Notes on Otorrhoea.

The discharge which so frequently accompanies many of the diseased conditions of the ear has for long been known as otorrhoea. For some reasons I think, such a name is to be much regretted, as too many, I fear, seemingly blind to the fact that this term, denotes merely a symptom of varied pathological conditions, treat it as if all cases depended on one and the same cause.

It is obviously useless to attempt to cure an old standing discharge complicated with, say, a large polypus, by means of the daily use of a weak astringent solution, although a similar line of treatment might cure a case of simple otorrhoea, merely depending on a chronic catarrhal condition of the lining membrane of the tympanic chamber. The only way, then to hope to successfully treat this common
Symptoms of aural disease is, in the first place, carefully to ascertain its cause. But unfortunately, such a preliminary step is often neglected, and anyone who has seen aural out-patient work in our special hospitals, must have been struck by the many persons with old standing ear discharges, who present themselves after having been using ear lotions for years without any benefit, if who on examination are found to be suffering from perhaps some old standing polypus or still worse from disease of the mastoid cells, or some other more important and part essential to perfect hearing. Unfortunately, many of such cases are too far diseased to hope for much benefit being derived from treatment, where had a timely examination been originally made, irreparable disease, lifelong deafness, may, even worse, in some cases, deaf mutism might have been obviated. This deep-seated prejudice against
the local treatment of aural diseases is not confined entirely to the public, but amongst its adherents are to be found members of our own profession. The number of patients who state that their family medical attendant has for long refused to interfere with their ears, telling them that as years go on they will grow out of it, or that by arresting such discharges, brain smocking, or fits may be induced, is indeed astonishing. And while one must take the ordinary outpatient's story, even graver, still from the number of corresponding statements one hears, one is lead to fear that even now there are by no means few adherents in our profession to the old and erroneous ideas of Du Verney, Stad, Lallemant, and Williams.

In 1844 Wilde, in his essay on "The Causes and Treatment of Otorrhoea", entered a strong and eloquent protest against expectant treatment in aural
diseases, and certainly since his time most medical men have followed his teaching.

But while we must regret that still expectant treatment is somewhat frequently advised, cases unfortunately do occasionally occur, where (after a patient has lived in comparative health for years with an otosclerosis troublesome only on account of the discomfort it produces) death rapidly follows attempts at cure. Formerly sceptical about such mishap, a case came under my notice when Surgeon to the Newcastle Throat & Ear Hospital.

A man, aged 37, came with a history of ear discharge of 15 years duration, dating from an attack of scarlet fever. He had never had any pain or tinnitus, or vertigo, his hearing power was but slightly impaired. The discharge however had always been a source of great annoyance to him. Remember...
him telling me at the time that he was afraid I would have to use some very powerful treatment to \niain, as for 2½ years he had been persistently using various ear \nlotions prescribed by several practitioners \nin Northumberland without avail. 

The duration of the case made me suspect diseased bone, but on care-
fully percussing the mastoid, I could not produce any pain or tender-
ness. On speculum examination I found an old, large perforation, 
from which a fairly healthy, somewhat \nwatery, inodorous, discharge was \ndeading. I shall have occasion 
under the head of treatment to again refer to this case. in which, 
after a week's treatment, the 
patient unfortunately died. I must 
however state that, although there 
was no tenderness on percussin 
of mastoid, no history of pain or other 
subjective symptoms, judging from 
the rapidly fatal issue, I hold that—
in all probability, there was some
grove latent cerebral disease of
old standing, which was called
into activity by my treatment, but
which independently of it would
sooner or later have proved fatal.
I brought the case under the notice
of the Newcastle on Tyne Clinical
Society in 1855, and the general
opinion was in favour of my view.
Unfortunately, no post-mortem exam-
iniation could be obtained. I find
similar cases have been recorded
by Benjamin Brodie, Hard and Valshalva
As regards the prognosis of an
otolourhea, a guarded opinion must
always be given, for, no matter how
simple appearances may look per
speculum, one can never foretell with
any degree of certainty, how and
when it may be cured. In some cases
indeed, palliative anti-septic treatment
is all that can be done, there being
no possibility ever effecting a cure.
The dangers, too, which all sufferers from ototympana are exposed to, are not as a rule sufficiently recognised, although a glance at the anatomy of the parts will convince the most casual observer of their reality.

The extreme thinness of the upper tympanic wall, the fact (which I think has, perhaps, not been usually enough emphasised) that in the young, amongst whom are by far the largest number of sufferers from ototympana, the squamous and petrosal portions of the tympanic roof are but loosely united by an interaural membrane, the great delicacy of the bony septa separating the chamber on the one hand from the internal jugular vein, on the other from the internal carotid artery, the opening into the mastoid cells, and the canals transmitting the petrosal or other sinuses, the spaces in the diploe conveying vessels from the tympanum to the dura mater. Lastly the passage
in the labyrinth transmitting the seventh pair, are all channels by which septic matter may be conveyed from the tympanicum to more dangerous parts, and the complications to be especially dreaded are extension of the disease to the cerebral meninges, cerebral abscess, cancer of the tympanic walls, erosion of the large vessels, phlebitis, and pneumonia.

**Symptoms attending otitis media:**
(a) Deafness, varying much in different cases is almost constant, and although it is sometimes so very slight as not to cause any inconvenience to the patient, still I doubt whether a case ever occurs where by applying the watch test a certain amount of defect cannot be recognised. Personally I have never found this symptom absent. The size of the perforation which, at first sight, one would suppose to be an important factor in the
causation of this symptom in reality seems to have little to do with it, and one is frequently astonished to find a hearing power of 30/50 accompanying a large perforation, whilst in some cases, where the perforation is so small as to be with difficulty recognised, the watch can only be heard on contact with the auricle. Even where nearly the entire drum has disappeared, and the small bones become destroyed, there is or was usually a wonderful amount of hearing power left, probably due to the oval window remaining intact.

Tinnitus is not, I think, a common accompaniment of the condition upon which otosclerosis depends: but seems much more frequent in cases of non-suppurative tympanic disease, foreign bodies in the external canal, and in the so-called nervous cases.
(c) Pain is the exception in cases of non-complicated chronic discharge depending on tympanic mastoid, provided there is free access for the discharge through the perforation. I believe, however, that in most cases of chronic suppuration, by carefully percussing over the mastoid process, a certain amount of deep set pain may nearly always be detected, but frequently it can only be elicited by such an examination the patient receives an extraordinary feeling and discomfort from it. The import of recognising this symptom as indicating an abnormal condition at least. In the mastoid cells, if not caries or necrosis, cannot be overestimated, as being an indication for early activity as a preventative against septic disease, or implication of the adjacent lateral sinus.

(2) Dr. W. Bride has recorded epileptic fits as occasionally complicating an olorhoea. (Epilepsy, Venesia, San Lorenzo 1880) Edin. Med. Journal.
and the same writer also mentions
Vertigo, as being not uncommon,
and he calls attention to Urbantschitsch's
observation that in not a few cases
the taste becomes impaired, owing
to the implication of the chorda
tympani in its passage through
the tympanum. (Sand. Study of Ear, p. 57)
Such a condition I have never met in
actual practice, but its possibility
is self-evident.
The odour of the discharge has
sometimes been looked upon as
being of importance from a diagnostic
point of view, many having held that
odor indicates the probability of diseased
bone, but although this may sometimes
occur, it is so uncertain as to absolutely
useless as a diagnostic.
My experience in out-patient work
is that badly smelling discharges are
the exception rather than the rule,
and as hospital patients usually are
essentially dirty in their habits, one
can hardly look on uncleanness
as the cause of such conditions. Nor can it be due to the decomposition of pent-up discharges, prevented from escaping per orum tympanum by mechanical obstructions, such as polypi, as the most offensive case I ever saw was that of a young medical friend of mine who had suffered for some years from an otosclerosis, and in whose ear there was perfect drainage, and carefully twice daily washed out the parts with antiseptic injections. I am rather inclined to think that there are constitutional peculiarities in some persons, no matter how cleanly they are, which account in a measure for this most disagreeable complication. It is a matter of daily observation, that in some persons of the most cleanly habits, who take their daily bath, perspiration, almost directly it is excreted, becomes offensive. I take it that a similar idioyncrasy may account for the bad smelling ear discharge. But while owning the uselessness of
putting much faith in the smell of an aural discharge. Still valuable information might be gleaned in doubtful cases by a microscopic examination of the pus, or the possibility of detecting horny particles in suspension. Such a discovery being conclusive evidence of tympanic caries.

Blood, mixed with an ear discharge, would naturally suggest the possibility of a polypus or of granulations as complications.

Before examining the ear in a case of otosclerosis, the meatus should always be first washed out carefully with warm water, and during examination, I prefer the expanding ear speculum to any other, the light being obtained from an ordinary flood Mr. MacKenzie's lamp. In some cases no perforation is to be found, the discharge depending in causes external to the tympanum, but in far the largest majority, a perforation invisible, sometimes indeed almost
all the membrane having disappeared, while in others the aperture is so minute as only to be recognised during inflation of the eustachian tube, when the escape of a bubble from the tympanum will indicate its position. The appearance of the tympanic mucous membrane, too, varies greatly in different cases, sometimes being paler, at other times very deep coloured. Dr. MacBride refers to some cases where the discharge ceases while the perforation remains unhealed or such he gives the name of dry perforation. I only read, remember having seen such cases, in none of which the hearing power was much impaired, but in which all efforts, directed towards healing the perforation proved useless.

Otorrhoeas may be divided into two great classes.
(1) Extratympanic cases, or cases in which the conditions on which the discharge depends are external to the tympanic cavity, and the drum is consequently intact.
(ii) Intr tympanic cases, or cases which depend on pathological conditions of the tympanum, and which are consequently accompanied with perforation.

While the first variety are comparatively rare, as contrasted with the latter, still on account of the difficulty occasionally experienced in effecting their cure, they are by no means unimportant.

The causes of extr tympanic otitis are:

(i) Porridge, Crusta Lactea, herpetic, and other eruptions extending inward, especially in scrofulous subjects. (Wilde Diseases of Ear, 1853, Page 399).

(ii) In delicate subjects one may have an external otitis produced by mechanical injuries, leading to somewhat tedious discharges.

(iii) Polypi have been cited as a cause, taking their origin from the walls of the external canal, but the likelihood of such an event seems to me highly improbable, when one considers the structure
of these parts. I have never seen a polypus growing from any part of the meatus, and I find that Dr. McBride throws doubt on their existence (Page 66-67). Mr. Noughton Jones, however, seems to have met with them, as he states that they may grow "from any part of the meatus or just in front of the membrane."

(Aural Surgery 1881, Page 138). I have seen conditions which at first sight appeared to be polypi, but which on further examination proved to be old standing accumulations of pus under the skin.

(iv) Diffuse or displaced inflammation of the face may occasionally, spreading down the meatus, be the starting point of a very intractable attack of otitis media. One such case came under my notice in 1873, and proved very difficult to cure but eventually yielded to a course of cod-liver oil, the daily application of a solution of nitrate of silver.

(v) An external otitis media may be the result of a badly treated abscess of the meatus.
(vi) In serofibrinous subjects, an unhealthy discharge, occasionally is seen, sometimes in connection with disease bone or cartilage, or enlarged glands; in other cases without any such complication.

The causes of Intra tympanic Otorrhoea are the numerous factors which may produce supplicative Tympanitis:

(a) Most frequent in occurrence, most virulent in nature, and most disastrous in its sequelae is that form of inflammation of the Tympanum which follows scarlet fever, measles, and diphtheria.

And unfortunately, as this variety very often occurs in infants, too often the first indication of its existence is discharge from the ear consequent or rupture of the membrana. Many cases of lifelong deafness might be saved by carefully watching the ears in every case of scarlet fever, and as soon as suppuration
in the tympanum shows itself by bulging of the membrane and other symptoms, incising the part and following up the treatment by daily warm antiseptic injections.

Objections might be raised to such a plan by the busy general practitioners, who may have hitherto been too occupied in attending to other equally important work, but when one considers the extremely disastrous results of neglect of this affection in its early stages, and the strange yet occasionally undisputed fact that it may sometimes occur with little or no accompanying pain, the importance of a daily inspection of the ear, in every case of scarlet fever, becomes self-evident. Nor is it enough to infer that if the throat affection be very slight, the chances of consequent tympanitis are minimised, for there is undoubted evidence that this affection does not always owe its origin to inflammation spreading along the eustachian tube, but that sometimes the inflammation...
tion spreads from the surface of the body, along the external meatus, or thence to the lymph glands.

While reference is made to fevers as important agents in the production of suppurative disease of the inner ear, I must mention the occasional occurrence of suppuration in cases of cerebrospinal meningitis. The comparative frequency of non-suppurative disease in this affection has long been known, but I think Von Zieman first called attention to the very rare development of the suppurative type. (Hiller in Prof. Medicine Vol. 7 p. 597) Heller thinks that the affection arises from extension of the disease from the pia mater, while Prof. Knapp says that it commences as a purulent inflammation of the labyrinth.

(b) Secondly, perhaps in frequency, may be placed that class of cases depending on cold, and in many cases arising from simple faucial or nasal catarrh.

I think there can be no doubt that (other things being equal) such cases are much
more amenable to treatment than the more destructive cases depending on the specific fever. Cold may also attack the membrane, producing myrinx, which in some cases ends in perforation, with subsequent otitis media.

(c) Mechanical causes, such as the rupture of the drum head by that vile habit of boxing the ears, by sea-bathing, or by the near discharge of artillery must be noted as possible. A girl, aged 17, once consulted me for discharge from the ear. I learnt that some weeks previously she had been at the artillery practice at the Tynemouth Castle, where her drum was suddenly ruptured. This case proved very troublesome, but eventually the perforation was healed, but there was considerable impairment of hearing.

Treatment of otitis media includes:

1. Constitutional.
2. Local.

I have been in the habit of giving either cod liver oil or some other strength...
Preparation in all cases of otorrhcea, where there is no evident exciting cause to keep up the discharge, such as a granulation or polypus, and I believe that such means are extremely useful, even in chronic cases, where there is no reason to suspect struma (or syphilis). But, while such remedies are very useful, when combined with proper local measures, the cases must, I think, be very rare which are cured by constitutional remedies alone.

(1) Before examining a case of ear discharge, with the view of ascertaining its cause, the importance of first thoroughly cleansing the external canal cannot be too strongly emphasised, for frequently the dried and accumulations of old discharge and dead epithelium give rise to deceptive appearances, while at the same time they obscure the drum. In most cases all that is necessary is to syringe out the ear with warm boracic lotion or water, but sometimes, before the hardened masses can be extricated, preliminary
installations of bicarbonate of soda in solution are necessary, and in such cases a little soap powder mixed with the water used for washing is useful. But after all, foreign bodies are removed from the canal, one sometime, cannot get a satisfactory view of the drum head on account of the lining being in a sodden state, if one may use the term, which I take it, is due to the constant moistened condition of the parts. (Such a condition as one sees on the skin of the hand after long immersion in hot water). In these cases matters may be much improved by the use of glycerine for a day or two, which, abstracting the moisture, enlarges the lumen of the canal.

Having then obtained a full view of the membrane, one may recognize many conditions:—

(a) It may be intact (in cases where the discharge arises from some external cause).
(b) The perforation may be so small as not to be evident unless, during examination, inflation fenestration can be performed.

(c) The perforation may be at once evident, varying from almost complete absence of the membrane, to an aperture of extreme smallness.

(d) Sometimes there is an appearance of pulsation in connection with the perforation, doubtless dependent on some enlarged vessel in the neighboring remains of the membrane.

(e) Lastly, granulations or polypi may be observed as complications in many cases of perforation.

In treating discharges due to external causes, one's chief reliance must be placed on constitutional remedies, I have usually found the local application of weak solution of nitrate of silver an exceedingly useful adjunct after which I use a little glycerine every evening.

In cases of perforation (uncomplicated)
I have been disappointed with the many astringent injections such as zinc, lead and tannic acid, but in my experience no line of treatment is so successful as the frequent insufflation of boracic acid powder after careful syringing of the parts. Should the discharge be very offensive a small addition of iodiform powder to the boracic acid is very useful. The disagreeable smell of the iodiform may, according to Dr. Robert Sinclair of Dundee, be much mitigated by triturating it with a fourth part of tannic acid, and Dr. MacNaghton Jones uses Balsam of Tolu for a similar purpose (Annal Surg. 1881. 252. p. p). In addition to this treatment the occasional politicisation of the affected ear, combined with instillation of boracic lotion is very important, with the view of washing away secretions from every portion of the tympanic cavity. The application of a strong solution of nitrate of silver to the edges of the perforation is sometimes
of great value in hastening the cure. Mr. Bride in cases where the tympanic membrane is swollen and granular, that rectified spirit should be instilled into the ear. I have frequently used this remedy in such cases with marked success, but prefer its admixture with an equal quantity of glycerine to thymol spirit. In some cases of old standing otitis media, where from the smallness of the perforation, drainage of the discharge becomes a matter of difficulty, the possible advantage of carefully enlarging the openings is worthy of consideration. I fail to see any advantage to be gained by the method of treating described by packing the external canal with dry boracic acid and leaving it in situ for days, as recommended by Pomeroys (Practices of Ear. 1873, Page 237) as all the advantages of this boracic acid treatment appear to me to be equally well obtained by the more cleanly and simpler method described above. The plan of washing out the ear...
recommended by Hieton, in which, after fitting an air tight nozzle into the external meatus, connecting this with a syringe, he sought to wash out the tympanicum per eustachian tube, seems to me to be not entirely devoid of danger. The only case in which I ever tried it, was followed by somewhat persistent attacks of vertigo. When one considers that in many cases the aperture of inlet for the injection into the tympanum (the perforation) is larger than that of its outlet (the tympanicum terminating the eustachian tube), the lumen of which in many instances seems to me to be much narrowed in many cases of chronic tympanic disease, by the swollen condition of the mucous membrane, the possibility of producing a considerable amount of intra tympanic pressure by Hieton's treatment seems to me to at once suggest itself. Again with a diseased softened condition of the tympanicum mucous membrane, combined with an effect
Septic discharge, one can conceive how by this new method, under increased pressure, septic material might be forced into the circulation and produce blood poisoning. For the above reasons I have always avoided syringing out the tympanum by the eustachian tube. Occasionally, however, especially in some of those cases depending on the nasopharynx, scarlet fever, so direct is the communication between the external meatus and the throat that, during ordinary syringing some of the fluid escapes into the latter channel. In such cases have come under my notice.

Sometimes one meets a case of otorrhoea which seems to defy all ordinary methods of treatment. Such a case I referred to at an earlier part of this paper. Having noticed in Dr. Piner蒌's book (Page 234) that highly he spoke of strong solutions of nitrates of silver in some cases, I determined to give such a line of treatment a trial.
He says, "On the whole nitrate of silver is one of the most effective remedies in the treatment of suppuration of the ears. It has the advantage that it is of service when there are granulations or polypi. There is no way of determining the proper strength except by trial.... An average strength for children would be from 2 to 20 gr. to the ounce, and for an adult from 20-60 gr." He goes on further to mention a case in which he used a solution of 100 grains to the ounce, which "diminished the discharge and was not accompanied with pain." He used a dropper fairly inundated with the parts, the head being turned so that the meatus pointed upwards, while in this position inflation was performed, to still further nininate the remedy into every part of the tympanum. In my case I tried this method, but contented myself with a XV gr. solution to the ounce, with the unfortunate result that the patient, as above stated, died of cerebral abscess.

When polypi are small, or granulations
Complicate an otosrhoea I always give 1% alcohol and glycerine treatment a trial before adopting more radical measures. Even in cases of large polypi, such a line of treatment may, I think, be first used with advantage. The method frequently employed of twisting out a polypus by means of forceps is, I think, essentially bad, as when one considers that the greater proportion of such growths spring from an already diseased tympanic mucous membrane, such it becomes evident that such treatment must necessarily disturb the relations of the contiguous parts much more than their removal by means of Weil’s snare.

The mere removal of a polypus is rarely, if ever, followed by satisfactory results, unless the after treatment is very carefully attended to. I usually cauterize the stump about 30 hours after removal of the polypus, with chlor-acetic acid, a remedy which I was first led to use on the recommendation of Dr. MacNughton Jones, and which I
believe has an advantage over nitric acid,
or other appliances. No definite rule can
be laid down for the frequency of cauterying
a polypus stump. After operating each case
must be judged on its own merits by daily
inspection of the parts. Unless, the
stump be thoroughly destroyed, the growth
is almost certain to reappear. As regards
the use of cocaine in removing ear polypi
I have been much disappointed. So much
so indeed, that I have discontinued its use.
Amongst the serious complications of
the diseased condition on which utmost
depends may be mentioned: disease
of the mastic process, which is dan-
gerous not only on account of its structure
being so favourable to the retention of septic
discharges, but also on account of its
near proximity to the lateral sinuses.
In treating any such case, then, the
import of active and early treatment
cannot be overestimated.
A girl E.C. aged 17, a domestic servant,
complained of pain
in the mastoid region which spread to
the ear whenever she caught cold, deafness, 

discharge. On testing the 

affected side I found she could with 

difficulty hear the watch when in 

contact with the ear. Her symptoms 

were of nine years duration, and dated 

from an attack of scarlet fever. Six 

months before presenting herself at 

the hospital, an abscess formed in the 

back of the ear, and burst, leaving a 

sins discharging unhealthy pus 

from the mastoid process. A free dis- 

charge was also coming from the external 

meatus, and, on specular examination, 

a polypus, the size of a large pea, was found 

protruding through an extensive tympanic 

perforation. After 2 weeks treatment 

by antiseptic injections, the girl, getting 

well, consented to have her mastoid 

process trephined, and this process was 

freely opened into by means of a gouge, 

the polypus being removed at the same 

sitting. A small drainage tube was 

inserted into the sinus leading to the 

mastoid, and through this, twice daily
A warm boracic lotion was injected, which, finding its way through the tympanic membrane, escaped per meatus.

Notes. Operation performed on May 31st, 1885.
June 1st. Ear painful. Syringed twice.
   - 4th. Pain nearly gone, discharge free.
   - 16th. Discharge much diminished.
Patient's hearing power much improved 9/10.

We then lost sight of her, and I did not see her again till Feb. 1887, when engaged in writing this paper. Her hearing was then but poor, but this she attributed to a severe head cold. The sinus had healed, there was no tenderness over the mastoid, and the perforation though still visible was much less than formerly, while the discharge was scanty. So far the treatment was satisfactory, but as we cannot get her to attend now at hospital the probability of a permanent cure being made is small.

Other complications less satisfactory to treat, but equally dangerous, are caries or necrosis of the bony part of the tympanic membrane, haemorrhage from the large blood vessels of septic diseases. Such complications are
beyond the reach of special treatment, and much be met on general principles.

As regards artificial drummers, in cases where one cannot produce complete closure of a perforation, my experience of them has not been very favourable. The only ones I have used have been ones composed of a small piece of cotton wool, which, while I think they have all the advantages of other more rigid ones in the market, are free from the dangers which undoubtedly in some cases follow the use of the latter. In connection with this subject my friend Dr. Bramwell, at present house-surgeon at the Newcastle Infirmary, had a very interesting case. A young man came to him with an old standing deafness in one ear. On examination, a dry perforation was found. Dr. Bramwell introduced an artificial membrane in the hope of improving his hearing. No sound, however, was it placed in position than the patient fainted, nor could he be brought to again
until it was removed. Nothing further was done for a week, when a similar experiment was tried with the same result. The conclusion we drew was that possibly the symptoms was produced by stimulation of the auricular branch of the pneumogastric nerve, producing inhibition of the heart's action. Such a possibility makes me extremely reluctant to use such aids to hearing, except the harmless cotton wool variety which is occasionally useful.

J. G. Horsman, M.D. 1881