



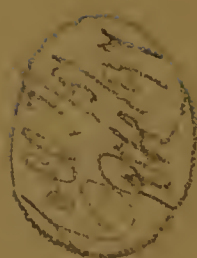
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CRITICAL NOTICES

OF

MR. CURTIS'S TREATISE

ON

The Physiology and Diseases of the Ear,
&c. &c.

"It is certain that many cases of deafness are susceptible of relief by judicious treatment. Perhaps the disposition now prevalent to seek for the cause of many local diseases in disorders of remote parts of the system, especially in the gastric organs, has led to the greatest improvement in the treatment of this as well as many analogous affections. This indication is well followed by Mr. Curtis in all cases of deafness. Excepting those of an organic nature, expressly local, his attention is directed to the state of the constitution; and many cases of what are vaguely termed *nervous deafness*, of several years' standing, have been perfectly relieved. He has applied the principles above inculcated in an active and judicious manner, and the results of his experience appear to have been particularly favourable."—*London Medical and Physical Journal*.

"The number of editions through which Mr. Curtis's work has passed is a sufficient proof of its value. We perceive that he has enriched the present edition with those facts and observations connected with his subject which have recently been published in this country and on the continent. The cases which illustrate the work are instructive."—*London Medical Repository*.

"It contains many useful observations on the deaf and dumb, and some good remarks on diseases of the tympanum and the internal ear; and it is evident that the author has had many opportunities of observing the disease of which he treats."—*Continental and British Medical Review*.

"The magic words, 'sixth edition,' shew that the public ear has not been shut to Mr. Curtis's illustrations of this important subject. It is carefully revised, and, together with new matter, has also new plates and illustrations. The one exhibiting the organs of sensation, from their origin to their end, is very interesting."—*Literary Gazette*.

"That Mr. Curtis's is the best treatise on the ear extant, is not only known wherever the English language is spoken, but it obtains a just precedence in foreign nations, through the means of multiplied translations. To call the attention of the faculty to it would be needless; they know its worth, and have adopted it as their text-book on all matters connected with the ear. But the diseases of this important organ are insidious; their approaches are slow, and hardly apparent—we speak from melancholy self-experience;—and when the progress of these disorders has been fully ascertained by the medical practitioner and at length unwillingly allowed by the sufferer, that progress can no longer be arrested; the disease has gained the ascendancy over the powers of medicine, and ultimately triumphs in the complete deafness of the procrastinating patient. Therefore this work should be in every house; and when any unusual sensation connected with hearing is experienced, it should be immediately consulted. We cannot be doing a greater service to the public than by making this universally known."—*Metropolitan Magazine*.

"Mr. Curtis, whose perseverance commands our applause, has published a new edition of his Treatise on the Physiology and Diseases of the Ear. It had been determined that diseases of the ear were incurable; but Mr. Curtis has published a series of cases sufficient to prove this error; and we congratulate the public on his success, as no diseases are more afflicting than those of this important organ."—*Monthly Magazine*.

CRITICAL NOTICES.

"No one, we think, will be disposed to deny Mr. Curtis the praise of perseverance, and, what is more, of *successful* perseverance. How commendable is that application which is so combined with judgment, that it surmounts every obstacle, and ultimately realises the full amount of its anticipations! Such is precisely the case with the author of this volume, who, notwithstanding the intricacy of his subject, and the apathy, and even opposition, manifested as regarded his attempts at first, has completely triumphed over them all, and shown satisfactorily that diseases of the ear are, generally speaking, as curable as those of other organs; and that the only reason why they have ever been considered otherwise, has arisen solely from the neglect with which the ear had almost universally been treated, until Mr. Curtis set his mind unshrinkingly to the task. The result of his labours is briefly summed up in this volume, the sixth edition of his *Treatise on the Ear*. Altogether, we can confidently recommend Mr. Curtis's work, as giving a fair view of what has been done, and what can be done for the diseases of this intricate and invaluable organ."—*New Monthly Magazine*.

"The great popularity and utility of this excellent work has been evinced by the number of editions through which it has rapidly run: a sixth has just been published, with additions and improvements. When we find a medical book divested of mystifying technicalities, and not overladen with professional phraseology, but addressing itself to all whom its subject-matter may concern with clearness and simplicity, it may indeed be considered justly entitled to a more than ordinary share of public favour. This is the case with Mr. Curtis's book."—*Morning Herald*.

"This work has been enlarged and improved throughout, and brings down to the latest period all that is known respecting that important organ. It also contains a summary of his extensive and successful practice, not fewer than 20 000 patients affected with deafness and other diseases of the ear, from the highest to the lowest, having been treated by Mr. Curtis. The plates are exceedingly beautiful; and no expense seems to have been spared to render this an elegant, at the same time that it is a most useful book, as well to the general reader as to the medical practitioner."—*John Bull*.

"The volume before us has been long before the public. Of the estimation in which it is held, no better proof could be sought than the words 'Sixth Edition,' on the title-page. To those who unhappily labour under the calamity of deafness, it must be an invaluable work. It is undoubtedly the best which has yet appeared on the subject. The present edition is revised, and otherwise improved."—*Observer*.

"Having already spoken of this work on its first appearance, perhaps it would now be enough to say that it has reached its sixth edition; but we are in justice bound to add, that no book treating of diseases of the ear has ever stood so high in the estimation of those who are most competent to give a correct judgment on the merits of a work of this description."—*Sunday Times*.

"Every succeeding edition has borne ample testimony to the assiduity with which the author labours to render this work more worthy of the preference which the profession and the public have long given it. In the work we find a curious and interesting plate, shewing the organs of sensation; it is beautifully coloured: also a view of the great sympathetic nerve. We cannot but rejoice, with every friend to humanity, at the rapid improvement that has been made in the various branches of surgery within these few years; and in none, perhaps, more than in those of the aurist and oculist. We cannot but congratulate the author of the work on the success which has attended his persevering efforts in behalf of an afflicted and forgotten class—the poor, labouring under deafness, or other diseases of the ear."—*Court Journal*.

"This is, on the whole, a useful book. The mere fact that it has reached the sixth edition speaks very distinctly in its favour. If it does not treat profoundly the various topics that come under notice, still the author is evidently a man of extensive experience, with a good talent for observation, and a fair share of practical knowledge. The subject of which it treats is one of deep interest. The diseases of the ear are so frequent, coming on often from very slight causes, sometimes without any known cause, and are so apt to terminate in partial or total deafness, that any thing that is calculated to throw light on the subject cannot be regarded with indifference. It is well known, too, that when the function of hearing is impaired or destroyed, it is exceedingly difficult to restore it. It is therefore very desirable, to understand those diseases that lead to its destruction, to learn, if possible, the means by which they can be arrested, and, at any rate, to be able to distinguish between those that produce only a temporary deafness and those that cause a permanent loss of the function. It will be useful to all classes, by making them perceive the importance of early attention to the first indications of impaired hearing, for this it very properly inculcates. Its plan is judicious. We are pleased to see the increased attention that is bestowed upon this subject, and are desirous that it should still more occupy the thoughts of scientific professional men. On this account we should be glad to have Mr. Curtis's book very generally circulated."—*North American Review*.

1872.24

OBSERVATIONS

ON THE

PRESERVATION OF HEARING,

AND ON

The Choice, Use, and Abuse

OF

ACOUSTIC INSTRUMENTS.

Ο ΕΧΩΝ ΩΤΑ ΑΚΟΥΕΙΝ, ΑΚΟΥΕΤΩ.

ELEVENTH EDITION.

BY

JOHN HARRISON CURTIS, ESQ. M.R.I.

AURIST AND OCUList.

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PREFACE.

SCARCELY five years have elapsed since the first edition of this little work was published; yet so great is the interest that seems lately to have been taken in the subject, both at home and abroad, that many thousand copies have been sold since that time, not only in this country, but also on the continent; and I have had the satisfaction to see it translated into various foreign languages.

The value of the sense of hearing is unspeakable. The man who has lost it is shut out from an entire world—the world of sound. The voice of friends is mute:—in prosperity or adversity he receives neither congratulation nor sympathy from their lips. What a world of pleasure then is lost by the deprivation of hearing! how much

positive evil does it occasion! In this sad state are upwards of 60,000 persons in our metropolis alone, the great majority of whom might be restored to the full possession of the faculty of hearing, but for want of knowledge of the means of relief; or impressed with the unfounded idea that their malady is incurable, they pass their existence in this lamentable condition. It is evident, therefore, that popular information on this subject is imperatively required. The attention of the public and of the profession appears to be now aroused to this fact: the medical societies have recently manifested some interest in the matter, and we may reasonably expect that good will result from these circumstances.

The principle of the division of labour is at length beginning to be applied to the science of medicine, after many strenuous opposing endeavours on the part of those who are interested in preventing the changes to which that application must give rise, and who are more anxious to maintain their own vantage ground, than to contribute to the

general welfare. The indications of the spread of the principle of subdivision, are numerous—those of most recent origin being the institutions for diseases of the rectum and for club-feet:—institutions which, a few years ago, would have been regarded with ridicule and contempt, but which are now hailed, even by the profession, as promising much benefit to the community. Dr. Stewart, the able President of the Medical Society of London, attributes, and correctly so, this cheering fact to the circumstance that “medical men are less enthralled by traditionary prejudices, and more awakened to any proposed improvement in their art, than they have been at any former period.”* It must seem strange to any unprejudiced mind that medical men should so long have resisted the division of their profession, the arguments in favour of which are unanswerable. As Dr. Stewart remarks, in a paper read before the Westminster Medical

* Vide his “Remarks on the medical profession, in reference to the division of labour in its practice,” a work which contains many useful observations on this subject.

Society, and published in the *London Medical Gazette*, “ I presume it will be allowed that the only principle upon which medical men, as a class, are considered better informed upon the duties of their profession than other people, and are referred to for their opinion and assistance in case of disease, is this—that they have devoted themselves, more or less exclusively, to learn and practice the art of healing.” But this art is one of the most extensive fields of human exertion, comprising within its legitimate limits many of the most important sciences. How absurd then is it to imagine that any single individual can make himself so thoroughly acquainted with every department of this immense science as to render himself fit to *practice* in them all ! Mere theoretical knowledge, however indispensable, is not enough :—the application of principles to the infinitely diversified and complicated cases that occur every day is a far more arduous task than the acquisition of a perfect knowledge of those principles, and is only to be correctly made by those who

compare their abstract knowledge with their actual experience.

My offices of Surgeon to the Royal Dispensary for Diseases of the Ear, and Aurist to their late Majesties George IV. and William IV., his late Royal Highness the Duke of Kent, and other members of the present Royal Family, have, during the last twenty-two years, brought under my notice upwards of 20,000 persons, from the highest to the lowest, afflicted with deafness and other diseases of the Ear;* and consequently I have had a mass of practical experience that had never fallen to the lot of any previous practitioner in this country. The principles of my practice, and the success that has attended it, may be seen detailed at large in my Treatise on the Physiology and Diseases of the Ear, of which a Sixth Edition has been published.

Many are of opinion that it is *infra dignitatem* in an author to abridge his own

* Vide the last Report of the Royal Dispensary for Diseases of the Ear.

productions; but, as my object is to do good, by giving useful advice to those who have neither time nor inclination to study more elaborate works, I shall not allow such a consideration to influence me. Were it necessary, however, to cite precedents in defence of this measure, we have only to look to Germany—a country confessedly among the foremost in literature and science—where it is a frequent practice with learned and scientific men to publish *Abkürzungen*, or abridgements of their important works, for the benefit of the more general public.

That this little work may answer the end proposed, and thereby help to diminish the mass of human suffering and inconvenience, is my earnest wish.

JOHN HARRISON CURTIS.

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ON THE
PRESERVATION OF HEARING,

AND ON THE

Choice, Use, and Abuse of Acoustic Instruments,

&c. &c.

I SHALL introduce my subject by a few remarks on the division of medical labour—a point that has frequently been discussed, but the advantages of which many seem still inclined to doubt. I think it will be sufficiently evident, however, on a little reflection, that the man who devotes all the energies of his mind to one pursuit, will thus acquire an intuitive knowledge, which cannot be explained in words, or conveyed by signs;—witness the wonderful performance of the

Prince of Violinists, as an exemplification of this remark.

Few, I apprehend, will deny that surgery has been greatly benefited by being separated from medicine; for, in an art where manual dexterity is absolutely essential to the safe and expeditious performance of difficult operations, every one must perceive that such dexterity can be acquired only by daily practice. The surgeon was originally merely the servant of the physician. Medicine, in early times, was chiefly practised by the ministers of religion; and, as the sacerdotal character did not permit them to have connexion with blood, the surgeon was called in as their attendant, to perform those operations which the sacredness of their functions did not allow them themselves to execute. Thus, the first step towards improvement was the practice of surgery getting into the hands of the laity, and being exercised as a distinct profession.

Surgery has since been subdivided into many branches, with much benefit to the community. Who has not heard of the difference between dental surgery now and

what it was fifty years ago? Then, if a tooth was lost, the countenance was probably disfigured, or the speech impaired, for life.* Now, one or a dozen may be supplied in such a manner as to assist in mastication, and hardly to be distinguished from the natural teeth. In the art of tooth-drawing equally great improvements have been made, and the sufferer from tooth-ache has now no reason to defer extraction from the fear of thereby increasing the evil.

Another subdivision in surgery was the department of the aurist;† and here I trust

* The teeth are essential to the appearance and symmetry of the countenance; without them, that contour and harmony of features which the face ought to possess are wanting: yet they are liable to more speedy decay than the other parts of the body from their greater exposure to external causes, which act upon and destroy their enamel and osseous substance. When deprived of the teeth, not only is the beauty of the visage impaired, but the food being no longer sufficiently comminuted, digestion is imperfectly performed, and stomach complaints, with a decay of general health, are too often the consequence.

† The first author among the French, who treated the ear scientifically, was Duverney; his work appeared in 1683: but the earliest printed book on the anatomy of the ear that I have seen, is by Julius Casserius, a Paduan,

I may without vanity refer to my own works and my own practice, as evidences that the public have reaped advantage from my almost exclusive study of the ear. Until I turned my attention to it, little had been effected for diseases of that organ: indeed, nothing but a love of the science, a desire of relieving my afflicted fellow-creatures, and a determination not to be baffled in my pursuit, could have induced me to persevere as I have done for the last twenty-two years. Mr. Saunders, after bestowing considerable time and attention on the ear, was disheartened at the neglect he experienced, and in consequence relinquished it for the profession of the oculist—a third shoot from the stem of surgery, and one to which I have also for

published in 1600, and entitled *De Vocis Auditusque Organis Historia Anatomica*, containing numerous fine plates. It shews that, since his time, little additional information has been obtained on the structure of this organ; for several of what are now considered to be the discoveries of Hunter, Monro, Blumenbaeh, and others, in its comparative anatomy, may be found here. The volume formerly belonged to Mr. Monk Mason, and was purchased at his sale by Mr. Bohn, from whom I procured it. It is, in all probability, a unique copy.

some years devoted my leisure; the fruits of which may be seen in my recent Treatise on the Eye. The intimate connexion which exists between the ear and eye first led me to the study of the latter, having found, in several cases, that while prescribing only for diseases of the ear, I had unintentionally cured those of the eye at the same time. I have not the most remote intention of abandoning the ear, however successful I may be with the eye; but, having now overcome many difficulties and much opposition, and having lately received great encouragement, I am resolved to apply my best energies to the diseases of the ear as long as I live.

Certain it is, that the treatment of those diseases is almost unknown to medical practitioners, even of eminence. Mr. Abernethy himself told me that he did not understand the treatment of such diseases; and my own father, who was a physician, and practised for upwards of fifty years, knew but little of this intricate organ, and strongly dissuaded me from attending to what he called so unsatisfactory a subject.

Much of the difficulty that has hitherto deterred medical students from its investigation is now, I am happy to say, removed; and whoever will study attentively my Treatise on the Physiology and Pathology of the Ear, together with my Chart of the diseases to which it is liable, pointing out their order, classification, seat, symptoms, causes, and treatment, comparing the descriptions contained in these with my coloured Map of the Anatomy of the Ear, shewing its external, intermediate, and internal structure, with the bones *in situ*, and the principal nerves and blood-vessels in its immediate vicinity—may soon gain a knowledge of this organ; consequently there is no longer any excuse for medical men being ignorant thereof. Still, it must ever remain true, that daily practice and observation only can confer that *tactus eruditus* which enables the aurist at once to ascertain the precise situation and character of disease, and can teach him how to apply such remedies as experience has shewn him to be most suitable.

But a knowledge of the ear and its diseases will never be general among the profession

in this country, until the Court of Examiners of the College of Surgeons insist upon an acquaintance therewith, as one of the necessary qualifications of a surgeon.

I may remark, that the works published in this country on the ear are few and incomplete; and this arises principally from the want of sufficient experience and practice on the part of their authors. The best of them are in a great measure occupied with criticisms (not *always* fair and friendly) of other similar works; and seldom indeed do they furnish us with any new facts or discoveries in the treatment of the diseases of the ear. A foreign book on the ear, by a Dr. Kramer, recently translated into English, however, completely eclipses all previous works in these *valuable* qualities: and as it contains some observations relative to myself, I feel it incumbent on me to take this opportunity of noticing it. His work is distinguished far more by its sweeping condemnation of *all* previous writers and practitioners on the ear, than by originality, or an extensive acquaintance with the subject which it purports to treat. The author has preferred the easy

task of censuring others, to the more difficult one of adding to our knowledge.

As far as I am concerned, the *learned* Dr. has assuredly been *somewhat* unfair; and if he has not been more careful to ascertain and to write the truth respecting the other topics treated of in his book, than he has respecting myself, it must be throughout a remarkably veracious performance. In the first place, he refers to the *earliest* edition of my Treatise on the Ear, published in 1817: a work which has since passed through six editions, the last of which appeared in 1836. Even were he ignorant of the fact, that my treatise has been repeatedly republished, on what principle did he assume that I still adhere to all the views expressed in the first edition, and have not in the least profited by the extensive and daily experience which he knows I have for the subsequent twenty years enjoyed? But, passing this, he represents me as employing and recommending modes of treatment which I never practised—which will not be found in any of my works—and which, I venture to say, could never enter the mind of any one possessing even the most

moderate share of acquaintance with the ear.

I have deemed it a duty I owe to myself and the public to reply thus far to a writer who appears to be restrained by no feeling either of justice or shame; and who has taken upon himself to condemn, in the severest and most contemptuous manner, the works of men infinitely his superiors in acoustie surgery. The most learned and wise are ever the most modest—ever most ready to acknowledge the merits of others, and to give to every fellow-labourer his just meed of praise. Taking this disposition as a test of extensive and profound acquirement, Dr. Kramer will indeed be found wanting. I shall only add, I have the satisfaction of knowing that two of the ablest German physicians have considered my works deserving of being rendered into their vernacular tongue: Dr. Robbi, of Leipsic, has translated my Treatise on the Ear, and another work; and Dr. Weise that on the Deaf and Dumb; each of which works they have enriched with many useful notes. The former gentleman has also done me the

honour to dedicate to me his valuable Encyclopædia of Anatomy.

Having made these preliminary remarks, I shall now, for the information of the general reader, very briefly describe the anatomy of the ear in man.

The human ear consists of three principal divisions, viz. an external, intermediate, and internal ear. The parts of the first division are called the helix, antihelix, tragus, anti-tragus, lobe, *cavitas innominata*, *scapha*, and *concha*. In the middle of the external ear is the *meatus*. The external or outward ear is designed by nature to stand prominent, and thus contribute to the symmetry of the head: but in Europe it is greatly flattened by the pressure of dress: it consists chiefly of elastic cartilage, formed into several hollows or sinuosities, all leading into each other, and finally terminating in the *concha*, or immediate opening into the tube of the ear. This shape is admirably adapted for receiving, collecting, and retaining sound, so that it may not pass off, or be sent too rapidly to the seat of impression.

The next division is the intermediate ear, which consists of the tympanum, mastoid cells, and Eustachian tube. The tympanum contains four small delicate bones, viz. the malleus (or hammer), incus (or anvil), stapes (or stirrup), and os orbiculare (or orbicular bone), which last is joined to the incus. The intermediate ear is an irregular cavity, having the membrana tympani stretched across its extremity: this cavity communicates with the external air through the Eustachian tube, which opens into the fauces, or throat. The membrane of the tympanum is intended to carry the vibrations of the atmosphere, collected by the outward ear, to the chain of bones which form the peculiar mechanism of the tympanum.

The third division of the organ is the internal ear, called the labyrinth: it is divided into the vestibule, three semicircular canals, and the cochlea, the whole being incased within the petreous portion of the temporal bone. The internal ear may be considered as the actual seat of the organ: it consists of a nervous expansion, of high sensibility, the sentient extremities of which spread in every

direction, and inosculate with each other in the most minute manner, forming plexuses, by which the sense of hearing is increased. Here, also, sound is collected and retained by the mastoid cells and cochlea. To this apparatus is added a fluid, contained in sacs and membranes.

To man, the importance of hearing is very great; for by it, his harangue is heard in the senate, and his commands in the field. The parts essential to the perfect exercise of this function are;—

1. An external ear; whenever this is completely removed in man, deafness is certain to ensue.
2. The membrane of the tympanum: this may be partially injured, but cannot be entirely lost, without producing deafness.
3. The stapes: all the small bones of the ear, except the stapes, may be removed without destroying hearing; but the last named is the only one that prevents the escape of sound from the internal ear.
4. The aperture of the Eustachian tube; which preserves the access of air through the throat to the tympanum. That this is a necessary part, is evident from the structure of the ear in the tortoise and

frog, which have no external ear, but an enlarged Eustachian tube placed behind the roof of the mouth. 5. The presence of a fluid in the internal ear: by the vibrations of which the acuteness of impression is heightened.

The general structure of the ear resembles a cavern, its form being, as before remarked, the best adapted for the reception and transmission of sound. It was probably from a knowledge of this fact in acoustics, that Dionysius, the Syracusan tyrant, caused a cavern to be hollowed out in a rock, in the shape of the human ear, wherein to confine his state prisoners; and by means of tubes communicating with his palace, he was enabled to hear their conversations, and hence obtained evidence by which either to condemn or acquit them. It is related by classic writers, that even the slightest movement or the faintest sigh of the wretched inmates of this dungeon reached the chamber of their inhuman oppressor.

The impressions received by the organ of hearing are conveyed through the medium of the air, which acquires a tremulous motion or vibration from the action of the body com-

municating sound; and as these motions or vibrations succeed each other, sound is directed to, and impressed on, the thin membrane stretched obliquely across the auditory passage, where it produces a similar motion, and excites the sense of hearing, with a mysterious yet most efficient precision, and with a certainty of result invariably corresponding to the consecutive causes of sound.

In all animals the ear is divided into an external and internal part; and the difference in its structure is greater internally than externally. In quadrupeds the variations are also much more marked than in the other classes of animals: but whatever differences of structure occur, the animal is thereby better fitted for its peculiar circumstances and mode of life. For, when we remember that all are the production of Infinite Wisdom, we may rest assured that even the slightest varieties of structure have their uses, and are not the result of accident. The sense of hearing is one of the most powerful helps to preservation that animals possess; since it not only foretells the approach of danger, but is also the

means of effecting the reunion of individual families, and of congregating large numbers of a species for defence or migration. By it, too, they are assisted in finding their prey; and hence this faculty is wanting only in the very lowest in the scale of animated nature.*

The form and situation of the ear, however, as well as the delicacy and peculiarity of its structure, render it liable to injury from many causes; and unless particular attention be paid to its preservation, it is rare that it retains its powers in any considerable degree of perfection beyond middle life. But as I do not profess to specify here all the diseases of this organ, I shall only subjoin some observations on such as are most frequent, or are otherwise remarkable. †

As a proof, if any were required, of the

* Those who are interested in the instructive study of comparative anatomy will find a mass of very curious facts relative to the form, capabilities, &c. of the ear in man, quadrupeds, birds, fishes, and insects, in the last edition of my Treatise on the Physiology and Diseases of the Ear, in which work I have entered fully into the subject, and condensed much valuable information from various British and foreign sources.

great prevalence of diseases of the organ of hearing, the following tabular report of the number of patients, and of their respective diseases, attending in the course of a single day at the Royal Dispensary for the Diseases of the Ear, is subjoined. Maladies affecting this highly important organ are far more frequent than is generally admitted or supposed, and are also much more amenable to treatment than either the profession or the public at large were until recently inclined to credit.

DISEASES.	NO.
Otorrhœa	13
Otitis.....	7
Tinnitus Aurium	21
Herpes	2
Obstruction of the Eustachian Tube.....	2
Polypus.....	3
Nervous Deafness.....	18
Paracusia	4
Deafness from superabundant secretion of cerumen	9
Deafness from diseased secretion	5
Deafness attended with deficiency of secretion ..	13
Deaf and Dumb	2
Deafness from Scarlatina Maligna	4
Deafness from Bathing.....	3
Deafness from Syphilis.....	2
Deafness from Accidents, &c.	6
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One of the most prevalent diseases of the ear is a purulent discharge called otorrhœa. It is generally brought on by exposure to cold, and is not unfrequently the consequence of an attack of fever. Though it is often a serious, and always a disagreeable complaint, yet, if attended to in time, it is easily cured. It may be divided into three distinct stages: the first is simply a discharge from the ear, unaccompanied with any thing of an alarming nature; in the second form the discharge is combined with fungus or polypus; and in the third the bones are involved, which becoming carious, the disease often terminates fatally.*

The first form yields to simple remedies; but when the discharge is long continued, degenerating into the chronic state, there may be danger in checking it too suddenly.

* As further evidence how little practitioners in general know of the ear, I may mention, that a modern writer, in his *Practice of Physic*, which is certainly, as a whole, the best work of the kind in our language, recommends two drachms of pyroligneous acid in six ounces of water to be injected into the ear in this disease! It is unnecessary to state the mischief such an application would cause, in case of any unsoundness of the organ.

Even in the second form, after the removal of a fungous or polypous excrescence by manual interference, or local remedies adapted to the nature of the case, the application of mild and cautious means has usually been found, in my experience, to be sufficient for its cure. But the third stage is the most formidable; and M. Lallemand (a celebrated professor of Montpellier) has given an alarming picture of the danger accompanying it. However mild this disease may be in the first instance, if neglected or improperly treated, the discharge changes from a mucous to a purulent form, accompanied by that distinctive fetor which marks the destruction of the bones. Several fatal cases are adduced by this gentleman, shewing the importance of early attention, as well as the danger of improper treatment.

Otitis, or ear-ache, is an inflammatory affection of an exceedingly painful nature. Children frequently suffer from this disease; but most commonly it attacks persons who heat themselves by violent exercise in the open air. Like other inflammatory diseases, it assumes two forms—the acute and the chronic, and is susceptible of those appli-

cations and modes of treatment which are employed under analogous circumstances. A strong fomentation of poppy-heads will generally afford relief; but should the disease be caused by a carious tooth, as is often the case, the tooth ought to be removed. The acute form is easily relieved by reducing the local inflammation, and increasing the action of the *primæ viæ*; but in the chronic form the cure will, of course, be comparatively tedious, though even in these cases the disease will yield to appropriate constitutional treatment.

A third and very common disease is an herpetic eruption, appearing chiefly on the external part of the ear, but not unfrequently involving the passage also. The eye likewise is sometimes affected, and even the whole head. It causes a thickening of the skin, and sometimes even a discharge from the meatus: the thickening occasionally closes the passage, and brings on deafness. This disease is very frequent among children, in whom it appears at an early age. It is also to be met with in adults, especially in such as are of a scrofulous habit. Its duration depends much upon the general health; and

it may be considered rather as an annoying than a dangerous affection, though if neglected it frequently becomes serious. It is often aggravated by patients rubbing the parts with their hands.

Nervous deafness is a disease that attacks all classes, and is particularly prevalent among females: it assumes a variety of appearances; and though one of the most troublesome affections to which the ear is exposed, yet, if taken in time, and properly treated, it is not difficult of cure. Few persons are aware of the mode in which incipient deafness may be detected: I will therefore just mention, that if they cannot hear distinctly a watch tick when held at arm's length, it is full time to pay attention to the organ, for if it should be neglected, confirmed deafness may ensue. When of long standing, however, and the ear has become habituated to mistaken impressions and false perceptions of sound, it proves exceedingly obstinate. Still, even in these cases, a knowledge of the disease, and perseverance in a right course, will effect much. In the generality of cases of nervous deafness that have come

under my view, either nothing has been attempted by way of relief, or what has been prescribed has not been followed up. Many persons, but especially those not dependent on labour for their support, are prone to neglect this malady. When accompanied with noise in the ears (*tinnitus aurium*), which is perhaps one of the most unpleasant affections to which the ear is liable, and which is frequently found so troublesome to the practitioner, it is often indicative either of apoplexy or some other morbid affection of the brain, from which, at a certain time of life, there is always great danger of a fatal termination. *Tinnitus aurium* is often induced by high living, intemperance, mental excitement, &c.* There are

* All these causes affect the ear through their action on the great sympathetic nerve, the stomach being first affected: hence in such cases of tinnitus, remedial measures should be directed in the first instance to the removal of the derangements of the organs of digestion, which alone will sometimes suffice to cure the disease of the ear. This accounts for the great utility in tinnitus aurium of quinine, joined with valerian, which I have lately employed in many instances both at the Dispensary and in my private practice, and always with benefit. It is to be noticed that much depends on the freshness of the valerian, which is better when pounded than when ground, as it is the less liable to adulteration.

two kinds of nervous deafness, attended with *tinnitus aurium*, the one erythritic, the other torpid; the former may be considered as the acute, the latter as the chronic variety. In apoplectic cases, with faltering of speech and blindness, we find deafness also produced by the general affection of the head.

A disease of the auditory nerve, like that of the retina in gutta serena, is not an unfrequent complaint; and I have lately pursued the same treatment as for amaurosis in several cases.

The discoveries of those distinguished continental physiologists, Magendie and Manec, respecting the great sympathetic nerve connected with the ganglionic plexus, which is situated near the stomach, and which exerts such a leading influence on all the organs of sense, but more particularly on the ear and eye, have tended much to elucidate nervous affections. I have myself also had the satisfaction of tracing the intimate connection of those nerves, while dividing the sémilunar ganglia and solar plexus, in the dissecting-room of King's College, which I did in the presence of Mr. Partridge, the able and

scientific Professor of Anatomy to the College. If the stomach be the centre of sympathy, as is now universally acknowledged, practitioners ought to bear in mind, that any derangement of its nerves may produce analogous affections.*

Worms are often the cause of deafness in children, and sometimes also in adults.† Indeed, the causes from which deafness arises are as various as the different degrees in which it occurs. Among the most prominent may be mentioned, besides those already enumerated, early neglect, scarlatina maligna, inflammation of the tympanic cavity, fever,

* For a description of the nerves connected with the ear and eye, see the plate in my Treatise on the Ear, exhibiting the nerves of the organs of sensation from their origin to their termination: and also my Map of the Principal Nerves and Blood Vessels of the Head.

† A singular instance of deafness caused by worms occurred some years since. Lady — was extremely deaf, and her case resisted all the means I tried, as it had previously done those employed by others whom she had consulted. I was induced, therefore, to call in the late Dr. John Sims, the then consulting physician to the Royal Dispensary for Diseases of the Ear. He ordered her ladyship large doses of oil of turpentine, which removed the worms, and thereby cured the deafness.

measles, small-pox, influenza, apoplexy, epilepsy, scrofula, paralysis of the auditory nerve, scurvy, cancer, suppressed evacuations, mental affections sympathising with the stomach and bowels, indigestion, hysteria, convulsions, delirium, coma, intemperance, exposure to cold, heavy discharges of artillery, &c.

Many are undoubtedly deaf from sheer negligence;—they have, according to the clever, though eccentric, Dr. Kitchiner, only hearing enough to catch the sound of the dinner-bell, and sight sufficient to find a spoon;—they are accustomed never to attend when first spoken to; but answer you with a “Was that you?” “Pray did you speak?” “What did you say?” “Eh? what? eh?”—and their idleness and inattention daily growing upon them, they become in time really deaf; not from any defect or disease, but from absolute sluggishness. With such persons it is obvious the aurist has nothing to do. They must, if they wish to hear, rouse themselves from their lethargy, and, as Virgil has it, *arrectis auribus*, listen attentively to those who address them.

Among the various causes of deafness, a

very simple one is often overlooked, viz. an accumulation of inspissated or hardened cerumen.* This accumulation takes place at the inner extremity of the meatus, and occurs at all ages, frequently from the most trivial causes. The state of the secretion at the same time undergoes a considerable change; and the case is not unfrequently confounded with nervous deafness and other affections of the ear. Cases of this nature require that the ear be inspected, by which the cause of the inconvenience may often readily be detected. Having done this, relief may almost as readily be afforded, and the hearing restored, by having the hardened secretion dissolved by proper applications, and afterwards removing it by the careful use of the syringe. The importance of great care in the selection of the syringe which is employed, must be manifest, those in general

* Some physiologists have contended that there is a muscle whose office it is to expel the cerumen; and I was formerly inclined to coincide with them in this opinion; but farther examination has convinced me that there is no muscle for this specific purpose, but that the wax is expelled during mastication, when in a healthy state.

use being much too large; indeed some persons recommend instruments of such a capacity that they can also be employed for domestic purposes, so that a larger and stronger stream of fluid would be thrown in than is needed, and endanger rupture of the membrane of the tympanum; and any one who is acquainted with the anatomy of the internal organ of hearing will be readily enabled to appreciate the serious consequences which would result from forcibly injecting a volume of fluid into the tympanic cavity, and where there is a previous rupture, with disorganization, the results would be still more serious. By neglecting this persons often labour under deafness for a considerable time, and use an instrument, entertaining an idea that they are afflicted with an incurable disease, never imagining that so serious an evil depends on so trifling a cause.

Deafness is not unfrequently attended with a deficiency of the cerumen, and its re-secretion must be induced as a means of restoring the function of hearing. To effect this object, the proper measures must be adopted to re-excite the glands to action, for which purpose

I have found a solution of ereosote exceedingly useful: when the secretion is unhealthy, the accumulation of it should be removed from the meatus.

Many persons are deaf from an obstruction of the orifice of the Eustachian tube.* An easy method of knowing whether this be the case, is, to place a watch in the patient's mouth, or between his teeth. In slight cases of deafness from this cause, a gargle of Cayenne pepper and port wine will remove the obstruction.

Sea-bathing sometimes produces deafness, by first detaching and afterwards dissolving the cerumen, which, covering the membrane of the tympanum, prevents the vibrations of air from reaching it. If the ear be well syringed with water, while the wax is in that soft state, the hearing will immediately be restored.

Parents, and others who have the care of

* When in Paris some years ago, I purchased an instrument for injecting the Eustachian tube, made by Charriere; and M. Deleau was kind enough to shew me his mode of employing it, which I have since frequently practised successfully.

young children, should be cautioned against the too free use of cold bathing; many children having become deaf by its improper or unseasonable application, and from their not being wiped quite dry.

The effect of blows upon the head is often of the most serious nature; and schoolmasters ought to be careful not to box boys on the ear, or otherwise strike them upon the head, as deafness may be caused thereby. A case occurred at the Dispensary some time since, in which an usher having hit a lad on the head with a ruler, deafness was the consequence.

Nursery-maids should be strictly charged never to set down very young children on the damp grass; as a cold caught at this early period of life, before the function of speech is developed, has not unfrequently been the cause of deafness, and, in consequence, of dumbness; it being evident, that no language can be spoken correctly, unless the ear be able to catch all the niceties of pronunciation, accent, emphasis, &c.

The habit of frightening children is another source of injury, and is very reprehensible.

It is an evil, the effects of which remain a long time, sometimes till death, producing not only deafness, but epilepsy, and a long train of diseases.

When parents find that children in early infancy are dull of hearing, and do not readily acquire their speech, but appear to be deaf and dumb,—if they have not an opportunity of consulting a medical man, I would recommend the ears to be well syringed with warm soap and water; and the external part, together with the sides of the ears, to be rubbed night and morning with a coarse linen cloth. Sir Everard Home used to advise, in cases where children were dull of hearing, an ointment made of equal parts of hog's-lard and soft-soap, to be rubbed, not only all over the ears, but on each side of the head in the vicinity of the organ. Though I do not expect much benefit from this application, yet the friction is likely to be of service, and deserves a trial.

Mothers cannot be too strongly cautioned against considering their children deaf and dumb before they are tested; it having been frequently remarked to me, that infants who

heard while teething, afterwards became deaf; consequently deafness in these cases depended on functional, not structural, derangement, and the hearing they once had might have been restored. When a child is supposed to be born blind, advice is sought: why not also if suspected to be deaf and dumb?

The use of warm night-caps is a custom certainly injurious to the organ of hearing; and there can be no doubt that deafness arising from cold is very often caused by persons sleeping with the head enveloped in flannel, and in the day-time, even in winter, going abroad with the ears completely exposed. The insufficient dress of ladies also renders them peculiarly liable to catch cold: and hence deafness frequently ensues. In slight cases, a little eau de Cologne applied behind the ears, and cleansing them with soap and water, will generally remove the complaint. When there is violent pain in the ear, a few drops of tincture of opium with oil of almonds, in the proportion of ten drops of the tincture to a quarter of an ounce of oil, will often afford relief. But should these means fail, recourse should be had to pro-

fessional assistance, as serious disease may exist, even when least suspected.

The state of the atmosphere has considerable influence on the organ of hearing; and it seldom happens that those who live in a humid or impure air possess acute audition: deafness is also much more frequent in such cases than where the air is pure and wholesome; and hence many of the poorer classes, who reside in crowded lanes and close alleys, are dull of hearing. A highly artificial state of society, too, is not without its effect upon the ear; in fact, none who are "in city closely pent" have that quickness in perceiving sounds which is common to man in savage or even in less civilised countries. In New Spain, deafness and diseases of the ear are hardly known.

There are probably more deaf persons in proportion to the number of inhabitants, in this country than in any other in Europe: in fact, there are but few who hear very acutely. How many, for instance, can hear the insects in the hedges, or a watch tick at the distance of twelve yards? which all ought to be able to do. We know, upon unquestionable au-

thority, that the Calmucks have a good ear and a quick eye, and that they can discern an army or the tramping of horses at a great distance, when no sound is perceptible to our ears. Should any doubt the number of deaf persons in this country, especially among the higher ranks and those holding important situations, he will on inquiry find that not only are many of them deaf, but that they have never had any attempt made to restore their hearing. The reason of this, I apprehend, is, that the professional men about them are, from indifference to the subject, mostly unacquainted with diseases of the ear.

Generally speaking, few diseases are more easily cured than those of the ear, if attended to in an incipient stage: and few are more obstinate when confirmed by neglect or long standing. Cases of structural defect are at all times incurable; but when the derangement is merely functional, there are few instances in which an early application of proper remedial means, and strict attention to what is directed, will not effect a cure.

Nostrums for affections of the ear are now very properly out of fashion. It cannot be

denied, that some of them, by moistening the parts, and gently stimulating the passage, may have been of service; but to suppose that any of them could remove a structural defect, only shews the folly of those who expected relief from such inadequate means.

Some persons, who dispute the possibility of curing diseases of the ear, say, that as we cannot see its inside, we cannot be successful in our endeavours. But it should be remembered, that neither can the brain nor its membranes, the lungs, heart, stomach, &c. be seen, and yet diseases affecting those organs are curable. It may perhaps be urged, that by means of dissection a knowledge has been obtained of these parts: then why, I would ask, may not a knowledge of the ear be obtained in the same way? Besides, experience is as useful here as in other cases. We know that a beating noise, like the strokes of a ponderous hammer, denotes a hardened secretion; that a humming, resembling the rustling of leaves, the blowing of wind, the falling of water, &c. indicates a nervous affection, produced by internal causes, and termed paraculis, frequently a forerunner of apoplexy

or some other alarming mischief, as delirium, madness,* &c.; and so of other symptoms.

Few need be told, that if they wish to hear well, and avoid deafness, they must guard against wet feet, thin shoes, cold currents and draughts of air, keeping on wet clothes, sleeping in damp rooms and unaired beds, going into the night air from heated apartments, living in marshy and low situations, &c. Shunning these things, those who would retain their hearing unimpaired till old age, should attend to their general health, breathe a pure air, take as much out-door exercise as they can, live on plain but nutritious food, keep the mind calm and tranquil, and be especially careful to prevent constipation of the bowels. Much useful advice on these points will be found in the last edition of my work on the Preservation of Health in Infancy, Youth, Manhood, and Age.

The intrusion of foreign bodies into the ear is of frequent occurrence. Many cases have come under my notice, in which children,

* It is a remarkable coincidence, which has frequently been noticed by medical writers, that almost all mad persons complain of noises in the head.

while at play, have had pins, cherry-stones, and other extraneous substances, introduced into the passage. Insects also sometimes get into the ear, though, from the acridity of the cerumen, not so often (at least as regards their penetration into the inner passage) as might be imagined; and as they are unable to extricate themselves when once involved in the exterior meatus, they occasion great inconvenience and uneasiness. In all these cases a forcible extraction of the intruding body ought to be avoided; in lieu of which I would merely recommend dropping a little sweet oil into the ear, which will instantly destroy the insects, and afterwards syringing it out with lukewarm water will generally dislodge them.

Accidents of this kind are frequently brought to the Dispensary; but if the intruding body be difficult to extract, and do not occasion pain, my invariable practice is, not to interfere with it; and in no instance have I ever heard of any unpleasant consequences resulting from this plan.*

The condition of the deaf and dumb can-

* Some years ago, a young lady was brought to my house early one morning by her mother and sister, who

not fail to affect every feeling mind acquainted with the numbers of their fellow-creatures thus doomed to pass through life deprived of the blessings of hearing and speech. And when we learn that by proper attention and examination at an early period of infancy, a large proportion of these individuals might have enjoyed the use of these faculties, our regret is increased to think that such means have not been tried. The evil seems chiefly to have arisen from supposing that all dumb children are totally

stated that a glass bead had accidentally been forced into one of her ears. On examination I found the parts very much lacerated and covered with blood, and was told that two surgeons had attempted to remove the bead, without success. I also endeavoured to extract it; but as it was impacted at the bottom of the passage, in consequence of the efforts that had been made to dislodge it, I did not succeed. As the young lady cried much, and her mother and sister were greatly alarmed, I proposed going to Mr. Cline, which we accordingly did. I expected that he would renew the attempt to get out the bead, but was surprised to hear him say, that as there was no pain, he should advise its being left alone. His advice was followed; and in a few days it came out of itself. Since that time I have uniformly adopted the same course in cases unattended with pain, well knowing that serious consequences often ensue from violent attempts being made to extract intruding substances.

deaf; an assumption utterly without foundation, and one which has been repeatedly disproved in my own practice. Cases of malformation of the ear are very rare; and, generally speaking, deafness in infants (for it is in infancy that a cure should be attempted) is caused by an obstruction of the Eustachian tubes, or by some other defective condition of the function of hearing. Were all children suspected of deafness to be submitted to an early inspection by competent persons, instead of being allowed to remain deaf until nine or ten years old (whereby the disease is confirmed), and then admitted into an asylum and treated as incurably deaf, the result would be very different, and many be rendered useful members of society, who, under the present system, are objects of commiseration as long they live.

These remarks are made, not from ill-will towards any men or body of men; but merely from a desire that the subject may meet with that candid examination and strict scrutiny which its importance deserves. As long ago as January 11th, 1817, I submitted a plan to the Committee and Governors of the Deaf and

Dumb Asylum,* which was, that an aurist by profession should be appointed to inspect all infants previous to their admission into that Asylum; and that, where no structural derangement was discovered, a plan of treatment should be immediately commenced, having for its object the restoration of the faculty of hearing, which being obtained, speech would naturally follow.

At the time I thus wrote I had good grounds for what I said; but since then the evidence of the accuracy of my views has been considerably increased. Several cases of infant deafness and dumbness have come under my care, as Surgeon to the Royal Dispensary for Diseases of the Ear; and by adopting the means above suggested, I have the happiness to know that these poor children have been restored to their hearing, and, as a consequence, to their speech likewise.

The number of deaf and dumb persons far exceeds what is generally supposed.†

* Vide the letter in my Essay on the Deaf and Dumb; and the Rev. W. Fletcher's excellent Observations on the same subject. Published by H. Renshaw.

† A circular issued by the Institut Royal de Surdsmuets

My opinion, that malformation of the organ is comparatively infrequent, has, I rejoice to see, received the support of the distinguished M. Itard, who, in a memoir to the Minister of the Interior, states that absolute deafness is comparatively rare; not above one-fifth of the cases of deafness and dumbness that have come before him, presenting a state of total deprivation of hearing; for it is a fact, that some of the children in the asylums can hear a little with one ear—and, with proper remedies, that little

de Paris shews, that in France, with a population of 23,000,000, there are 20,189 deaf and dumb, *i.e.* one in every 1585; in Russia, one in 1584; in America, one in 1556; for all Europe the proportion is as high as one in 1537; so that there is ample scope for institutions of this nature. Those at present existing are inadequate for the admission of all, or even a large portion of congenital cases of deafness and dumbness; it being a well-attested fact, that three, four, five, and in some instances even seven, children in one family are so afflicted. According to a Report of the London Deaf and Dumb Asylum, it appears that a list of 64 candidates was presented to the governors, out of which they were under the painful necessity of electing only 21, though all seemed to have powerful, if not equal claims on their notice. By the same Report it will be seen, that in seventeen families, containing 136 children, there were no fewer than 78 deaf and dumb.

might be improved. It is full time, therefore, that something effectual were done for this class of sufferers; and I am happy to state, that the benevolent Patrons and Governors of the Royal Dispensary for Diseases of the Ear have in contemplation such an enlargement of the present building as will enable them to admit infant deaf and dumb children within its walls, when an early examination of patients, and a course of constitutional treatment suited to the various cases, will be entered upon, from which I confidently anticipate the most cheering results.*

* On this subject the Editor of the *Lancet* makes the following judicious observations:—

“ The condition of the Deaf and Dumb is a subject of great interest with every humane man. Milton has described want of vision as ‘ wisdom at one entrance quite shut out:’ the same description forcibly applies to those unfortunate beings who are devoid of that grand inlet of knowledge—hearing; and who, as a natural consequence, are likewise destitute of one of the most useful attributes of man—speech. It is not sufficiently considered, that hearing is the grand incentive to speaking; for if sounds be not heard and discriminated, they cannot be imitated. The child, in his early attempts at speech, is guided by the ear, which leads him to the imitation of vocal sounds; it follows, therefore,

Before closing this part of my subject, I beg to subjoin a few remarks on the Royal Dispensary for Diseases of the Ear, of which I have the honour to be the founder. When I first made known my intention of establishing such an institution, I was told that there were not in the metropolis sufficient cases of deafness, and other diseases of the ear, to render such an attempt necessary; which, indeed, for some time, from the few applications, and still fewer subscriptions, I almost thought must be the fact; and had it not been for the persuasion of the venerable Arch-

that those who are born deaf, or who are affected with deafness before the power of articulation is attained, necessarily remain without the power of speech. Congenital deafness, and that which is observable soon after birth, Mr. Curtis believes to be frequently dependent upon casual circumstances only; and he insists upon the necessity of treatment in early infancy, before the disease has been confirmed by time and habit. At the London Deaf and Dumb Asylum, however, children are not eligible until nine years of age, and are received under eleven years and a half; the advanced age at which patients are admissible is of course unfavourable to medical treatment. Mr. Curtis is entitled to the best thanks of the public, for having drawn attention to the fact, that many cases of deaf and dumb, hitherto considered hopeless, admit of palliation and cure."

deacon Bowyer, whom I had the happiness to relieve about that period, I believe I should have abandoned my purpose. The Dispensary has now, however, stood the test of twenty-two years; upwards of 10,240 patients having been cured or relieved. Sometimes as many as 150 persons have received advice and assistance in one day; and it is a source of the highest satisfaction to me to know that, out of so many applicants, not one has ever been made worse by the treatment employed; but that the majority have been enabled to return to their various avocations, for which they were before incompetent.*

Mild and gentle means are those invariably adopted at the Dispensary; for I am convinced that nothing has tended more to weaken the confidence of the public in some of our best institutions for the relief of the

* The state of mind in deaf persons has frequently been noticed: the deaf, indeed, are generally low-spirited and fretful; the blind, on the contrary, are usually cheerful. The former brood hopelessly over their misfortune, being by it completely isolated from society; the latter confidently anticipate relief. The deaf, too, according to M. Andral, are short-lived; while daily observation shews us that the blind are remarkable for longevity.

afflicted poor, than the performance of bold and dangerous operations.

This institution was not brought to its present condition without unwearied exertion and unceasing perseverance: for the first six years of its existence, I was never absent a single day.

Many noblemen and gentlemen, patrons of the Dispensary, have lately visited it; some of whom have remained upwards of two hours, in order to be the better able to judge for themselves of its utility. Among these may be mentioned, the Earl of Harewood, the Earl of Tankerville, the Earl of Lincoln, the Bishop of Bath and Wells, the Bishop of Derry, as well as several of the most distinguished members of the medical profession.

The interesting science of acoustics presents too wide a field to be entered on here: I shall therefore merely describe some inventions for the assistance of the incurably deaf.

As being the first contrivance of the kind, I shall commence by introducing my acoustic chair, which is an improved application of the principles of the apparatus called the in-

visible girl. The intention of this chair is, to enable a deaf person, seated in it, to hear and join in conversation, without inconvenience or effort;—and by means of additional tubes, carried to other rooms, he might also hear whatever transpires in them. One of its great advantages consists in this; that the person sitting in it hears at the opposite side to that at which he is addressed, thus avoiding the unpleasant and injurious practice of the speaker coming so close as to render his breath offensive, and probably cause a relaxation of the membrane of the tympanum. This is an effect commonly produced by the use of flexible tubes, or voice conductors, as they are called, which are as often employed for speaking through, as for hearing with: and it is a certain fact, that many persons, after having used them for half an hour, are for a time quite deaf, from this cause alone.

This invention is of the size of a large library chair, with a high back, to which are affixed two barrels for sound, and at the extremity of each is a perforated plate, that collects sound, into a paraboloid vase, from every part of the room, and impresses it more

sensibly on the ear, by giving it only a small quantity of air. The converse end of the vase serves to reflect the voice, and to render it more distinct. By means of sufficient tubes, this chair might be made to convey intelligence from St. James's to the Houses of Lords and Commons, and even from London to Windsor.

I have lately constructed an acoustic table, also, which cannot fail to be of great service, as it enables those using it to hear while writing, or engaged in any operation in which tables are required. A somewhat similar one, I have been informed, was made sometime since for a distinguished foreigner at Berlin.

Another invention of mine is a trumpet with two apertures, called the compound trumpet, one to be inserted into the *meatus*, and the other into the mouth; by which a twofold advantage is gained, the deaf person receiving sounds at the same time both by the external auditory passage, and by the Eustachian tube. The inconvenience attending the use of this instrument precludes its adoption by any but those who are very deaf, for whom alone it is intended.

A curious little tin trumpet, which can be

held in the hand without being observed, I have called the conoidal trumpet; its construction is somewhat similar to that of the internal ear; its compact form renders it very convenient, and is much liked by deaf persons: it was invented by Don Consul Jovis of Cadiz. One of these was given me by a Spanish gentleman whom I cured of deafness. In some cases it is found to be of considerable benefit; but still I must, once for all, assure my readers, that it is useless ever to expect to hear so well with a short trumpet, however excellent, as with a long one. Hence it is that persons are generally so little satisfied with trumpets: they expect one not longer than the meatus to enable them to hear as well as if it were two feet in length. The thing is impossible: and it cannot be too plainly stated, that the longer the trumpet, the greater will be its power—it is with it just as with the lever in mechanics.* The trumpet I use for ex-

* Hence we may form some conception of the absurdity of deaf persons expecting to hear the faintest whisper in a public room by means of voice conductors of the size of a seven shilling piece, or only a quarter of an inch in diameter, as frequently may be seen advertised, and also of the audacity of those who try to persuade them that such is the case.

aming deaf and dumb patients is about eight feet long.

I have also invented a hearing-trumpet, somewhat like a telescope, named a conical trumpet. It is of a very convenient construction, and shuts up into a small case for the pocket. In addition to other inventions, I have lately constructed some small ear-caps, with and without tubes, which, being placed over the ear, collect sound from different parts of the room; and for deaf persons while eating, reading, or otherwise engaged, they are found very serviceable and agreeable. At the same time I may remark, that my original telescope ear-trumpet, from its great power, portability, convenience, and cheapness, is now generally preferred.

A few evenings since I presented to the Royal Society the most recent foreign invention for assisting hearing, in which I have effected several improvements, and to which the name soniferous coronal has been given. It is a small instrument and is fixed over the head, from the top of which the sound is conveyed by two small tubes to the ears. It received the approbation of the Society, who

returned me their thanks for the instrument, which with many persons appears to be a great favourite, and may in some cases be of service, although it must be confessed to be inferior in power and serviceableness to a common tin trumpet.*

Ear cornets, which were originally invented in France, when constantly worn are decidedly injurious, producing head-ache, and sometimes even tinnitus; nor do they possess sufficient power to be of much service except in those slight cases where the use of any instrument whatever is objectionable, and hence they are now falling rapidly into disuse. Their continual use, moreover, soon deprives them of the little utility which, if only occasionally resorted to, they may sometimes have. The hard ivory tips of cornets, as commonly constructed, by keeping up an undue and painful pressure upon the external

* This instrument, as well as my various other instruments, may be had of Messrs. Philp and Wicker (late Savigny), St. James's-street; and Mr. S. Maw, 11, Aldersgate-street, Surgical and Acoustic-Instrument Makers to the Royal Dispensary for Diseases of the Ear; also of Mr. Weiss, in the Strand.

meatus, are also productive of great pain and soreness. This evil I have lately obviated by the employment of caoutchouc for the tips, a substance admirably adapted for this purpose by its elasticity and pliability.

A long tin trumpet, manufactured by Mr. Weiss, Surgeons' Instrument-maker, Strand, which I lately saw, seems to possess great power.

A new instrument called the otosole, made of the trumpet shell and mounted with silver, answers very well.

I might enumerate many other instruments which are in my possession, some of them of complex construction, and others of a more simple kind; as also some that I have recently received from France; but those noticed are the most important.*

The proper selection of an acoustic instrument for the use of the incurably deaf, has been deemed of so much importance that a committee has been appointed by the British Association, for the purpose of considering

* A model of my Acoustic Chair, as well as my various new and improved Acoustic Instruments, may be seen at the Polytechnic Institution, Regent Street.

and reporting on the instruments which may be deemed best adapted for assisting the hearing. I am glad to find that a scientific body like the British Association has taken up the subject, as it will have the effect of taking it out of the hands of advertising empirics; but, at the same time, I must confess that I am at a loss to conceive on what grounds they will be able to form their opinion. A committee of deaf persons would be better judges.

On the choice, use, and abuse of acoustic instruments, a few remarks remain to be made.

1. Of their choice. It is impossible to lay down rules applicable generally for the choice of instruments for assisting imperfect hearing; what will suit one person exactly is utterly useless to another; and therefore I would advise that those who require a trumpet should try several: still, there are cases of structural defect in which no trumpet can be of any use. To those who wish to hear well, and who disregard the appearance of the trumpet (which, by the bye, seems to be the *crux surdorum*), I would recommend, in ordinary cases, a long tin

trumpet, in preference to all others; especially for those who hear best with their mouth open, or in a carriage. The cheapest, and even the most unsightly trumpets are often the best; and a common tin one, of the value of half-a-crown, collects more sound, and renders the hearing more acute, than the German silver ears, which cannot be obtained, if properly made from a wax cast of the ear of the patient, under £25: they may it is true, be worn under a cap or wig without being seen.

2. Of their use. Those who are obliged to have recourse to a trumpet, should begin with one of a moderate degree of power, and use it as sparingly as possible, never employing it when they can do without it; for the less a trumpet or any acoustic instrument is used, *i. e.* the more rest that is given to the ear at a time, the better and longer will it answer the purpose. The constant use of any fixed acoustic instrument destroys the power of the ear, and greatly increases the malady.

3. Of their abuse. Ear-trumpets are intended for those who would otherwise be unable to hear at all; yet we often see per-

sons using them, who, if they were to exert themselves a little, would be able to hear without them. This may be considered as an abuse of them; and such persons should recollect, that trumpets act on the ear as glasses do on the eye. Many have injured their hearing by improper trumpets; and, in like manner, many have hurt their sight by unsuitable glasses; and I cannot caution deaf persons too strongly from the use of hearing trumpets, voice conductors, ear cornets, and other acoustic instruments, and neglecting curative means when labouring under incipient deafness, otorrhœa, or tinnitus.

In conclusion I have only to add, that these Observations are chiefly drawn from my Treatise on the Ear, to which I beg to refer the reader who may be desirous of further information. The plan of treatment pursued at the Royal Dispensary is fully described in it; and I have the satisfaction of finding, that that plan has thereby become known and been successfully adopted by the profession, not only in this country, but also in France, Italy, Germany, and America.

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