

have found them similar to those of iodide of ethyle. Its anæsthetic power does not, however, seem to be so great.

**Cyanide of Ethyle.** The cyanide of ethyle is the only other of the ethyle compounds I have to notice. It is well known that many of the compounds of cyanogen are highly poisonous; but, notwithstanding this, one of them, hydrocyanic acid is a most valuable medicine in minute doses. It appears, too, that cyanogen itself has anæsthetic properties, and Dr. Snow asserts that the anæsthetic power of the smoke of the puff-ball, which was used to stupify bees in order to take the honey without killing them, long before the discovery of chloroform, is produced by the presence of cyanogen in the smoke. The cyanide of ethyle I have, however, found to be so potent a poison that it will probably never be available as a medicinal agent. A large kitten was placed in a glass jar, with four minims of the cyanide of ethyle; it made every effort to escape, but in less than a minute it sunk to the bottom of the jar. It was immediately taken out in a state of profound insensibility, but breathing rapidly. Cold water was thrown upon it, and ammonia held to the nostrils, and it slowly recovered, and continued well afterwards.

Three drops were put upon the tongue of a large cat. It attempted to vomit; but almost immediately afterwards, it rolled upon its side and struggled. Respiration then ceased, though the heart continued to beat for about three minutes. It was then quite dead. On examination, the heart was found full of dark coloured fluid blood, which afterwards coagulated imperfectly. The lungs were congested, and several spots were observed where blood was extravasated as in pulmonary apoplexy. The brain presented no alteration from the natural condition.

These two experiments prove that the cyanide of ethyle has all the poisonous properties of cyanogen in a high degree, and is, probably, not less potent than prussic acid.

**Acetate of the Oxide of Amyle, and Iodide of Amyle.** I have made but few trials of the compounds of amyle, as I have found that the only compounds of this radical which I have used, viz., the acetate of the oxide, and the iodide, have harsh irritating properties. They both cause a sensation like heartburn when swallowed, their vapour irritates the bronchial mucous membrane, and the iodide of amyle produces heat and smarting when applied externally as an ointment. When it is taken internally, iodine appears in the urine and saliva, and may be detected by the starch and acid test.

As these researches do not extend to compounds of more than three of the organic radicals of the numerous class to which they belong, we can scarcely draw any conclusion as to the effects of different quantities of hydrocarbon in modifying the physiological properties of the bases and their compounds; but it would seem that the corresponding compounds of methyle and ethyle, which are the lowest in the series, and next to each other, bear such a resemblance in their physiological properties as exists between the salts of sodium and potassium, whilst it would appear that the compounds of amyle, which is a higher member of the series, and contains a much larger number of atoms of hydrocarbon, differ in a greater degree from the compounds of methyle and ethyle.

It would seem that compounds of each of these bases exert an influence upon the bronchial mucous membrane, and that the power which one of them, acetate of the oxide of ethyle, possesses of lessening the quantity of this secretion, may be made practically useful in the treatment of some pulmonary diseases. It would likewise appear that these bases produce certain effects upon the nervous system; and that such effects, whether stimulant or anæsthetic, of one of them, viz., ethyle, may be obtained at the same time that the action of another remedy combined with it is also produced.

The preceding researches tend further to show, that for therapeutic purposes organic radicals may be made to take the place of some of the inorganic radicals, such as sodium or potassium; that in such combination iodine may be

given in larger than ordinary doses; that this, and some other medicinal agents are thus equally capable of producing their beneficial effects externally as well as constitutionally, and that so combined, their volatile properties afford facility for their introduction into the system through a new channel hitherto but little used for such a purpose, viz., the lungs, upon which internal organs their local action may likewise be obtained in an advantageous manner.

I trust that the observations of others will confirm what I have advanced as to the properties of these compounds, and the practical uses to which some of them may be applied. My chief object, however, has been to direct the attention of medical men and scientific chemists to the properties and uses of the numerous compounds which the progress of organic chemistry is almost daily bringing to light; and I feel that these researches will not have been fruitless, if they should induce others to enter this wide and unexplored field for therapeutic inquiry.

Liverpool, January 1855.

## NOTES AND OBSERVATIONS ON SOME OF THE MORE REMEDIABLE CASES OF DEAFNESS.

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### NO. II.

**INFLAMMATION** of the membrana tympani, as a primary affection, is not of very frequent occurrence; but occurring secondarily from extension of inflammation to it, either from the meatus or from the cavity of the tympanum, is by no means uncommon. Indeed, it would seem impossible that disease could exist for any length of time in either of these cavities, without implicating the thin membranous septum which divides them from each other; hence the rarity of meeting with a healthy condition of the membrana tympani in the great bulk of patients affected with deafness, and the frequency with which destruction of this membrane more or less complete is met with. In the case of Bradford, it was the outer or dermoid layer of the membrana tympani which principally suffered. In the following case, the middle and internal layers would appear to be the structures most involved, in which the lining membrane of the tympanic cavity probably participated; so that these two cases would stand somewhat in the same relation to each other, as purulent conjunctivitis or purulent ophthalmia, as it is sometimes called, and scleritis or rheumatic ophthalmia.

**CASE II.** *Inflammation of the Membrana Tympani, affecting chiefly its middle and internal Coats, and involving the Tympanic Cavity; Great Deafness; Severe Pain; Loud Tinnitus; without Discharge; the Membrana thickened and Flesh coloured; Treatment by Leeches and Aperients, with Relief.* Ann Turner, aged 29 years, stout, somewhat plethoric, and having a sullen appearance, applied to me on the 3rd of April for deafness and earache of both ears, accompanied with tinnitus, but without discharge. These symptoms first came on in the right ear, and shortly after in the left (and the pain in the right ear especially was exceedingly violent), a fortnight previous to her application.

Hirudines iv pone aurem sing. statim applic.

April 9th. The leech bites bled freely and afforded decided relief to the pain, but the deafness and tinnitus still continued. The hearing distance of the right ear was nothing; that of the left was six inches. Both auditory passages were healthy: neither membrane could be satisfactorily seen, owing to the want of light, but they appeared less glistening and more opaque than natural. The friend who accompanied this patient declared that her dull and sullen appearance had only come on since the present attack; and that she was very low spirited, and feared that she would never recover her hearing again.

*Hirudines xii pone aures applic.*

*R. Pilula hydrargyri gr. v.  
Alternis noctibus sumenda.*

*R. Haust. gentianæ comp. ʒj.  
Bis die sumendus.*

April 12th. The leeches drew blood freely, and afforded decided relief to the pain and deafness. She said she felt these symptoms gradually lessening while the leeches were on, but she still complained much of the tinnitus, which was more violent in the left than the right ear. The countenance was more lively; the bowels were confined. The hearing distance of the right ear was four inches, of the left thirty. On examining the meatus in a bright sunshine, that of the right was observed to be of a pinkish hue in the neighbourhood of the membrana tympani, but no discharge existed. The membrane itself was considerably thickened and of a flesh colour; but no granulations were present, nor were red vessels seen shooting across it, as is observed in the healthy membrana tympani if touched with a probe or otherwise stimulated; the tint was uniform all over, and not sufficiently deep coloured to be visible otherwise than in a bright light, for on looking at the membrane unilluminated by the rays of the sun, it appeared of a paper-white dull colour. The malleal fold was obliterated, the short process only of the handle of the malleus forming a slight projecting point. No morbid appearances were observed in the left meatus, but the membrana tympani of this side was slightly thickened, and rather more opaque than natural; the malleal fold was quite distinct.

*R. Haust. gentian. compos. ʒi.  
Fiat haustus ter die sumendus.*

May 1st. I had not been able to see this patient since the date of the last note, but her friend informed me that the improvement still continued, though she had not yet got rid of the tinnitus.

It is much to be regretted that she ceased her attendance at so early a period of the treatment; but it too frequently happens that, as soon as the more urgent symptoms are mitigated, the patient is satisfied, and thus the disease continues in a chronic form, till irremediable changes of structure render further treatment hopeless. The thickened condition of the right membrana tympani was not improbably due in part to antecedent disease. It is not often that acute inflammation of the membrana tympani terminates as favourably as it did in the two foregoing cases; it more frequently leads to destruction, either partial or complete, of this membrane, and thus lays the foundation of permanent deafness, while at the same time, from the exposure of the tympanic cavity, the patient is ever after rendered liable to attacks of earache and discharge from causes which would scarcely affect the healthy organ. In the following case, the membrana tympani of the right ear was partially destroyed by inflammation extending to it from the cavity of the tympanum ten years previously.

*CASE III. Abscess in the Meatus Auditorius of the Left Ear; Diffused Inflammation of the Meatus of the right, followed by discharge; Excoriation of both Auricles; Partial Destruction of the right Membrana Tympani from previous disease, with adhesion of the margins of the aperture to the lining membrane of the inner wall of the Tympanum? Treatment by Alteratives, Fomentations, and Puncture of the Abscess; Hearing greatly improved.* Ann Avary, aged 30, delicate, and somewhat consumptive looking, having light hair and a fair complexion, applied, on the 9th. October 1838, at the out-patient room of St. Bartholomew's Hospital, for some cutaneous disease, accompanied with dyspepsia. Five grains of Plummer's pill was ordered to be taken every night, and the compound gentian mixture three times a day.

October 22nd. She was now quite free from the ailments for which she applied, but complained of considerable pain in the left ear, which came on six days ago; there was slight deafness, but no tinnitus, or discharge. The entrance to the meatus was nearly closed by an irregularly circum-

scribed swelling; some degree of swelling and redness also existed in front of the ear, about the tragus. She stated that seven days previously the right ear was attacked in a similar manner, only more severely; but on the second day of the pain, she obtained relief by the breaking forth of a discharge from it, which had now quite ceased. There was some excoriation about and behind each auricle, especially the right. The hearing distance of the right ear was eight inches; of the left, ten. She said she never recollected having suffered in a similar way but once, and that was ten years previously, when she had such great pain, tinnitus, and deafness in both ears, that she was obliged to leave service on account of it. These symptoms lasted a whole month, and she was suddenly relieved from them all by a profuse discharge breaking forth from both ears at once. The discharge lasted but a few days, and she had been quite free from any complaints of the ear till the present attack. A warm poultice was directed to be applied to the swelling at the entrance of the left meatus, and she was ordered to continue taking the mixture and pills.

October 24th. It being too dark yesterday to examine the condition of the diseased parts, they were examined to-day in a bright sunshine. The swelling at the entrance of the left meatus, although diminished, was still too considerable to admit of the membrana tympani being seen; the auditory passage was besmeared with a limpid fetid pus in small quantity, and the pain had much abated. No remains of disease were visible in the right meatus; but the appearance of the membrana tympani of this ear was much altered, apparently from previous disease, as there was no inflammation in it at present; part of it appeared to be destroyed, but of this I was not quite certain.

October 31st. The hearing was good; the hearing distance with both ears being four feet; there was no tinnitus; but a small swelling on the floor of the left meatus, which was soft, and very sensitive to the slightest pressure, nearly closed its entrance. The ear was ordered to be bathed with warm water.

Nov. 8th. She was nearly well; the circumscribed form of the swelling in the left meatus had disappeared; but this canal was thinly smeared with pus, and still too narrow to admit of a full view of the membrana tympani being obtained. The part of it that was visible was less glistening than natural, and had a yellowish tinge. On examining the other, it still had the same curious appearance which I before observed. The malleal fold, with all the anterior part of the membrane, and the whole circumference, appeared one piece in relief; while the posterior part was situated much deeper, and appeared isolated from the other; so that, if not viewed in a strong light, one would say the membrane was wanting in this situation: the bright light, however, in which I viewed it, showed it to be a portion of the membrane. The treatment was continued.

Nov. 20th. A few days ago, she came again, complaining of some pain and great deafness in the same ear (the left). The meatus was completely closed by a swelling in the same situation, and having the same appearance as the former one; there was also considerable tenderness, and some tumefaction of the temple, immediately in front of the tragus. The swelling within the meatus was opened with a pointed bistoury, and some blood, with a small quantity of pus, escaped. Warm water injections were prescribed, with the application of a poultice externally. She was still taking the Plummer's pill, and the compound gentian mixture; and at this date the swelling had nearly disappeared, and her hearing was good.

Nov. 28th. She came again to-day, on account of a severe cold. She had suffered no more from pain or discharge from the ear since it was punctured. The meatus appeared perfectly healthy, and of normal calibre; but the day was too dull to ascertain the condition of the membrana tympani. She was ordered to discontinue all remedies to the ear, and was discharged cured.

REMARKS. This case, as the date will show, was taken many years ago, before I had become aware of the great

frequency of the destruction of the membrana tympani. Some doubt therefore may attach to that part of the heading of the case, having reference to the adhesion of the margins of the aperture to the inner wall of the tympanic cavity. The note made on the 8th of November, has been copied verbatim from my case-book; and I leave it to my readers to put what interpretation they like on the appearances there described. My own reading of them, as interpreted by subsequent experience, I have stated in the heading, and will illustrate by another case, in which all doubt on this point is done away with. The existence of the aperture probably dates ten years back, and was caused by the severe attack of acute tympanitis, from which this patient suffered at that period. The history of that attack would lead one to believe that similar mischief must have happened to the membrana tympani of the left ear, though from the narrowness of its meatus, I was never able to verify this. The repetition of the gatherings in the left meatus arose probably from the smallness of the aperture for the outlet of the pus, and it might have been prevented had an opening been made by the lancet in the first instance. The absence of tinnitus in this case affords some support to the opinion of Mr. Wilde, that this symptom "seldom or never co-exists with an open tympanic membrane". This statement of Mr. Wilde does not altogether accord with my experience; and some of the cases which I shall shortly report in this JOURNAL will show that there are many exceptions to the rule laid down by that distinguished surgeon.

CASE IV. *Partial destruction of the Membrana Tympani of the Right Ear, with adhesion of the Margins of the Aperture to the Lining Membrane of the Tympanum; Great Opacity of the Membrana Tympani of the Left Ear, which was drawn inwards.* George Noble first came under my care on June 22nd, 1848, for an ulceration of the cornea; and, observing that he was hard of hearing, I examined his ears. A large quantity of wax was found blocking up each meatus, and was removed by syringing. After the operation, the hearing was somewhat improved, the watch being heard at a distance of one inch, while before it was only heard on contact. Both auditory passages were very large, and portions of cuticle were partly detached from them, as well as from the membrana tympani of each ear. The right membrane had an aperture in it anterior to the malleus, the margins of which had coalesced with the lining membrane of the tympanic cavity, thus drawing it inwards. The left membrana tympani was entire, but very opaque in the centre, and also drawn inwards. He said that when he held his nose, and *inspired* strongly, he became quite deaf; but on *expiring*, under similar conditions, he heard better. No air ever escaped with a hissing noise from the right meatus when he did this, so that the adhesion of the margins of the aperture in the membrana tympani to the lining of the tympanum, would appear to be complete.

*History.* He stated that he had been more or less deaf since twelve years of age, and this deafness he attributed to a severe blow he received on the back of his head. He did not recollect having ever suffered from earache; but he occasionally had had a foetid discharge from the ears, and tinnitus. He was "subject to colds in the head", when he always heard worse, and it was on these occasions that he experienced the tinnitus. At times he had sudden explosions in the ears, with temporary improvement to his hearing.

Nearly two years after these notes were taken, this patient again came under my care for one of these attacks of catarrhal deafness, brought on by sitting in a draught; and I was enabled once more to verify the accuracy of my previous examination relative to the condition of the membrana tympani of his right ear.

[To be continued.]

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## ON ACCIDENTS INVOLVING INJURY TO THE TEETH.

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THE incisor teeth, from their prominent position and anatomical arrangement, are constantly liable to injury; a blow which on the cheek would fall harmless, or at the most inflict a slight bruise, would on the mouth be quite sufficient to loosen the teeth, or altogether dislocate them. A fall from a horse or from an open carriage; in the street, the mouth striking against the kerb-stone; in the house, against some article of furniture; a blow from the fist, a stick, or from a cricket-ball;—these, as far as my experience goes, are the most frequent causes of the injury in question; and to these must be added a proportion of the casualties so frequently occurring in railway travelling. When a collision takes place on a line of railway, or when from any cause the speed is suddenly checked, the passengers, losing their equilibrium, are thrown together, and their foreheads come into violent contact. If, however, the shock be felt chiefly in one direction, the forehead of the passenger thrown forward will probably strike the mouth of the one opposite, and loosen or entirely knock out the front teeth. In the newspaper reports, injuries of this nature are generally comprised in the list of bruises and contusions; the sufferers are unwilling to parade their loss of teeth, and perhaps are too thankful to escape so easily. But, apart from the experience of medical men, the demands for compensation made on the Accident Insurance Companies by the comparatively few who are insured are sufficient to prove the frequency of the occurrence of such accidents; and as such cases always come under the care of the surgeon, rather than the dentist, in the first instance, a few remarks on their treatment may prove useful.

Of late years, the opinion has generally prevailed that serious injuries to the teeth are irremediable; that, when they have been displaced or loosened to a considerable extent by violence, the attempt to retain them in their respective positions is futile; and that, from their supply of blood being entirely cut off by the severance of the proper dental vessels, although from the deep cylindrical form of their sockets they might be retained for a time, they would soon die, and become sources of irritation, suffering, and injury to the surrounding structures. This opinion being supported by the highest authority on such subjects, the practice has been at once to remove them.

Such, I must confess, were my own opinions and practice for many years, until cases came under my observation, in which very extensive injuries had been repaired without surgical aid, and under what would be considered unfavourable circumstances, and the teeth retained for a period of twenty, thirty, and even forty years. As the details of such cases produce a more decided and lasting impression than the bare enunciation of opinions, I will relate some of the most remarkable, furnished me by patients whose characters and position in life I consider a sufficient guarantee for their veracity.

CASE I. A gentleman, about 48 years of age, consulted me as to the propriety of removing two loose central incisors, and replacing them with artificial teeth. As all the neighbouring teeth were sound and firm, and the gums healthy, I concluded the two teeth had been loosened by accident, rather than by disease. This, he said, was the case, but not recently; the accident to them had occurred nearly twenty years ago. At that period he was acting as supercargo on board a ship he had chartered, and trading on the coast of South America. War then existing between neighbouring states, a suspicious looking vessel was seen approaching, and, thinking she might possibly be a privateer, the ship's course was altered to avoid her. At that moment my informant was standing on the after-deck, when the mainsail suddenly flew over, and the boom, striking him in the face, laid him senseless on the deck. There being no medical man on board, and the captain fearing the consequences might prove serious, lay to, and sent a