# Clinical reports on the use of glycerine in the treatment of certain forms of deafness / by Thomas Wakley; edited by W. Tindal Robertson.

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# USE OF GLYCERINE

IN

THE TREATMENT OF CERTAIN FORMS

OF

DEAFNESS.

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# CLINICAL REPORTS

ON THE

# USE OF GLYCERINE

IN

# THE TREATMENT OF CERTAIN FORMS

OF

# DEAFNESS

BY

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# EDITOR'S NOTICE.

From my position as resident surgeon to the Royal Free Hospital, many opportunities have been afforded me of witnessing the successful treatment of chronic diseases of the ear by the use of that peculiar preparation called "GLYCERINE." It is a well known fact that DEAFNESS is the invariable accompaniment, in a more or less intense degree, of such chronic affections. This agent was introduced to the notice of the profession about two years since by Mr. T. Wakley, one of the surgeons of this hospital, as a remedy for this class of cases, from considerable experience of its efficacy in a great number of persons afflicted with deafness. Many surgeons, adopting the suggestion of Mr. Wakley, have emadopting the suggestion of Mr.

ployed Glycerine in similar cases, and furnished reports of its success in their hands. It may now be said to have received the sanction and approval of the profession, and some hundreds of patients have had their hearing either completely or partially restored through its agency.

My confirmed conviction of the great utility of Glycerine, and a wish to make a still larger class of the community recipients of its remedial powers, have induced me to re-publish in a compact and convenient form, the essays on the subject written by Mr. T. Wakley, which have already appeared in The Lancet.

W. TINDAL ROBERTSON.

The Royal Free Hospital, March, 1851.

# GLYCERINE

IN THE

# TREATMENT OF DEAFNESS.

The anxiety which is always manifested by the public to take advantage of any new discovery or successful mode of treatment connected with the removal of disease, affords a strong proof of the confidence which is generally entertained by the community in the power of medicine as it is practised in this country. In this respect, a marked difference is shown in the conduct of the professional and non-professional portion of society. This is not extraordinary, as afflicted persons naturally seek for the readiest mode of obtaining relief. The medical practitioner, on the contrary, first considers the rationality of any proposed method of effecting a cure. His

studies have taught him to reflect and to reason, and the results of experience have admonished him not to form conclusions too hastily, or to generalize too widely from restricted data. But it must not be inferred, that because the medical practitioner is less prompt than the public in resorting to the aid of a new agent, that his confidence in the powers of the healing art is less forcible, or is less deeply fixed in the foundations of his judgment, than is that of the non-professional community; on the contrary, the confidence which he feels is not the offspring of an unreflecting, ill-sustained faith—it is not a weak superstructure, raised upon the narrow basis of a single fact, but arises from, and is sustained by, the broad and solid foundations of science, reason, and experience. It is well for society and the progress of knowledge that the minds of medical practitioners are thus trained and disciplined; for if it were a custom with them, without hesitation and reflection, to adopt and sanction every newly-announced successful plan of treating disease, the subsequent failures, in a great majority of the novel plans, would soon destroy all

confidence in the practice of medicine, not only in the public mind, but amongst physicians and surgeons themselves.

Probably one of the causes which has tended in a great degree to establish and sustain the confidence of the community in the practice of medicine, has been the judicious caution which practitioners of eminence have exercised before they have resorted to new means of cure; and secondly, the candour and integrity which they have so often displayed in publishing the results of their experiments and experience. It is honourably felt that much deliberation and caution is due alike to a noble science, to the just claims of society, and to the exalted character of a dignified profession.

If every example of the successful treatment of disease, by a new remedy, were to be published, the minds of practitioners, if not strongly fortified by previous study, and habits of thoughtful investigation, would become in danger of being involved in confusion by the dazzling announcements of numberless triumphant experimentalists. It is, therefore, forcibly felt by

the profession, that before a new mode of treating disease be recommended, something more substantial than speculation or hypothesis should be available to warrant its adoption. Reflections of this kind have induced me to pause for a very considerable period before I determined respectfully to submit to the consideration of the profession the humble pretensions which I am desirous of establishing for glycerine in the treatment of certain forms of deafness. The strong conviction which I entertain as to the utility and value of this remedy is the only apology I can offer for claiming, even for a moment, the attention of the profession on such a subject. I have no new doctrine to inculcate; no new discovery in physiology to enforce; no "great fact" in pathology to disclose. The sum total of my aim on this occasion is, to contribute a fact to our therapeutic store, which, although it may be regarded by some as a very insignificant item, is one which I think ought to be very generally known.

I have already adverted to the confidence felt by the public in the capabilities of medicine, as a practical science, and to the eagerness shown by society to take advantage of any newly-announced medical or surgical remedy. Unfortunately, that unsuspecting desire to seize, with blind faith and hope, on any new proposal for curing disease, is, in this country, the fertile source and support of all those partial, detached, and empirical systems of practice, which are, and ever must be, denounced and repudiated by every well-educated practitioner.

The medical officers connected with the public institutions of this vast metropolis command the most ample opportunities of observing the strong tendencies of the public feeling with respect to the adoption of new remedies. Scarcely is a new fact of any importance connected with the cure of disease published in the periodical journals, when the "out-patients" at the public hospitals make the proposed remedy the subject of common conversation amongst them. Frequently, the applicants for relief even ask to be treated on the "new plan," and sometimes they request to be given some of the "new medicine."

One of the most striking instances of the lively

effect produced by the first announcement of a "new plan" of treatment, was afforded, in the summer of last year, by the publication, in The LANCET, of three papers, "On a New Mode of Treating Deafness." Immediately after the appearance of those papers, an influx of a new class of patients was observable at the Royal Free Hospital. The members of that new class of persons were afflicted with deafness, and often was the remark made by them, "I wish, if you please, to be treated upon the new plan;" or the question was asked, "if there had not been discovered a cure for deafness?" Such inquiries from patients suffering under actual disease, many of whom stated that they were deprived of the means of obtaining a livelihood, in consequence of their infirmities, suggested the questions—"What ought the surgeons of a public general hospital to do under such circumstances?" "Ought these patients to be rejected at this place, and transferred to the institutions specially devoted to diseases of the ear?" It appeared to be just that the patients should be received.

Accordingly, I resolved to attempt to confer a

benefit on the applicants, by adopting and following out the plan of treatment recommended, and this resolution was carried into practice with results which rapidly increased the number of expectant patients. Would it have been right, I ask, to refer such patients to other institutions by rejecting their supplications for relief, or, worse still, to consign them possibly to a class of not over-scrupulous practitioners, who profess to work miracles, but fortunately whom medicine does not claim, or in any manner recognise, as her legitimate children?

Let it not be considered, from these remarks, that I deprecate a division of labour in the practice of medicine and surgery. On the contrary, I distinctly acknowledge, that an intense scientific application devoted to "specialities" in the investigation and treatment of disease has been productive of highly useful and important results. At the same time, such divisions of labour cannot, in my opinion, justify the surgeon of a public hospital in neglecting the consideration and treatment of any class of diseases which properly fall within the field of his obser-

vation. I need not dwell upon the importance of the sense of hearing. Why should a surgeon admit that a disease of the eye or of the tongue properly demands his interference and best attention, and then altogether reject as unworthy of notice or consideration the deranged structures of the organ of hearing? The principles of diseased action are the same in all the vital organs, although peculiarities of tissue produce different morbid results.

During the existence of the first flush of success, the value of this new method of treatment may have been over-estimated. However, it happened that poor patients, in considerable numbers, claimed, at the portals of the public hospitals, to be recipients of the advantages of the new discovery, and I then thought, and still think, that it would have been ungracious and unfeeling to have rudely directed the sufferers to apply elsewhere for relief.

The success which attended the use of the simple operation which was recommended was, as I have already remarked, very striking in the first instance. In several cases, the effect of the

application of the wetted cotton, in which the tympanum had been perforated by ulceration, was even extraordinary. But it too frequently happened, that the relief obtained was of an ephemeral duration. On applying the wetted cotton, the power of hearing, in several instances, which had been lost for a very long period, was instantaneously restored—an event which excited the most profound astonishment in the minds of patients and their friends. Too soon, however, was it perceived that the newly-acquired power gradually subsided, and the sense of hearing returned to its previous imperfect condition. The relapse frequently produced a feeling of dejection in the spirits and hopes of the patient which it was painful to witness. The benefit derived from the application, in the first instance, was undoubted, and could not be mistaken; hence arose the question - Why was it of so evanescent a character? This inquiry naturally suggested a minute investigation into the nature of the materials employed, and also their immediate and remote influence on the parts to which they

were applied. A brief investigation, a few experiments, and an attentive consideration of the subject, induced me to attribute all the conferred advantages to the effects produced by the water, and to reject the cotton as nearly, if not entirely, useless. It even appeared that after the water had evaporated, the retained dry cotton became an additional impediment to the function of hearing. What was to be done? What were the indications which such facts seemed to establish? Evidently the use of some agent, which, by offering a successful resistance to evaporation, should retain its moisture, and continue to lubricate the auditory canal. Clearly enough, it was from the moisture that the benefit was obtained, and from a continuance of the moisture was the advantage to be prolonged.

On duly considering all that I had observed, it appeared to me that glycerine was the only agent which was at all likely to accomplish the object I had in view. After consulting with Mr. Lloyd Bullock, of Conduit-street, relative to the composition and properties of glycerine, my opinion as to the propriety of giving it a trial was confirmed;

and Mr. Bullock kindly manufactured for me a small quantity of that preparation in its purest form. This portion I obtained from Mr. Bullock in the first week of August, 1848, and employed it immediately in several cases, with apparently the most complete success. One of the patients, aged nineteen years, was a relative of Mr. Braithwaite, the celebrated engineer. In this instance the deafness had existed from infancy. Reports of four of these cases will be found amongst those attached to this paper. They were the first I treated with the new agent. In all these patients the wetted cotton had failed to produce a lasting benefit. Two of the four patients are now completely cured; and the other two are so far recovered as only to find it necessary to resort to the glycerine at distant intervals. The success of the new remedy, in these and many other instances, has attracted much notice; and I have now used the glycerine in upwards of three hundred cases of deafness. On many occasions it has been employed without any advantage whatever. In other instances the benefit was considerable for a short time, and then disappeared. In numerous cases, however, by the use of it, the power of hearing has been completely restored.

It was only after much experience in the application of glycerine, and from observing its action in a great number of cases, that it could be ascertained what were those conditions of the ear in which it was most likely to prove of advantage. Contrary to what might have been anticipated, the use of the remedy was successful in persons in whom the deafness had been of many years' duration—one, for example, thirty years, and also in cases where the existence of the malady could be traced to the eruptive fevers of childhood. In instances of deafness caused by inflammation, followed first by suppuration, and then by a horny, dry condition of the auditory canal, the application of glycerine has been attended with signal advantage.

Equally marked and peculiar is the success when it is used in cases where there is a partial or total absence of ceruminous secretion. In many instances of deafness belonging to these classes of cases, the employment of glycerine has been followed by a perfect restoration of the

power of hearing. In other examples of deafness, where the membrana tympani had evidently become thickened and hardened, and on examination with the speculum, denoted a whitish or pearly appearance, the use of the glycerine was followed by strikingly beneficial and gratifying effects. It is evident, therefore, that the application of glycerine is equally admissible, whether the tympanum be in a sound state, or whether it has been destroyed by ulceration.

A description of the composition and properties of glycerine, abridged from Turner's "Elements of Chemistry," may not be uninteresting on this occasion.

Glycerine was discovered by Scheele, and Chevreul proved its exact composition and constitution. Its formula is  $C_6$   $H_7$   $O_5$  + aq. It is found in fatty oils combined with oleic, stearic, and margaric acids; its specific gravity is 1.252. Glycerine is a syrupy liquid, miscible both with alcohol and water, insoluble in ether, slightly inflammable, inodorous, and of a sweet taste.

The most convenient mode of preparing it is by the saponification of olive oil, by means of litharge and a little water. Sulphuric acid will separate the oily matters, leaving an aqueous solution containing the alkaline salt along with the glycerine. The mixture is evaporated to dryness, and treated with alcohol, which again dissolves the glycerine, and leaves the alkaline sulphate undissolved. The glycerine may be purified from oxide of lead, by passing through it a current of sulphuretted hydrogen.

### MODE OF APPLYING THE GLYCERINE.

The ears are to be carefully cleaned by means of cotton held between the blades of a pair of forceps, and dipped frequently in warm water. The canals are to be then rubbed with dry cotton, held in a like manner. Then the glycerine is to be applied by the same means, the cotton, well soaked in it, having been repeatedly passed backwards and forwards in each external meatus, care having been taken to apply it to the tympanum. It mentions in some of the reports that the glycerine had been applied by means of a camel-hair brush. In addition to these methods, I ought to state, that an instrument has been used by me, which somewhat resembles the

caustic-holder employed in diseases of the uterus. The length of the instrument is six inches. The shaft about its middle is divided into three parts, which, at their extremities, form as many claws. These claws can be made to grasp the cotton firmly, by means of a sliding ring. The cotton, on being placed between the claws, should be so fixed that in moving the instrument to and fro in the meatus externus, the free passage of air should be provided for, otherwise an imperforate tympanum might be ruptured. The two best modes to be adopted for accomplishing this object are - 1st, by not placing too large a quantity of cotton within the claws; and 2ndly, by so fixing the cotton, as to allow portions of it slightly to project in fringed ends in the three divisions formed by the claws. The extreme points of the claws should dip or turn towards the shaft.\* The tympanum will not then be scratched by them, should the cotton, from having been carelessly fixed, accidentally escape.

<sup>\*</sup> The instruments which Mr. Wakley uses in the diagnosis as well as the treatment of diseases of the ear, are manufactured for him by Mr. Coxeter, surgical-instrument maker, Grafton-street, University College, London.—Ed.

# ABSTRACTS OF REPORTS OF CASES TREATED WITH GLYCERINE.

## CASE I.

Miss B—; aged nineteen; Lambeth; is healthy; has been deaf fifteen years. August 7th. This was a favourable case for the glycerine. Membrana tympani sound in both ears. The meatus externus of each ear is quite dry. A "singing noise" in both ears is continually present. Has been deaf since she had scarlet fever, fifteen years ago. The auditory passages are tender to the touch, and the lining membrane appears unusually white, and the meatus very small. The ears were washed and dried, and the external meatus well covered with the glycerine, which proved eminently successful. In a few minutes, to the great astonishment of her parent, she could hear a whisper. She applied again on the following Monday, and then stated, apparently with great joy, that she had been to church the day previously, and had heard the voice of the clergyman for the first time in her life. In this case the glycerine was applied three

times a week for six weeks; after that period, it was no longer needed. A cure had been effected, and the ceruminous secretion restored. No return of the deafness has occurred.

## CASE II.

Miss H-, Coppice-row, Clerkenwell, aged twenty years, applied to me on the 7th of August. Has good health; states that at the age of twelve years she had measles, and has been deaf to a distressing degree ever since that time. A discharge flowed from both ears during the attack of measles; when it ceased, the deafness became extreme, and when I first saw her, it had continued eight years. On examination, the lining membrane of both ears was found to be hard and dry. The tympanum of each ear was sound; there was no ceruminous secretion. She states, that after washing her ears she can frequently hear better for a short time; but as soon as the organs become dry, the hearing is lost. In order to make her hear at all, the voice must be raised to a very high tone indeed. On the first application of the remedy, the improvement was very marked in both ears. In six weeks she discontinued her visits, having previously stated that she was perfectly cured. I saw this patient only a few days since; she still hears well.

### CASE III.

C. A—, nineteen years of age. August 9. This patient was sent to me by Mr. Weedon Cooke. He is a scrofulous, unhealthy-looking lad. He says, that when he was five years old he had scarlet fever, and soon afterwards a slight discharge flowed from his ears. His mother states that this discharge was highly offensive; at that time there was very slight deafness. This discharge continued, varying in quantity, for six months, when it ceased, and the patient then became deaf in both ears, and the deafness has continued ever since. On examination, the membrana tympani was found to be sound in each ear, but the lining membrane of the external meatus was much thickened, hard, and of a whitish appearance. Never remembers having

had any "wax" in his ears. I stated to the medical gentlemen who were present, that I considered this to be a favourable case for the glycerine. Having prepared the aural canals, as in the other cases, the glycerine was applied, the power of hearing being extraordinarily increased. The glycerine was used many times, and always with the same successful result. When the ears are under the influence of glycerine, the patient can hear when he is addressed in an under tone of voice. But I am doubtful whether a complete cure will be effected in this case.

# CASE IV.

E. M——, Dean-street. August 15. Aged nine years, deaf and dumb. This child, the father said, had never been known to hear, and he believed, if a pistol were to be fired near his ear, he would not take the slightest notice of it. The ears are very small. Upon examination with the speculum auris, the membrana tympani was found quite normal. The throat is well formed. The tonsils and uvula, in situation and

size, are quite natural. The ears were well saturated with the glycerine. The hearing was then tested in the presence of Mr. Widburne, Mr. Robinson, Mr. Moorhouse, and other medical gentlemen. His name was called loudly behind him; he turned his head at each call; we then directed him to signify with his fingers the number of times he was called by his father, who was situated at the other end of the room. That the boy heard was apparent to all present, by the accuracy with which he answered by means of signals. I saw this child several times, but we could not improve at all upon the benefit he received from our first operation. His parents have, however, commenced teaching him words. I have not seen anything of the child for some time. It is evident that he received a certain amount of benefit from the glycerine.

## CASE V.

Miss R—, Chad's-place, Gray's-inn-road; aged eighteen years. August 15th, 1848. Is not enjoying good health; has been deaf from

infancy, in both ears. The malady followed an attack of small-pox. The lining membrane of both ears is pale, hard, and unyielding to the touch of an instrument. The tympanum of each ear appears perfect; she never found any secretion in either ear; had consulted several surgeons, who had applied blisters, essential oils, &c., but without the slightest benefit. She was sent to me by Mr. Jackson. The ears were carefully cleaned by means of cotton held within the blades of a pair of forceps, and dipped frequently in warm water. The canals were then rubbed with dry cotton, held in a like manner. Then the glycerine was applied by the same means, the cotton, well soaked in it, having been repeatedly passed backwards and forwards in each external meatus, care having been taken to apply it to the tympanum. The effect was particularly well-marked. This patient was under treatment for two months -a complete cure was effected. I heard of her a few days since, and her mother says she continues to hear perfectly.

## CASE VI.

E. P——. August 16. Sent to me by Mr. Robinson, of Gower-street. Aged fourteen. Her mother cannot date her deafness to any cause; states that she has gone through the routine of children's diseases; does not recollect whether deafness followed closely upon any fever; states she is so deaf, that she is quite useless for domestic purposes, and that she had been under treatment by many surgeons, no benefit following. The ears were quite dry; upon washing them, numbers of scales of the epidermis came away, and upon inquiry, she states that "scurf" frequently comes out of her ears; she can always hear better after washing them. From these facts, it is quite evident that deafness was, to a certain degree, due to a deficiency of the ceruminous secretion. The glycerine was applied in the usual manner. Almost immediately, she heard the tick of a small Geneva watch quite distinctly. The glycerine was used during six weeks, and a complete cure was accomplished.

## CASE VII.

Miss J. M—, Devonshire-street, Mile-end. August 20. Has been deaf in both ears during the last five years. Cannot trace the deafness to any particular cause. There has not been any discharge. There is constantly an uneasy sensation in the ears. Membrana tympani imperforate. Not any secretion in either ear. On applying the glycerine, she heard a watch tick with both ears. In this case, the patient cannot hear without using the glycerine. The condition of this patient remains stationary.

# CASE VIII.

Mrs. D—, aged forty-eight, White-horse-lane, Stepney. September 3rd. Is very healthy; sanguine temperament. States that for forty years she has been almost deaf in the right ear, from the effects of a blow given by her school-mistress. She can hear slightly in the left ear, but is constantly annoyed by a singing noise, and

sometimes there is a dull pain over the mastoid She has not had fever. There has not been any discharge from the ears, except just after the time when the blow was inflicted, when there flowed a thin fluid from the right ear for about three months. When the discharge ceased, the deafness commenced, and has continued from that period. Upon examining the membrana tympani of the affected ear, no lesion in it could be discovered. The canal of the left ear was quite dry, and without any secretion. She states she can hear with both ears better in wet weather. Upon the application of the glycerine in the usual way, she heard the tick of a watch with both ears, but most distinctly with the right. Previously, this had been the deaf ear. The glycerine has been repeated many times, and its use is still continued with the same success. This case was one of the most interesting that I have seen.

## CASE IX.

Mrs. P. O—, Adelaide-terrace, Islington, aged fifty six years. Sept. 3, 1848. Has been deaf thirty years; dates the malady from a very severe attack of rheumatism in the head. The meatus of each ear is exceedingly hard, and the membrana tympani much thickened, and of a pearly whiteness; not the least secretion. The membrana tympani cannot be touched without causing pain to the patient; many means of relief had been tried, but without effecting any improvement.

The auditory canals were carefully washed and dried, and then coated with glycerine by means of a camel-hair brush. An improvement in the state of the patient's hearing was very soon manifested. Her son, who accompanied her, said, that for years it was painful to converse with her. Knowing how great was her defect of hearing, she seldom attempted to provoke conversation.

When the glycerine had been introduced a few minutes, her son addressed her in an ordinary

manner, and to his astonishment she heard him perfectly. In a few days afterwards she could hear carriages distinctly, and the noise made by the wheels passing over the stones was painfully unpleasant to the newly-excited organ. She also heard thunder distinctly, not having previously heard it for thirty years. The glycerine still acts effectually; but when her ears are not under its influence, she is as deaf as ever. The hearing continues distinct by applying the glycerine twice a week. If she removes the glycerine, and renders the auditory passages dry, the patient becomes quite deaf. The relief obtained while the ears are under the influence of glycerine is very great -an interesting fact, when it is recollected that the deafness of the patient had been of thirty years' duration.

## CASE X.

Mr. T—, Tottenham-court-road, has been deaf eight years. Sept. 4th, 1848. He cannot refer its existence to any precise cause. The aural canals are quite dry; the meatus is very large, and the membrana tympani is very easily

seen, and found to be quite sound. This patient states that he is in the habit of moistening his ears frequently during the day, always hearing immediately after. From this statement, the success of the glycerine promised to be certain. Not having any glycerine by me at the time, I merely moistened the ears with water, when the hearing was immediately much improved. I then carefully dried both ears, and the power of hearing again relapsed to its former low degree. On the following morning the patient again attended, the glycerine was applied, and the effect produced was even greater than had been antici-The patient always receives the same pated. amount of benefit from the glycerine, and the force of its action is as evident now as when it was first used. The beneficial effects produced by each application of the glycerine continue for six days. I do not believe that any cure will be effected in this case, as it is probable he will always be obliged to use the glycerine.

## CASE XI.

Mr. B-, Deptford Bridge, aged thirtyseven. October 3rd, 1848. He has been deaf in his right ear during the last eighteen years; his general health has always been good. The deafness was preceded by a slight discharge, the ear having been very much inflamed and painful at the time. Various remedies were employed for several years, but without effect, and the affected organ has remained quite useless not less than eighteen years. On examination with the speculum, the lining membrane of the external meatus was found horny and dry, and of a very pale colour. There was an entire absence of secretion; the membrana tympani was not perforated, but was much thickened, and of a pearly whiteness. The patient complains of a neverceasing noise in the ear; occasionally there is a discharge of a thin fluid; at such periods his hearing is much improved, and the noise is less troublesome, but there is more pain during the continuance of the discharge. On examining

both ears, the appearances were strongly contrasted. The lining membrane of the healthy ear was soft, elastic, of a normal thickness, and covered by its natural secretion. When the healthy ear is closed by the hand, it is almost impossible to make him hear the sound of a voice. The ear was in this case washed and rubbed dry, and the glycerine then applied by means of a camel-hair brush. In the course of a few minutes the hearing in the affected ear became very much improved. This benefit lasted, the patient stated, for about four hours. The treatment, without any alteration, was continued twice and thrice a week for five weeks, and at the expiration of that time the patient could hear perfectly well, and detect the slightest noise with the ear, which had, during a period of eighteen years, been deprived of its natural function. The recovery in this case is complete, and I believe will be permanent.

#### CASE XII.

W. M—, aged twenty-five years. Oct. 12. This patient was sent to me by Dr. Willoughby Burslem. She is a delicate, unhealthy-looking person, and has been deaf from the age of six years, when she had the measles. Cannot now hear the tick of a watch. Her mother states that for many years she has not been able to hear a voice, unless addressed in a very loud tone. On examining her ears, the membrana tympani of both ears was sound and natural. There was, however, an entire absence of secretion in the meatus externus of each ear. She stated that there had never been any "wax" in her ears. The glycerine was applied in the manner already explained. She then heard distinctly the tick of a watch, and answered any questions that were addressed to her in an ordinary tone of speaking. I saw her two days afterwards. She was again quite deaf, and stated that she had washed her ears on the evening of the day when the glycerine was applied, and that on the next morning she

was as deaf as ever. The glycerine was again introduced, and as successfully as before. The patient has now been subjected to the influence of the remedy for two months. When she omits to use the glycerine she is as deaf as at first. The effect of the application commonly lasts three days. It is not likely that a cure will be effected in this case.

## CASE XIII.

Mrs. L. T——, Lambeth, aged twenty, consulted me on the 1st of November. She has been afflicted with deafness in both ears for two years; her general health is good; membrana tympani imperforate; no secretion in either ear; slight discharge at times, when her hearing is much better; thinks influenza the cause of her deafness. Upon applying the glycerine the hearing was very much improved, hearing perfectly a conversation carried on in an ordinary tone. She cannot hear without using the glycerine. The last account received of her stated this fact. No cure will be effected, but the glycerine will afford her continued relief.

#### CASE XIV.

Mrs. S—, Greenwich, aged thirty-eight years. Dec. 15th. Considers her deafness to have been caused by a descent in a diving-bell; she is deaf in both ears, which presented the same appearance in such cases. The aural canals are hard, polished, and dry; she is so exceedingly deaf that the tone of the voice must be very considerably raised to make her understand. After the glycerine had been applied, she conversed with the friend who brought her in a tone of voice ordinarily used in common conversation. This was a very marked and successful case.

## CASE XV.

Miss L—, Kensington, aged sixty-five, consulted me in January last. She stated that she had been deaf all her life. On the application of the glycerine, the surgeon who accompanied her stated that she heard "one-third better;" she could not hear a sound, previously, without the aid of an ear-trumpet. No further improvement could be effected in this case.

#### CASE XVI.

Mr. M. C—, Brompton; sent to me by Dr. R. Quain, in February last; has been deaf in both ears for three years. The ears presented the same appearance as in the case of Mrs. S——. The application of the glycerine proved very successful.

## CASE XVII.

Master E. N.—, Hammond-street, Camdentown. March 14th. His mother states that he has been deaf three years after having had scarlatina. Both ears are destitute of secretion. He is very deaf, and has been under the care of several practitioners. Upon applying the glycerine the mother declared the effect to be astonishing; after a few minutes, he could plainly hear a watch tick with both ears. No such power had existed during the three previous years. He still uses the glycerine with continued improvement. His hearing is now nearly natural. An interval of eight weeks occurred during the treat-

ment, in consequence of illness on the part of the patient.

Experience of the effects of glycerine, since the cases reported, induce me to believe that I have claimed much less credit for that agent than its merits deserve. In several cases of deafness of very long standing, and in which the aural passage and tympanum exhibited a white, polished appearance, and the external meatus had become inelastic, hard, and horny, and entirely deprived of its natural functions, the glycerine, patiently applied, daily, has proved of the utmost advantage, by restoring the parts to their natural condition, and by reproducing the ceruminous secretion of the organs.

# A CLINICAL LECTURE

ON THE USE OF

# GLYCERINE

IN THE

TREATMENT OF CERTAIN FORMS OF DEAFNESS.

NEARLY two years have now elapsed since I published in The Lancet\* a paper on the Use of Glycerine in the Treatment of Certain Forms of Deafness. Numerous facts justified that publication: I did not rush into print hastily, and without due consideration. Tried by the severe and scrutinizing test of experience, glycerine now takes its place amongst the most useful of the remedial agents, in the treatment of several common varieties of deafness. Speculation on the subject is at an end: indisputable facts constitute the data whence the opinions favourable to glycerine have been formed.

<sup>\*</sup> Vol. i. 1849, p. 664.

The peculiar chemical properties of this fluid have led to its use in other complaints besides deafness, and in some with signal advantage. But the results of its use in affections of the ear have been even more satisfactory than were anticipated. In the hands of several surgeons, the remedy has been used with undoubted benefit; still, its successful employment often demands much care and patience.

I must enforce the "oft-told tale," that an accurate diagnosis is half the cure. With equal truth it may be stated, that the indiscriminate use of a remedy is calculated to bring many a valuable medicine into disrepute. The surgeon who would successfully resist morbid action, of whatsoever kind, must patiently investigate the character of the malady, before he decides upon the plan of treatment; otherwise much perplexity will ensue, and the intended antidote may become the actual poison.

A new remedy is sure to be exposed to the misfortune of being recommended in cases that are not suitable for its adoption: from this cause an important agent often falls into disrepute, and even disuse. In the treatment of deafness, failures of new remedies are the more likely to happen, as aural maladies find no favour with the majority of the profession. Many empirics owe all their success and ill-acquired wealth to this cause.

The introduction of GLYCERINE into the treatment of ear-diseases has produced some slight change in practice; and many cases, which not long since fell to the lot of the "aurists," are now in the hands of regular practitioners, greatly to the advantage and safety of the sufferers. The examination of the ears by competent practitioners has led to the discovery of diseases unsuited for the use of glycerine, but having fallen under the notice of competent surgeons, unexpected relief has been afforded to many desponding patients. Why, it may be asked, should the surgeon abandon any class of diseases, and thus invite the charlatan to enter a field of practice which legitimately belongs to the profession? The impropriety of so doing cannot be doubted. It is improper, because it is injurious to the professional character; and it is

unwise, because it encourages ignorance, at the expense of a too credulous public.

Soon after my first publication, many unsuccessful cases of the employment of glycerine in deafness were reported to me. This was to be expected. Failures were sure to take place, from a variety of causes; the two most frequent being the inaptitude of the cases chosen for the employment of glycerine, and the impurity of the drug used. Several samples of glycerine were sent to me for examination. In only one instance was the specific gravity correct, and in several the fluid contained an admixture of lead and oil; such glycerine as this must always prove injurious. Sometimes it may, when thus impure, prove highly irritating, and instances of this kind have been mentioned to me by both London and country practitioners. If there exist oily particles in the glycerine they become rancid, and the whole fluid is speedily vitiated; in this state it cannot be used with safety. I feel confident that the impurity of the article has been a frequent cause of failure. In other instances, the glycerine has not been used with sufficient

diligence, nor for the requisite length of time. Structures that are almost disorganized cannot be restored to a normal state in a day.

The glycerine has now been employed in some hundreds of instances of deafness, and data have been collected that indicate the cases in which the remedy should be used, the duration of the treatment, and the probable or possible permanence of the cure. In prescribing the use of glycerine, care should be taken to discriminate between those diseases which are suitable for its employment, and others where the remedy would be introduced without the slightest prospect of advantage. In making this investigation and inquiry, the history of the malady cannot be too attentively considered. Did the defective hearing first occur after an eruptive fever? - an abscess in the face, or fauces?—a fall?—a blow? -a fit? Was there a discharge from the ear in the first instance?—if so, what was the character of the discharge? Did any sequestra escape? The form of the ear should be carefully examined, and the auditory canal and membrana tympani inspected by means of instruments especially

constructed for the purpose. A silver speculum should be used, through which are reflected the rays of the sun, or of a very strong artificial light. By these means we are enabled to examine carefully the auditory cul-de-sac, and especially the membrana tympani. The quantity and condition of the cerumen should be ascertained. If a stethoscope be placed over the external ear, and the patient be directed to close his mouth and nostrils, and then forcibly expel the air from his lungs, it will readily be discovered whether the Eustachian tube be open or not.

If the drum be entire, the air will be heard to strike forcibly against it. On the other hand, if the drum be perforated, the escape of air through the auditory passage will truly indicate the condition of the parts. All these points are entitled to attention; some of them, however, as you will soon discover in practice, are of much more importance than others. Catheterism of the Eustachian tube should not be practised on slight grounds. When a necessity for the operation exists, of course it should be performed, but not otherwise. In unpractised hands the opera-

tion may be productive, not only of annoyance, but of some mischief.

If the surface of the auditory canal be hard and inelastic, shining, and of a whitish appearance,—if the natural secretion be wanting, and the membrana tympani be not painful to the touch, the glycerine may be employed with a tolerable certainty of success, even if a partial deafness has been of many years' duration. An uneven appearance of the external membrane of the drum is an unfavourable sign, as in some instances it may be caused by displacement of the bones of the delicate aural structure. When, besides the sense of hearing, the other senses are deficient of action, the employment of glycerine alone offers no hope of success. In such cases, the utmost possible attention should be paid to the general health of the patient, with a view to restore the activity of the nervous system. The existence of paralysis in any part, unless from a traumatic cause, is an adverse indication with respect to the use of glycerine. The modes of applying the remedy vary according to the state of the parts, and the effects sought to be produced. When the surface of the aural canal is dry and shining, the ears are to be carefully cleansed by means of cotton held within the blades of a pair of forceps, and moistened with warm water. The canal is then to be rubbed with dry cotton, held in a like manner. Next, the glycerine is to be applied by the same means, the cotton, well soaked in it, having been repeatedly passed backwards and forwards in the external meatus, care being taken to diffuse it over the surface of the tympanum.

I shall now mention some cases, selected from my note-book, as furnishing good types of the diseases which have been relieved by this mode of applying glycerine. They might be multiplied to a very large number.

## CASE I.

Mary R—, Gray's-inn-lane; Nov. 19, 1850; aged forty-nine; a strong, healthy-looking woman, an out-patient of this hospital. Deaf six years; could not hear the highest power of sonometer; ears dry and horny; membrana tympani of the

right side ulcerated after a discharge, (following scarlet fever,) lasting six months; in the other ear the membrane was sound. The ears were rubbed with glycerine in the usual way, and in a few days she heard successively Nos. 8 and 7 of the sonometer. In seven weeks she was quite cured, a healthy secretion of wax having been established.

## CASE II.

Anne M—, Gray's-inn-lane; aged thirty-three; a spare, thin woman; had been deaf since the birth of her last child, when she had discharge from both ears; this ceased, and left her very deaf. Her ears presented much the same appearance as in the last case, the principal feature being the dry condition of the meatus. Glycerine was applied with the forceps and wool, and the woman was soon relieved from the unfortunate impediment.

## CASE III.

Louisa R——, Hampstead, August, 1850; aged twenty-seven; deaf nine years. Ten years since had measles, followed by a discharge, which lasted four months; it then ceased in both ears, and she has been deaf ever since that period. Hears better after washing her ears. The only peculiarity to be observed was a total want of wax. The glycerine was applied in the usual way, and gave almost instant relief. In six weeks her hearing was quite restored. This was a very remarkable case.

In other cases, where the ears are plugged with hardened, impacted wax, and where the membrana tympani is only coated with vitiated wax, the glycerine must be dropped into the ear three or four times during the day. In twenty-four hours the hardened mass will generally become sufficiently softened for removal—a little operation which requires some caution in its performance. If force be used, a portion of the delicate membrane of the drum may be torn away, and unpleasant consequences ensue. The mass will generally separate without force of any kind, if the means recommended be carefully followed; gentle syringing will also promote the separation. A pellet of fine sheep's wool, moistened with

glycerine, should be placed in the meatus, in order that the newly exposed surface may be brought under the direct operation of the remedial agent. The pellet also would be of use in protecting the parts from the effects of cold and the sudden influence of the air. The removal of an impacted mass of exsiccated cerumen without these precautions may produce more deafness than the presence of the offending substance.

## CASE IV.

Master F—, City-road, aged six years; deaf in the right ear six months. Has had a constant roaring noise in that ear, which was frequently swollen, and very sore; he had been ordered purges and lotions, from which no benefit resulted. On examination, the meatus was found completely blocked up with hardened wax. I filled the ear with glycerine, and then fitted the plug. The next morning I easily removed the obstruction, and in it was found a good-sized cherrystone. The hearing was painfully acute for a few days. Sheep's wool was kept in the ear. I

mention this case, to show how necessary it is thoroughly to investigate every case which presents itself to you. I remember another instance occurring in a member of parliament, who was annoyed at intervals for two years by a discharge from, and painful swelling of, the right ear. At last the dens sapientiæ of that side became painful, and the gum inflamed; this tooth was removed, and the ear was soon well. This case I consider very instructive; and the close proximity and anatomical relations of the part justify the supposition, that the diseased condition of the tooth caused the deafness and discharge from the ear.

## CASE V.

H. R——, aged forty-three; September, 1850; an out-patient of this hospital; very deaf in the right ear; could not hear No. 3 of the sonometer; cannot refer it to any cause; it appeared very gradually. He suffers from a "blowing sound" in that ear; when masticating his food, each fall of his jaw sounds like the report of a pistol; at other times he hears loud crackling

noises. As I suspected in this case, an impacted mass of solidified wax was found, filling up the inner third of the meatus. Glycerine was poured in until the meatus was full; the bees-wax plug was then applied. In two days the wax was completely softened, and could be easily removed. The hearing was perfectly restored.

Another mode of applying the glycerine consists in soaking a pellet of sheep's wool in the fluid, and pushing it gently into the meatus until it rests against the drum. The wool, when compressed, should be about the size and shape of the aural cul-de-sac. A plug of prepared bees-wax, warmed in hot water, and placed against the external opening, and retained there, will effectually prevent both the entrance of the atmospheric air and the exit of the glycerine. This proceeding must be repeated every morning, the meatus being each time carefully cleansed by means of warm water, and made dry by passing backwards and forwards a small piece of dry cotton; then there will be a clear surface for the action of the glycerine.

## CASE VI.

One of the judges of the superior courts consulted me, with the concurrence of Sir B. Brodie. The learned judge was suffering from deafness in the right ear. The organ had become quite useless. The left ear was also partially deaf, but with the assistance of a very clever instrument, made by Mr. Rein, Strand, he was enabled to continue his judicial duties. On examination with the speculum auris, assisted by a powerful reflector, I found the lining membrane of the meatus dry and polished, the canal open and very straight, and the membrane of the drum of a pearly whiteness, the central part projecting into the meatus, and presenting even more opacity than the other parts; no ceruminous secretion whatever. The air could be heard to strike against the tympanum in both ears; this membrane was intact on both sides. I applied the wool, well saturated with the glycerine, to the membrane, fitting the bees-wax plug, which effectually prevents the entrance of atmospheric air or the exit of the glycerine, thus

keeping the agent constantly against the part to This proceeding was repeated be acted on. every morning, the meatus being gently cleansed with warm water before fresh glycerine was introduced. At different intervals, four distinct layers of white, pulpy epithelium were removed; the ear was occasionally swollen and painful. The treatment was persevered in for more than two months, and the membrane of the drum was much altered in appearance, assuming more of the dark look of the healthy organ. I introduce this case, not as a successful one in its results, but as illustrating very beautifully the mechanical action of the agent in the worst case of epithelial thickening which I have ever seen. In this case, had the deafness been due to the mechanical obstruction, it would have proved beneficial, but the cause was purely nervous, as had been previously diagnosed by Sir B. Brodie. There can be little doubt, that in many cases this cuticular deposition is the cause of deficient hearing, but it may be that the paralysis is the exciting cause to this morbid action.

## CASE VII.

M. O—, Clerkenwell, aged fifty-three, August, 1850. Deafness in both ears followed a severe attack of influenza; never had any discharge from either ear; occasional pain in both ears; when travelling in a railway carriage hears better than other persons. On examination, the aural cul-de-sac was found to be dry and inelastic, and to have the appearance of parchment; the membrana tympani looked white, and of a cartilaginous consistence; no wax or moisture of any kind; the meatus and tympanum painful to the touch. The glycerine was used as in the last case. From the right ear two pieces of epithelium, of a pulpy consistence, were removed, and one thick piece from the left ear. In seven weeks she discontinued her attendance, hearing, when at church, the clergyman of the parish, a blessing which (as she stated) she never again expected to enjoy. I had twice to modify the treatment in this case, as some pain and swelling supervened.

## CASE VIII.

Henry M——, Esq., a merchant, aged sixty-two, consulted me October 16, 1850. Had been deaf for more than twelve years in his right ear; he could not hear the loudest tone of the sonometer. The meatus had quite a "parchment appearance." The ear was filled with glycerine, and the bees-wax plug introduced. This was repeated every day. In fourteen days several pieces of soft skin-like substance were removed, with evident improvement to the patient, who could now hear No. 3 of the sonometer. I was obliged to modify the treatment once, as the patient complained of pain. In this treatment the general health, especially the secretions, should always be watched.

## CASE IX.

Mary M——; Sept. 15th, 1850; Brentford; aged twenty-six; deaf in both ears; could not hear the highest tone of the sonometer; meatus dry and inelastic; tympanum much thickened;

not perforated; not painful to the touch. Treated as in preceding case; treatment lasted six weeks. Two portions of cuticular soft substance came away from the right ear; the left did not appear much affected by the glycerine. In six weeks the patient heard No. 3 of the sonometer, at a distance of two feet from the ear. No improvement whatever in the right ear. I saw this patient a few days since; she states that the relieved ear fully answers all the purposes required.

When patients are treated in this way, they of course require the careful attention of the surgeon. The modus operandi is simple enough; the glycerine being kept continually in contact with the part, acts mechanically, either absorbing or penetrating the epithelial coating, and separating the individual particles. The ordinary time required for this treatment varies from two to eight weeks, according to the method employed. With respect to the permanence of the relief—some cases always require the presence of glycerine, as the best known substitute for the natural secretion of the aural membrane. The

frequent introduction of glycerine tends to restore the external meatus to a healthy condition, and fit it for the proper transmission of sound.

I mention the following case as one amongst several which I have seen, proving that glycerine, if it be not quite pure, and made according to the proper formula, may cause irritation, and produce other unpleasant symptoms; and there is little doubt that from such cause this really valuable remedial agent has frequently suffered in repute.

## CASE X.

A lady, living at the West-end, aged sixty-eight, consulted me two years since for deafness in both ears. They presented the appearance which indicated the use of glycerine. During eighteen months she lubricated her ears with this agent, receiving considerable assistance and comfort from it, and entirely laying aside the acoustic instrument which had been previously ordered. One morning I was hastily summoned to this lady; she was in considerable pain; the right

ear greatly swollen and inflamed; she was much alarmed. She stated that she had used the glycerine regularly. The cause of the pain and swelling I soon discovered to be the stale and impure glycerine, which appeared quite changed in character, having an offensive smell, and being too light in colour, of thin consistence, and deficient specific gravity. This contre-temps was treated in the usual way, and she again uses pure glycerine with the same advantage as before.

In the removal of foreign bodies from the ear, the glycerine is often eminently useful.

## CASE XI.

Some months since, a solicitor of Gray's-inn consulted me respecting pain and deafness in the right ear; he had suffered much pain for five months. The annoyance had so affected his general health that he was quite incapacitated from following his professional pursuits. There was an occasional discharge from the ear. The meatus and external parts were swollen, sore, and emitted a light muco-purulent fluid. There was a mass

of offensive-looking wax. On being touched with a probe, it was found hard and resisting. The glycerine was dropped into the ear in the manner just described. On the next day the impacted mass was easily removed. When examined, in the midst of it there was found a common fly, a foreign body which had evidently been the cause of the mischief. The use of the glycerine was continued for a few days, the pain ceased, and the hearing was soon restored.

The instrument\* called a Sonometer has proved of the greatest value in practice—not from any use it possesses as a curative agent, but that it

\* The sonometer is a simple and easily-managed instrument, and consists of a small bell, fixed on a table; the pillar, which supports a serrated bar, is kept in its place by a delicate spring; the spring has attached to it a small hammer; this spring being placed in the teeth of the serrated bar, is relieved by the handle being touched by the finger, which regulates the extent of sound, from the ticking of a watch to the sharp, loud tone of a bell. By means of this instrument, the exact amount of hearing which a patient possesses can be measured with the greatest accuracy, before the treatment commences, so that no doubt can exist as to whether the patient is relieved by the remedy. The instrument is equally available in every form of deafness.

proves, beyond a doubt, the effects of treatment, both to practitioner and patient. This must always be satisfactory. Thus you can test the progress of a case at stated intervals. It has done service to the profession.

It will be seen that sheep's wool is invariably used, instead of cotton wool. Its advantages are many: its elasticity enables it always to retain the position in which it is first placed; and for the same reason it is more easily withdrawn from the meatus. Cotton wool, when dry, changes its position, and in many cases is with great difficulty removed.

The mode of preparing the wool is very simple. The finest curled wool on the sheep's head is carefully cut with scissors, and washed in hot water: when dry, it is ready for use. The best wool is that procured from a small German sheep. This, however, is not always to be procured, and the other answers every purpose well enough.

In the paper already alluded to at the commencement of this lecture, I published several reports of cases—and amongst them will be found that of a girl, an hospital patient, now living at Chad's-place, Gray's-inn, and that of a lady living in Adelaide-terrace, Islington,—the former had been deaf eighteen years, arising from scarlet-fever; she was completely cured, and has not to this day any return of the distressing impediment. The other case is that of a lady, deaf-thirty years, in whom the glycerine still acts as an artificial aid, and enables her to take part in conversation. Her son was with me but a few days since, and he tells me that relief is always afforded by the application of the glycerine. These cases I have been enabled to watch for nearly two years, and it is satisfactory to know that the good effects in them have been permanent.

Glycerine is particularly useful in deafness following eruptive or other fevers; also in deafness arising from thickening of the drum, caused by an epithelial deposit. In the last-noticed condition, glycerine separates the epithelial excrescence, and thus restores the membrane to its natural state and appearance. Sir Astley Cooper, who at an early period of his brilliant professional career devoted much attention to diseases of the ear, used nitrate of silver for effecting a separation of the cellular formations in these cases. But the glycerine, perfectly innocuous, is a more effectual, and at the same time a safe, remedy. When the drum is perforated, the glycerine must be only applied to the walls of the meatus, care being taken not to use a sufficient quantity to admit of its being introduced or forced into the tympanic cavity. Should such an accident occur, tepid water ought to be immediately syringed into the ear, and the operation repeated three or four times. In this way the glycerine would be quickly removed.

In only one instance have I seen the glycerine produce pain or annoyance on its first application. A gentleman whom I saw in consultation with Mr. Guthrie suffered most acutely from the introduction of the remedy into his ear. A repetition of the operation was attended with a similar result. This is the only instance of the kind that I have witnessed. There was in that case a thickened tympanum, and an absence of cerumen. Apparently there was neither exconiation nor inflammation. The second application

of the glycerine was made two days after the first. The effect precisely corresponded with the result in the first instance. It is almost needless to observe, that there was no repetition of the operation. The patient was highly nervous and excitable. Still I must confess that the cause of the pain felt by that gentleman remains entirely unexplained. In not another instance have I known any untoward event result from the introduction of glycerine into the human ear.

In old age there is usually a deficiency of cerumen, and the action of the glycerine is then very marked. It affords much comfort by allaying "irritation," which is the invariable distressing accompaniment of a dry meatus. The tinnitus in the ears is also frequently relieved by the soothing effects of glycerine, where that noise is occasioned by a dry meatus. At the same time, it must be remembered that many distressing cases are due to abnormal conditions of the brain, nerves, heart, or bloodyessels.

The object of delivering this lecture is simply to confirm the reputation of GLYCERINE, and enlarge the boundary of its usefulness. For the relief and removal of some forms of deafness, GLYCERINE stands alone as a remedial agent. With a due perseverance in its employment by careful practitioners, it will often be the means of removing a distressing affliction.

It has been stated by some writers that glycerine is an oily fluid, and therefore that it is open to the objections that have been urged against oils. But you well know that it is not an oil, and cannot be classed with oleaginous substances. Let me remind you of its chemical properties, and of the method adopted for obtaining it. It is found in fatty oils combined with oleic, stearic, and margaric acids; its specific gravity is 1.252. Glycerine is a syrupy liquid, miscible both with alcohol and water, insoluble in ether, slightly inflammable, inodorous, and of a sweet taste.

THE END.