75, or 12.5 per cent., resulted in deaf offspring. Of 5,072 children born of the marriages in which both partners were deaf, 429, or 8.5 per cent., were deaf; of 1,532 children born of the marriages in which one partner was deaf and the other hearing, 151, or nearly 10 per cent., were deaf. These results are not, as it might appear at first sight, inconsistent with the general law of heredity that the liability to the transmission of any characteristic existing in the parent is increased by the union of "like with like"; for, as has been stated above, when the deafness of the parent appears in the offspring, the characteristic transmitted is not deafness, but is some anomaly of the auditory organs or of the nervous system, or the tendency to some disease, of which deafness is but the result or the symptom. Inasmuch as these anomalies and diseases resulting in deafness are many and various, it is probable that in most marriages of deaf persons the pathological condition that results in deafness is not the same in one partner that it is in the other, and their marriage, therefore, is not, from a physiological point of view, a union of "like with like." On the other hand, where the pathological condition of the two partners is the same, as it probably is in the majority of consanguineous marriages of deaf persons, there is doubtless an intensification of the liability to deaf offspring. Of 31 consanguineous marriages of deaf persons, 14, or 45 per cent., resulted in deaf offspring, and of 100 children born therefrom, 30 were deaf. Fortunately such marriages are rare.

Congenitally deaf persons, whether they are married to one another, to adventitiously deaf, or to hearing partners, are far more liable to have deaf offspring than are adventitiously deaf persons. The liability is greatest when both of the partners are congenitally deaf. Of 335 marriages in which both partners were reported as congenitally deaf, 83, or 25 per cent., resulted in deaf offspring; and of the 779 children born from those marriages, 202, or 26 per cent., were deaf.

Marriages of adventitiously deaf persons are more liable to result in deaf offspring than ordinary marriages, but when both of the partners are adventitiously deaf or one of them is a hearing person the liability is slight. Of 845 marriages in which both partners were adventitiously deaf, 30, or 3.5 per cent., resulted in deaf offspring; of the 1,720 children born from these marriages, 40, or 2 per cent., were deaf. Of 310 marriages in which one partner was adventitiously deaf and the other hearing, resulting in 713 children, the percentages of marriages resulting in deaf offspring and of deaf children born therefrom were nearly the same as in the marriages in which both partners were adventitiously deaf. The greater liability to deaf offspring in marriages of the congenitally deaf than in those of the adventitiously deaf is in accordance with the generally accepted law of heredity that congenital or innate characteristics are far more likely to be transmitted to the offspring than