divisions, functional aphonia, I would now beg to hazard a few remarks.

Under this name, as at present used, there are included several kinds of voicelessness, varying widely in their seat and nature, and therefore requiring methods of treatment varying equally widely. I find it ascribed by some to chronic laryngitis; by others to congestion; by others, again, to the effects of cold, to pressure on the larynx or laryngeal nerves, to hysteria, and to "a peculiar condition of the nerve-force."

It seems to me that, mainly by the aid of the laryngoscope, we have arrived at a point in the knowledge of aphonia sufficiently advanced to enable us to arrange those forms of it that we are already acquainted with a little more exactly than the above list (which might be extended) would seem to indicate. Ought any form of aphonia where there is distinct departure from the healthy condition of tissue, lasting as long as the symptom remains, to be called functional? Is not the absence of discoverable fixed alteration of structure the one main condition that renders any disease functional as contradistinguished from organic? If this be so, some of the above aphonias should no longer be classed under the former head. Albuminuric aphonia is usually treated of as a kind apart, and most properly so, for the prominent symptom is due to a true oedema, a small local dropsy, and not to blood-poisoning; but catarrhal congestion with viscid secretion is quite as decided an alteration.

It may be said that, after all, aphonia is no disease in itself, but merely a symptom, and therefore need not be treated of so elaborately. Truly it is no disease *per se*, but it is so prominent and troublesome a symptom of certain disorders not necessarily otherwise important, that in practice it is eminently convenient to elevate it into an entity and deal with it in that form.

Under the true functional aphonia, at all events, would fall those cases of this affection due to altered nerve-supply to the larynx, whether from pressure on the organ itself or its nerves, or by any disorder of the centre whence those nerves arise. This form, when fully developed, either stammers excessively or is absolutely dumb; most of the spurious kinds whisper, phonation remaining, but being muffled, obscured, or altered in various ways and degrees. The true functional is a much more rare affection. An interesting illustration of this latter occurred to me recently:—

George H—, aged thirty-eight, carpenter, healthy, and not intemperate, had been for some weeks working overtime, and walking long distances to his employment. Had diarrhoea yesterday (Oct. 2nd, 1865). Came to my house with a companion, walking slowly and feebly. After tea, had been seized with giddiness, faintness, and feeling of general illness, but was not unconscious. Stammered much in speaking (wholly unusual), and soon after became unable to utter a word—absolutely dumb. Countenance pale and anxious. When asked what was the matter, he opened his mouth, pointed to it, and shook his head, but could make no articulate sound, not the faintest whisper. Could protrude his tongue easily and straight; swallow perfectly well; mind and senses as clear as ever; skin cool and moist; pulse 75, feeble. In fact, I could discover nothing else wrong besides the voicelessness, though I omit the particulars to save space. Ordered camphor and ammonia, with directions to take full allowance of malt liquor, and to be sure and come or send to me in the morning, when I purposed examining his larynx and testing his urine. Greatly to my vexation, he neither came nor sent. I called at several places where I had reason to suppose I might hear of him, but, as it turned out, the treatment of "the poor letter H" by his companion completely frustrated me, and I could learn nothing of the name I asked for.

On the 28th of December G. H— came to my house, laughing, talking, and in rude health, bringing some other patient to me. In answer to my question about his voice, he said, "Well, sir, you told me to take full allowance of beer that night, so I thought I'd try it, and I took five pints of porter, and I got jolly tight upon it; and when I awoke at four o'clock in the morning I found I could speak as well as ever, and I have been quite well ever since." On examining his urine, there was not a trace of albumen in it.

My reading of this case was that it had been a true paralysis (functional) of the superior and inferior laryngeal nerves, a paresis of the pneumogastrics, and due to exhaustion. Dumbness of course was the effect, until rest and stimulants refreshed the medulla oblongata, and enabled it again to supply the nerves. The affection of the voice began with *stammering* (the tottering and trembling of half-paralysed muscles), and then went on to complete loss of power (dumbness). Had the

cause been a mere local alteration of tissue, he would certainly have been able to whisper in some degree. Is congenital dumbness not congenital paralysis of the laryngeal muscles?

The reality and importance of purely functional paralysis have been clearly and prominently put forward only of late years. For an elaborate and most practical work on "Functional Nervous Disorders" we are indebted to Dr. Handfield Jones, who also has effectually established the existence of primary functional paralysis in his Lumleian Lectures for 1865, to which I would refer anyone doubtful of the possibility of such a paralysis as I have above recorded.

Upper Southwick-street, Hyde-park, Feb. 1866.

ON AN OUTBREAK OF TYPHOID FEVER, WITH SPECIAL REFERENCE TO ITS ETIOLOGY, AND COMPLICATION OF DIPHTHERIA.

By DONALD CAMPBELL BLACK, M.D.

IN consequence of a recent outbreak of typhoid fever in this locality (Oban) answering in every respect the conditions specified in the 4th and 5th of the Interrogatories on Enteric Fever* in THE LANCET of Jan. 28th, 1865, and the revival of this interesting and important subject in a recent number, I am induced to submit the following particulars as, in my opinion, very pertinent to the questions at issue. Being placed in circumstances peculiarly favourable to the deduction of reliable inferences must alone be accepted as my apology for recording the following facts, and expressing such observations as immediately pertain thereto.

On the 27th of August last, I saw, in company with a medical friend from Edinburgh, a case which I believed to be one convalescent from enteric fever, the history and then present appearances thus indicating. On the 30th of that month I visited a distinct case of this fever in a different part of the town, and occurring in a person who could not possibly have been in contact with the former case or otherwise exposed to contagion. I saw this case at the commencement, and my diagnosis was confirmed by the gentleman alluded to. On the 3rd of September I was called to another case at a considerable distance from the foregoing, and to which the above remarks equally apply. Between the last date and the 12th September seven new cases had appeared, many of them almost instantaneously; from the 12th to the 20th September ten additional cases came under treatment; and in a space of four weeks I had under my care over thirty cases, and my friend Dr. McGillivray a greater number. Thus the occurrence of at least seventy cases of enteric fever in an isolated town, obviously independent of importation, created no small amount of uneasiness, and many and conflicting were the opinions entertained as to the probable cause.

Considering the suddenness of the outbreak; that no fever of any kind existed in the neighbourhood; that rich and poor were promiscuously attacked; that the fever was almost exclusively confined to the best and most airy part of the town; that it occurred during the prevalence of unusually hot and sultry weather, the thermometer ranging from 55° to 80° in the shade, being as high as 93° in the sun,—these considerations, I say, naturally indicated to me a general influence, and, in my capacity of Medical Officer of Health, I accordingly suggested to the Commissioners of Police the propriety of examining the tank or reservoir from which that portion of the town in which the fever prevailed was almost exclusively supplied by means of a common pump. To this suggestion the authorities at once acceded. I watched the examination. On removal of the covering, a putrescent smell was very intensely perceived. A large quantity of mud, in a state of decomposition, occupied the bottom. The rose through which the water filtered was imbedded in this material; and some dead mice &c. were found amongst the débris. It transpired on inquiry that the cistern had not been depurated for over a period of twelve years; and that within about twenty yards of the cistern, and certainly within its possible soakage, the sewage drain of a large hotel passed, and that this drain could

* "4. On the appearance of enteric fever in an isolated house, village, or other locality, independently of importation of the poison, stating particularly the degree of isolation, the reasons for excluding the possibility of importation, and the apparent cause of the fever.

"5. On the occurrence of a single case of enteric fever in a family, without any subsequent spread."

not be water-tight, being of rough *rubble* build. The water had a somewhat milky colour, and, on standing for a night or so, deposited an abundant sediment. By tests which I applied, no organic gases were detected. Unfortunately, no portion of the water was retained for minute chemical analysis; but it was manifest to sight and taste that it was contaminated. Together with this, it may be added that there is no thorough system of drainage throughout the town; there is not an abundant supply of water; and such drains as do exist are only flushed during wet weather—conditions certainly favourable in hot weather to the formation of putrescent gases and the production of disease, but which it is in contemplation to remedy without delay.

With more particular reference to "Question 4," I observe—1st, that it was undoubtedly enteric fever we had to deal with. It unmistakably showed itself in the gradual accession of symptoms, alternate flushings and chills, pains referred "to the bones," headache, profuse perspiration, great prostration, bowel complication, delirium, and rose-coloured spots, well marked, at first, as a rule, faint and disappearing under pressure, but subsequently elevated and unaffected thereby, &c. Nine-tenths of the cases occurred in the part of the town supplied by water as above; and such cases as occurred elsewhere came directly or indirectly within the focus of contagion, or infection. It could not have been imported, the sudden outbreak and general prevalence in a particular locality militating against this assumption. And, lastly, the question of etiology. I submit that it is almost proved to a demonstration that the occurrence of the fever, the contamination of water, the defective drainage, and the unusually hot autumn weather, stand in the irrefragable relation of cause and effect.

QUEST. 5. *On the occurrence of a single case of enteric fever in a family without any subsequent spread.*—During this epidemic several such cases were observed; but from those in town it is obvious that no inference could be drawn as to the contagiousness of the fever, as all were alike subject to the same influence. I am aware of only one instance in which a single case occurred in the country, without subsequent spread—i. e., being in the country throughout the whole course of the disease. The patient was frequently in town, and no doubt caught the infection there. I attended a case in town where the patient was, contrary to my express instructions, removed to the country during convalescence. She was progressing favourably up to the period of removal (Sept. 3rd); but from that period a relapse had taken place, and, till within a short time, recovery seemed very doubtful. Great emaciation ensued, and copious hæmorrhage from the bowels took place. While in town the patient had severe epistaxis and spitting of blood. In this case, which was quite isolated, no subsequent spread took place. But, on the other hand, cases have occurred in the country in which, doubtless, the infection was caught in town, where the disease did spread to other members of the family, and in which I failed to discover any reasonable cause determining its spread or the reverse. I am at a loss to comprehend how it happens that in some cases enteric fever does not spread from the person affected, and how in other cases it affects only certain members of a family, though all are equally exposed to contagion.

Complication of diphtheria with enteric fever.—I have never in the course of my reading, if my memory serve me well, observed allusion to this disease as a complication of enteric fever, nor have I ever before seen it as such in practice. In the course of this epidemic, true diphtheria supervened in three cases on the subsidence of the fever proper, if the expression be permitted. None of the cases, however, occurred in my practice. One of them I saw frequently. The whole fauces were covered with white patches of plastic exudation, implicating in all probability the larynx. There was extreme prostration, and subsequently epileptiform convulsions of a violent description ensued. During these fits, there was perfect insensibility, unequal dilatation of the pupils, and total blindness. None but the most sanguine could anticipate recovery. The pulse was extremely feeble, about 150, and suffocation seemed imminent. The strength was assiduously kept up by diffusible stimulants, such as brandy, ammonia, &c., and enemata of brandy and beef-essence administered at given intervals, with as much of the same as could be given by the mouth. In the course of time several patches of the exudation material were coughed up, and from that time, to the wonderment of not a few, convalescence went on uninterruptedly. Dr. James Paterson, of Glasgow, saw the case while on a visit to this town, and will doubtless recollect it. I saw the same in another case, not nearly so severe however, which also did well.

In the third case, which I did not see, but which was described to me by my colleague as similar in all respects to the foregoing, the result was fatal, convulsions having also occurred before death. Of the identity of this throat affection, I may add, there could be no reasonable doubt.

To epitomize, I have arrived at the following conclusions on the subject of enteric fever:—That it is due to the introduction into the blood of gases, or solid material, resulting from the decomposition of organic matter. That it is attended with excessive metamorphosis of tissue, and very frequently a specific inflammation of the gastro-intestinal mucous track and ærian membrane. That the delirium and head complications correspond in severity to that of the bowel complication.* That typhous pneumonia and intestinal ulceration may coexist. That the rational treatment consists in the judicious administration of nutrients, and, in such cases as demand it, the exhibition of stimulants. That local depletion, as by the application of leeches to the region of the lungs, stomach, and bowels, is indicated in certain cases by the spontaneous hæmorrhages that frequently occur, particularly in the plethoric. That treated thus, enteric fever is a comparatively mild disease, the mortality in my cases being only one in thirty-five, and in this case death took place on the twelfth day of the fever from sudden collapse, the nervous system having been apparently overwhelmed by the poison; the mortality in the aggregate was seven deaths. And that this fever is *infectious* and *contagious*, or, in other words, communicable through the medium of a contaminated atmosphere, and by direct contact.

Oban, Jan. 1866.

ON DIFFICULTY OF HEARING IN CASES OF PERFORATION OF THE MEMBRANA TYMPANI,

AND ON THE PHYSIOLOGICAL AND THERAPEUTIC IMPORTANCE OF THE TUBA EUSTACHII IN SUCH CASES.

By F. E. WEBER, M.D., OF BERLIN.

(Concluded from page 122.)

Now, in order to formulate and recapitulate my statements let us imagine—

1. A person with a large perforation in the membrana tympani, not of long standing, which has entirely passed off, without thickening of the mucous membrane lining the tympanum; one, further, whose ossicula are not yet injured, and the rest of whose acoustic organs are intact. But let us suppose the tube to be closed, proving on examination to be completely obstructed by catarrh, and incapable of being cleared either by the experimentum Valsalvæ or by the air-douche aided by a swallowing movement, so that the probe cannot pass the stricture without resistance. Let us imagine further, that a watch which under ordinary circumstances can be heard at a distance of thirty feet, is in this case not audible by the patient beyond a range of two feet, vocal utterances being equally inaudible. Now let us suppose a few days to have elapsed, and the inflation produced by the catarrh to have somewhat subsided, so that the tube on examination, though still charged, seems already somewhat less swollen, proving on the attempt to swallow to be uniformly filled with mucus, the range of hearing being, say three feet. If now the entire bore of the tube—the cavity of the tympanum having previously been found quite free and clear—be at this moment opened by means of a bougie of suitable size, which is allowed to remain a few minutes, and an air-douche be then passed through, so that the noise of the air passing through the mucus is distinctly heard by aid of the otoscope, the patient, after this opening of the passage, will hear the watch at a distance of from twenty-five to thirty feet.

2. Now let us take another case in which, along with the defect in the membrana tympani, further derangement has resulted from chronic inflammation of the middle ear, such as sclerosis of the mucous membrane, or thickening of the coatings of the fenestræ, or it may be even that, through a slowly-progressing process (antecedent perhaps to the inflammation of the cavity and the rupture of the membrane) secondary changes have passed over to the auditory nerves. Supposing such a patient, while the tube remains closed, to hear the

* Vide Feuchtersleben's Med. Psychology, Syd. Soc. Edit., p. 178.