cases is, they carry conviction to my own mind. It gives me the most profound satisfaction to be able to state, on the authority of the India Office, that the Bombay Government intend to employ M. Yersin, now on his way to the stricken region, and to give a full trial to his method. I have also learned through another channel that within a fortnight of this time (February 1st) the serum treatment will probably have begun in Bombay.]

THE LETTSSOMIAN LECTURES

ON

DISEASES OF THE NOSE AND THROAT IN RELATION TO GENERAL MEDICINE.

Delivered before the Medical Society of London,

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LECTURE I.

MR. PRESIDENT AND GENTLEMEN,—When your Council did me the honour of requesting me to deliver the Lettssomian Lectures my first thought was, Had I anything worthy of presentation before so distinguished an audience? It then occurred to me that between the position of the Medical Society of London and my own there was a certain resemblance. The Society is always ready to receive papers on general medicine; at the same time it welcomes with equal pleasure the contributions of those of its Fellows who have devoted themselves to special branches of practice. My position is this: I am physician to a general hospital, and consequently all forms of disease come under my care. At the same time, in virtue of having held for nearly twenty years the post of Physician in charge of the Nose and Throat Department at the Westminster Hospital, I may be considered to have more or less special knowledge of the diseases of the nose and throat. This being our respective positions, I thought that I could not do better than submit for your acceptance some reflections on the relation existing between diseases of the nose and throat and general medicine, as in the dual capacity in which I stand I am perhaps better able to see the two sides of the question than either the pure specialist or the general practitioner.

There are two chief methods of treating the subject I have chosen. You can either briefly run over the principal general diseases and point out the nose and throat complications which occur during their course, or you can start with the various diseases of the nose and throat, and then mention the conditions under which they may be met. I have selected the former plan as being the more suitable for my purpose. I therefore propose to pass in review some of the principal general and local diseases of the body, and describe the various affections of the nose and throat which occur during their course.

If you will pardon a digression, I should like to take this opportunity of emphasising the importance of the laryngoscope as a means of diagnosis and treatment. I often hear it compared with the ophthalmoscope, and I have heard students say that, as they had not time to perfect themselves in both, they had chosen the ophthalmoscope. For the general practitioner, however, there can be no sort of doubt that the laryngoscope is immensely more useful than the ophthalmoscope. I am ready to admit that the ophthalmoscope is very often useful in settling a diagnosis, but, as far as I can learn, there are only two conditions in which the ophthalmoscope is essential to a diagnosis, namely, the presence of optic neuritis as indicative of some organic disease within the brain, and the occurrence of retinitis as an early sign of renal disease. Its use from a therapeutic point of view is extremely limited. On the other hand, I might well occupy the whole of one of these lectures in describing the use of the laryngoscope in the diagnosis and treatment of disease, and I know of no specialty in which even a moderate amount of knowledge is so sure of a good harvest as that of laryngoscopy. The general practitioner who has made himself familiar with the laryngoscope has largely increased his sphere of use-

fulness. Far be it from me to run down the ophthalmoscope; on the contrary, I hope that the time will come ere long when no one will be licensed to practise unless he can show that he is capable of using the laryngoscope, ophthalmoscope, and other instrumental means of diagnosis. The use of the nasal speculum and rhinoscope is so closely connected with that of the laryngoscope, that the student who learns how to use the latter will, as a matter of course, employ the former. This digression will, I hope, be pardoned, but I felt it a duty to speak plainly on the subject as, owing to the deficiency in the system of examination as now carried on, students are not induced to perfect themselves in the use of the laryngoscope.

Before entering upon a description of the nose and throat affections of the acute specific diseases I would like to accentuate the extreme importance of the nose and throat as the chief portals of entrance of the poisons, whatever they may be, which give rise to these diseases. Evidence is gradually being accumulated which points to the conclusion that people who suffer from nasal affections are more liable to contract infectious diseases, especially diphtheria, than healthy persons. In erysipelas of the face it is very frequently found that there is some chronic nasal affection and that the erysipelatous blush started from the nose. This I have often been able to demonstrate in hospital cases under my care. If we except waterborne diseases, such as cholera and dysentery, almost all the other infectious diseases are conveyed by the air, and hence the morbid agent usually enters by way of the nasal cavities and pharynx, and here it proliferates during the first stage of incubation.

Two cases of artificially produced disease of the nose brought forcibly before me the risk of operative procedures on the nasal mucous membrane in persons exposed to infectious diseases. In both these cases I had used the galvanocautery for the cure of hypertrophic rhinitis, and in both symptoms of scarlet fever manifested themselves two or three days after the application of the cautery. The first case might be merely a coincidence, but the second case was that of a medical man who, as house-physician at a London hospital, had been constantly exposed to the infection of scarlet fever without effect until I unluckily made a way, as I believe, for the entrance of the germs through the abraded mucous membrane of the nose.

The practical conclusion that I would draw from the above is the advisability of abstaining from operative procedures on the nasal mucous membrane during epidemics of influenza and other infectious diseases, as well as in the case of persons liable to be brought in contact with such diseases. I have also abstained from operating on medical students and others whose duties take them into the dissecting or *post-mortem* rooms. Lacunar tonsillitis occasionally follows intranasal cauterisation. I have seen it in one or two cases of my own, and numerous instances are to be found recorded in the various special journals.

The rôle played by the tonsils as a point of entrance of germs into the system is now becoming more generally recognised. Gerhardt has termed the tonsil a physiological wound, an inlet guarded however by leucocytes which protect the system against the entrance of these germs. If from any reason the energy of the leucocytes is diminished, or the tonsil is in an unhealthy condition, then the germs of diseases such as scarlet fever, diphtheria, and other infectious diseases gain access to the system. Tubercle bacilli can probably pass through the tonsils, and, without giving rise to any disturbance in them, may produce tuberculosis of the glands of the neck. Staphylococci, streptococci, and other micro-organisms can also find their way into the system through the tonsils. Adenoid vegetations in the nasopharynx have a similar action to the tonsils in this respect, and there can be little doubt that one of the beneficial results of Wilhelm Meyer's discovery will be a lessened amount of danger in cases of scarlet fever and diphtheria, and especially a great diminution in diseases of the middle ear.

As I have already pointed out, in a large proportion of the infectious diseases the morbid element is conveyed by the air, and consequently usually enters the system *via* the upper respiratory tract, hence it was to be expected that this region would show signs of irritation. The typical example of this is diphtheria, in which the disease in the first instance is a purely local one, consisting of a fibrinous exudation caused by

the Klebs-Loeffler bacillus, and it is not until the toxins produced by these bacilli in their growth have been absorbed that we have constitutional symptoms. Most of the infectious diseases give rise to a catarrhal condition of the air passages—this is especially the case in measles; in some the engorgement of the nasal mucous membrane finds relief in epistaxis—so common a prodromal symptom in enteric fever. The naso-pharynx may be the starting-point of some diseases—notably, I believe, is this the case in influenza. I have already discussed the rôle of the faucial tonsils as the starting-point of scarlet fever, diphtheria, etc. The larynx deserves especial attention in diphtheria, small-pox, and enteric fever. And lastly it should be remembered that all diseased conditions of the mucous membrane of the nose, naso-pharynx, pharynx, and larynx, whether merely local, as an abraded surface, or as part of a general disease, such as scarlet fever, are liable to be accompanied by a secondary diphtheritic inflammation, and that this is a very grave complication, especially in the case of the acute specific fevers. I will now proceed to describe at greater length the changes seen in the nose and throat as a result of the acute infectious diseases.

SMALL-POX.

This disease is occasionally ushered in with catarrhal symptoms, for example, sneezing, epistaxis, intolerance of light, lachrymation, sore throat with redness and some swelling of the palate and tonsils, and hoarseness—symptoms which it is important to emphasise, as they may cause the disease to be mistaken for measles. In the malignant form of small-pox there may be profuse epistaxis. The pustules of small-pox have been seen in the nostrils, mouth, pharynx and larynx; they have even been noticed as low down as the bronchia of the second or third order. The eruption may occur on any part of the mouth; salivation is present, and is very severe in the confluent form of the disease.¹ If the soft palate is affected there is usually much inflammatory swelling, and an abscess sometimes results. Owing to the moisture of the mouth, the pocks seldom form well-marked pustules. At first they appear as whitish-grey slightly elevated spots, which soon soften and form superficial ulcerations, surrounded by a red zone. The larynx in small-pox may be the seat of an inflammatory process causing congestion of the mucous membrane, or there may be a papular or pustular eruption giving rise to but little discomfort. In severe cases, however, about the ninth to the twelfth day, great swelling of the laryngeal mucous membrane may occur, and suffocative attacks due to œdema of the epiglottis and ary-epiglottic folds come on. Trousseau records three cases in which the progress of the disease was so rapid that death occurred before relief could be obtained. In a case of hæmorrhagic small-pox Morell Mackenzie² found "ecchymotic spots on the under surface of the epiglottis and on the mucous membrane over the arytenoid cartilages," and Gevaert³ has described a case of submucous hæmorrhage in the ary-epiglottic folds, forming two thick sacs, and considerably interfering with access to the larynx. In some cases ulceration extends down to the cartilages, causing necrosis, and death may result from impaction of a piece of extruded cartilage in the glottis; or, owing to more or less destruction of the framework of the larynx and cicatricial contraction, stenosis may occur even after the lapse of many years. I knew one patient in whom tracheotomy had to be performed thirty-eight years after the attack of small-pox, and during the whole of this period she was the subject of a chronic laryngeal affection. If the crico-arytenoid joint becomes involved in the inflammatory mischief, ankylosis may occur, and the patient will recover with a permanently fixed cord; this condition, rather than paralysis, is probably the explanation of two cases described by Morell Mackenzie,⁴ in which he says permanent paralysis of the adductor of a vocal cord followed small-pox.

As in the other acute specific diseases, the excoriated condition of the mucous membrane of the upper air passages renders it vulnerable to the bacillus of diphtheria; hence a diphtheritic exudation may appear on the fauces, or the patient may have the signs of a membranous laryngitis. This form of laryngeal affection usually begins about the tenth day and runs a rapid and fatal course. Fortunately, it is a rare complication; Dr. Ricketts, Medical Superintendent of

the Small-pox Hospital Ships, Metropolitan Asylums Board, writes to me: "I remember only two cases which I regarded as diphtheria (in about 5,000 cases). In a few more I have seen semi-membranous exudation on the fauces. But I have in no case made a bacteriological examination. In fact, the cases I speak of occurred some little time back, before I had the means of making such an examination."

VARICELLA.

According to M. Rondot,⁵ varicella is often accompanied by a mild sore throat, and he has been able to verify the existence of a varicellous eruption on the buccal mucous membrane, even in the absence of a cutaneous manifestation. In this case the diagnosis is based on the objective character of the ulceration of the mouth, on the concomitant sore throat, and the presence of an epidemic of varicella. Whatever may be thought of a varicellous eruption limited to the mouth, there is no doubt that in typical cases of varicella vesicles with reddened bases may be seen on the palate; on the lips, tongue, and cheeks small round superficial ulcers occur, seemingly the result of the breaking down of a vesicle; in other words, the eruption of varicella may occur on mucous membranes as well as on the skin. I would lay stress on this point, as Osler and some other writers do not mention the possible occurrence of the buccal eruption. Varicella resembles small-pox, inasmuch as the eruption may occur, though very rarely, in the larynx. Marfan and Hallé⁶ report two cases. The first case, a child aged 3, was admitted into hospital on account of suffocative attacks. In spite of the absence of a membrane, antitoxin was injected. Bacteriological examination, however, showed the absence of the bacilli of diphtheria. Tracheotomy was necessary, and the eruption of varicella was then seen. The patient recovered. In the second case the child died from broncho-pneumonia, and ulceration of the vocal cords was found.

MEASLES.

The sneezing and running from the nose, which are the earliest premonitory symptoms of measles, indicate the existence of an acute nasal catarrh. The discharge is at first clear and watery, but soon becomes muco-purulent, and often excoriates the upper lip. As a rule, the nasal catarrh disappears with the decline of the rash, but, under unfavourable hygienic conditions in badly nourished children, the discharge may continue and be the commencement of a chronic purulent rhinitis. Epistaxis may occur in the prodromal stage of measles, and in rare cases the loss of blood may be so great as to threaten life. According to Wolff,⁷ the accessory cavities of the nose are always affected in measles, sometimes with catarrhal, at others with purulent, inflammation. This statement must, however, be received with a considerable amount of caution, especially with regard to purulent inflammation, in view of the rarity of acute affections of the nasal sinuses.

On the second or third day of the disease hyperæmia of the roof of the mouth and soft palate is to be seen, followed by an eruption of small red points or patches, giving a stippled redness to the parts. The term "endanthem" has been applied to this appearance. Inasmuch as this eruption is almost invariably present, and as it precedes the rash on the skin, it is of diagnostic importance where there is an unusually prolonged prodromal stage, and in dark races of mankind, in whom it is very difficult to recognise the cutaneous eruption. In delicate children severe stomatitis and even cancrum oris may develop. I remember Dr. Gee impressing on me when a student that measles was the most common cause of cancrum oris. The prognosis in these cases is very grave. The tonsils and mucous membrane of the pharynx generally are inflamed and swollen; the inflammatory mischief occasionally spreads up the Eustachian tube, and gives rise to ear-ache or even otitis media, but the latter is very rare in comparison to what happens in scarlet fever. Catarrh of the larynx is as much a part of the disease as nasal catarrh. The hoarseness and constant irritable cough, which are so frequently met with in the first stage of the disease, point to the implication of the larynx. Von Ziemssen⁸ speaks of having repeatedly seen a deep uniform redness of the laryngeal mucous membrane, with a yellow-reddish colour of the vocal cords. In rare cases measles comes on with the sym-

ptoms of laryngeal obstruction, and as the rash comes out these subside. Owing to the tendency to spasm in children the cough is not infrequently of a croupy character. In the severe forms of laryngitis, ulceration of the mucous membrane, and even an abscess may occur, or death may in rare cases be due to oedema of the larynx. Dr. Major⁹ of Montreal has recorded a case of complete aphonia, without the slightest embarrassment of respiration, coming on during an attack of measles of more than usual severity. On laryngoscopic examination the left arytenoid was found fixed at full inspiration and completely immovable. There was redness about the joint and external tenderness. The larynx was otherwise normal.

Membranous laryngitis is an infrequent but very dangerous complication of measles. According to Morell Mackenzie¹⁰ it is even more fatal than the corresponding scarlatinal affection, 80 per cent. of the cases proving fatal. This complication is in the majority of cases true diphtheria. "It usually supervenes during the eruptive stage, often just when the rash is fading; sometimes it arises later. The symptoms of laryngeal obstruction develop with great rapidity, and are accompanied by a rise of temperature."¹¹ Dr. H. Smith¹² has recorded the occurrence of three cases of paralysis of the intrinsic muscles of the larynx. The paralysis set in within a few days after the subsidence of the fever. Loss of phonation was the only symptom. There was no congestion or inflammation of the larynx present. The first case lasted about ten days (without any treatment). The second and third cases lasted about six days treated with strychnine. I have seen aphonia due to paresis of the thyro-arytenoid muscles coming on after measles, and cured by strychnine and faradisation.

RÖTHELN (GERMAN MEASLES).

In this disease there is frequently slight nasal catarrh, but not to be compared to what is met with in measles. A sore throat which resembles the early stage of the scarlatinal sore throat is usually present; indeed it was on this account that röteln was originally regarded as a hybrid between scarlet fever and measles—that is, it was said to have the sore throat of scarlet fever and the rash of measles. As a rule there is only a moderate amount of injection of the throat, with some swelling of the tonsils; there is hardly ever any ulceration, and never any sloughing. I would insist on the constancy of sore throat as a symptom of German measles, as Osler, in his otherwise admirable textbook on *Medicine*, makes no mention of its occurrence.

SCARLET FEVER.

One of the most important of the recent advances in the treatment of infectious diseases is the attention directed to the condition of the nose and naso-pharynx. In no disease is this more necessary than in scarlet fever. In severe forms of this disease the nostrils and naso-pharynx may become affected by extension from the pharynx. The Eustachian tubes opening into the naso-pharynx participate in the inflammatory mischief, which, spreading up the tubes, gives rise to otitis media, and all the dangers to life and hearing therewith connected. At the commencement there may be noticed a catarrhal condition of the nasal mucous membrane, but the discharge rapidly becomes muco-purulent and very acrid, so that it excoriates the upper lip. In cases of a malignant type the mucous membrane may slough in places, and necrosis of bone and cartilage may result. In scarlet fever the streptococci of pus develop in great numbers in the mucous discharge; cervical adenitis and abscess, purulent otitis media, endocarditis, pleurisy, etc., are due to their absorption, hence the importance of local treatment.¹³

In some cases epistaxis occurs at the commencement of the disease; when it occurs towards the end or during convalescence it is to be attributed rather to the kidney condition than to the fever. If a nasal discharge comes on during convalescence the secretion should be submitted to bacteriological examination, as post-scarlatinal diphtheria may attack the nasal passages primarily or exclusively. As in measles, the accessory sinuses, according to Wolff,¹⁴ are always affected, the inflammation being sometimes of a catarrhal nature, in other cases suppuration may occur. I have already expressed my doubts as to the constant affection of the sinuses in measles, and I would repeat them again in respect to scarlet fever.

It is quite unnecessary for me in this assembly to enter upon a description of the condition of the throat in scarlet fever. In passing, however, I should like to direct your attention to a very important practical point which I think is often overlooked, resulting in the occurrence of preventable disease and death. I cannot do better than quote Dr. Dukes, the able physician to Rugby School: "There is a class of sore throats to all appearance often only simple acute tonsillitis, while at others having a membranous or sloughy appearance, and with a complete absence of eruption on the skin, occurring in those who have already had scarlatina; this kind of sore throat, however, is capable of passing on to scarlatina to an individual who has not already been affected by it. Scarlatina is often spread extensively by this means; for if the patient has suffered previously from scarlatina these sore throats are looked upon as simple non-infectious sore throats, and are consequently not carefully isolated for three or four days as they should be."¹⁵

The occurrence of a membranous inflammation of the throat during the course of scarlet fever has attracted much attention of late years. It is now pretty generally agreed that a membrane may present itself at two periods of the disease:¹⁶ (1) During the acute stage, that is, during the period of eruption; and (2) during convalescence or even later. 1. The membrane which occurs in the first period, though it may be whitish-grey, thick, and adherent, and to the naked eye hardly at all to be distinguished from a true diphtheritic membrane, is proved by bacteriological examination to be due to streptococci, and not to contain the Klebs-Loeffler bacillus. It may also be distinguished clinically from diphtheria by not spreading to the larynx and by not recurring locally. Dr. Sidney Martin¹⁷ suggests that the throat already attacked by scarlet fever poison is rendered less capable of resisting the invasion of other organisms. 2. The membrane met with in the second period contains the Klebs-Loeffler bacillus, and as this is accompanied by the presence of streptococci the disease represents a very grave combination. It is of course possible that diphtheria may occur as a complication of scarlet fever during the early stage, but this is, according to Dr. Washbourn,¹⁸ a very rare mishap; the only way of arriving at a correct diagnosis is a bacteriological examination. As regards the method of infection, Dr. Goodall¹⁹ is of opinion that the introduction of diphtheria into the Asylums Board's fever hospitals is generally due to infection from mild cases of that disease inadvertently admitted as scarlet fever. He thinks that the susceptibility of scarlet fever patients to the infection of diphtheria has been greatly exaggerated, for the great majority of those exposed to it in the observation ward, when the diagnosis was clinical only, did not contract it. It would appear that scarlet fever alone is not the predisposing cause to this mixed infection. According to Dr. Goodall: "The prevalence of post-scarlatinal diphtheria has closely followed that of the primary form, and its incidence had not been materially higher among the scarlet fever patients in the hospitals than among the juvenile population of the metropolis of like ages." This would seem to suggest that the entrance of the diphtheritic bacillus is facilitated by the presence of some other organisms—possibly streptococci. Laryngeal mischief in connection with scarlet fever apart from diphtheria is rare. Dr. Washbourn,²⁰ however, states that he has seen cases of ulceration of the larynx in scarlet fever, unaccompanied by membranous exudation. Mr. Pepper²¹ has recorded a case of which the heading of the paper he read before the Clinical Society gives an epitome—"Scarlet Fever: Secondary sore throat on fifty-fourth day; severe bleeding on fifty-eighth; ligature of left common carotid on fifty-ninth. Hoarseness, followed by sudden aphonia on same day as hæmorrhage. Bursting of retro-pharyngeal abscess after application of ligature. Recovery with fixation of left vocal cord." In reference to the laryngeal condition, Mr. Pepper writes: "The sudden change in the voice from huskiness to complete aphonia came on prior to the operation, and must have been due either to oedema of the mucous membrane of the larynx, or to stretching of the vagus nerve from the extensive extravasation into the tissues of the neck." Dr. Mahomed examined the patient when he was convalescent, and reported that the left cord was still almost completely fixed, and added, "Whether this fixation

is due to paralysis or to inflammatory swelling I am by no means certain; I am inclined to think the latter." To me the history of the case clearly points to inflammatory mischief in the neighbourhood of the left crico-arytenoid joint, causing arthritis and subsequent ankylosis of this joint. Gevaert,²² of Ghent, mentions a case of scarlatinal angina in which, on account of stenosis of the larynx and threatened asphyxia, tracheotomy had to be performed.

WHOOPING-COUGH.

Whooping-cough almost invariably begins with a catarrhal stage, the nasal mucous membrane sharing in the catarrhal condition. During the paroxysmal stage epistaxis is a common symptom, and so far from being a grave one, it often seems to relieve the patient. There is a difference of opinion as to whether there are any constant changes to be seen in the larynx during life. Von Herff,²³ while suffering from an attack, made a series of examinations upon his own larynx. He noted in the first stage a slight catarrh of the larynx, which became very intense during the spasmodic stage; the vocal cords, however, were not affected. The hyperæmia extended into the trachea. During every paroxysm a pellet of mucus could be seen on the posterior wall of the larynx on a level with the glottis; when this was expelled the attack ceased.

INFLUENZA.

Influenza is essentially a catarrhal disease, that is to say, the micro-organism (almost certainly that described by Pfeiffer) seems to attack the mucous membrane in the first instance; in some cases its effects are almost confined to them, and in nearly every case they experience the chief brunt of the disease. Very curiously Landgraf²⁴ states that he has seen rhinitis only once in 216 cases of influenza. He adds that this is the more surprising as in textbooks it is reckoned as one of the most common symptoms of influenza. The only explanation that seems forthcoming is that Landgraf would not class a catarrhal state of the nose as rhinitis, but reserves the latter for severe inflammatory condition of the nose. The nose, as being the chief portal for the entrance of the specific bacillus, which is taken in with the inspired air, is early affected, and the excessive sneezing, marked interference with nasal respiration, and profuse running from the nose testify to the virulence of the attack. In many cases the acuteness of the catarrh causes a certain amount of hæmorrhage from the nose. Occasionally this has been of an alarming nature, the bleeding occurring from the posterior third of the nasal cavity; in some cases, indeed, a special hæmorrhagic tendency seems to have developed during the course of the disease. A frequent sequel of the rhinitis of influenza is some alteration in the sense of smell. Usually it takes the form of simple loss of the sense of smell—anosmia; more rarely the anosmia is accompanied by perverted olfactory sensations—parosmia. I have met with all degrees of anosmia—from slight impairment of the sense of smell to its complete loss. As a matter of course, the loss of the sensation of smell was accompanied by loss of so much of the sense of taste as depends on flavour. I have no note as to the loss of gustatory sensations.

One of my patients was a woman, aged 28, who originally consulted me for debility, neuralgia, and violent fits of sneezing. She improved under the administration of iron and arsenic. I did not adopt any local treatment for the nose.

In March, 1895, she had a mild attack of influenza, which was followed by cessation of the attacks of sneezing, but she lost her sense of smell. The latter condition has persisted up to the present in spite of treatment.

This case would seem to suggest that the inflammatory conditions of the nasal mucosa led to changes both in the filaments of the fifth nerve, in the nose, and also to those of the olfactory, in the one case abolishing the hyperæsthesia and thus stopping the sneezing, and in the other case annihilating the normal sensibility of the nerve and causing anosmia. The accessory cavities of the nose are very liable to be affected in influenza, the intense frontal headache being due in many cases to extension of the catarrhal process from the nose to the frontal sinuses. In one patient under my care the pain and feeling of weight and fulness persisted so long after the influenzal attack, that I thought it would have been

necessary to adopt surgical measures to obtain relief; the patient, however, recovered without operation.

Dr. Felix Semon²⁵ has narrated his personal experience of acute inflammation of the left antrum of Highmore after influenza, and many similar cases have been recorded. Cases of antral disease coming on in this acute manner respond much more quickly to treatment than those developing more gradually. In many cases the influenzal attack begins with symptoms referred to the naso-pharyngeal space, and it appears to be the starting point of a large number of local affections coming on during influenza, notably otitis media and its results, and it may be the centre of the systemic infection. The patient complains of severe headache extending to the back, difficulty in breathing through the nose, and the sensation of a foreign body, variously referred to the nose or throat, so that the patient is constantly hawking or trying to clear the throat. On making a rhinoscopic examination the mucous membrane of the naso-pharynx will be found much swollen and covered in places with a viscid secretion; in exceptional cases I have seen follicular inflammation of the pharyngeal tonsil.

Shelley²⁶ has called attention to the existence of a vesicular eruption on the palate as a sign of influenza. Acute pharyngeal catarrh is a very common condition in influenza, the mucous membrane is of a purplish colour and oedematous, and, in consequence of the swelling and the muscular infiltration, pain and difficulty in swallowing usually exist. The faucial tonsils, like the pharyngeal, may be the seat of follicular inflammation, with or without peritonsillar mischief; they may be covered with a pultaceous exudation. On more than one occasion I have seen influenza start in a household with one inmate being attacked with what was apparently an ordinary lacunar tonsillitis, and it was only the fact of other members of the family speedily succumbing to one of the more ordinary varieties of influenza that cleared up the diagnosis in the first case. Occasionally the inflammatory mischief runs a very severe course. In one patient I saw, in consultation with Dr. Penny, the condition was that of a phlegmonous pharyngitis, as there was great swelling of the pharynx followed by suppuration, and the urine contained much albumen. This patient recovered. In two other cases a membranous exudation formed on the soft palate. It resembled in some respects a diphtheritic membrane; but unfortunately in neither case was a bacteriological examination made; in both patients the urine was albuminous. Both these patients died. One of the most common of the complications of influenza is laryngitis, of all degrees of severity. In the mildest cases the larynx is seen to be the seat of a slight catarrh, the symptoms being a troublesome, irritable cough—difficult to cure, with hoarseness or even loss of voice. In more severe cases the vocal cords are intensely injected, the sputa may be tinged with blood, and occasionally the expectoration of blood has been so profuse as to warrant the term of hæmorrhagic laryngitis being applied. As I have already stated when speaking of influenzal epistaxis, a hæmorrhagic tendency is distinctly developed in some cases of influenza. The presence of dysphagia is said to differentiate the hæmorrhagic laryngitis of influenza from the ordinary forms of hæmorrhagic laryngitis; this statement requires confirmation.²⁷

Several authorities have noted infraglottic swelling in cases of influenzal laryngitis. Fraenkel²⁸ regards as characteristic of this disease a fibrinous infiltration of the vocal cords, giving a whitish appearance in places to the cord; this is followed by a superficial loss of epithelium. Ulceration of the vocal cords, apart from any fibrinous exudation, has been described in influenza. The ulcers are quite superficial, occur in the anterior part of the cords, and usually heal rapidly. In severe cases swelling of the ary-epiglottic folds, occasionally amounting to oedema of the larynx, has been noted. Abscess of the larynx has been met with as a complication of influenza. Schaeffer²⁹ records a case in which abscesses developed in three different parts of the larynx; tracheotomy was required on account of dyspnoea, the cannula was able to be removed after eight days, and the patient made a good recovery.

The most common paralytic affection of the muscles of the larynx met with in influenza is paralysis of the adductors and tensors of the cords, giving rise to loss of voice. Lublinski³⁰

has recorded one case of paralysis of the posterior crico-arytenoid on the left side, which recovered in the fourth week, and I have seen bilateral abductor paralysis follow a severe attack of influenza.

Kuttner³¹ showed at the Berlin Laryngological Society a woman 54 years of age who had, during an attack of influenza, paresis of the soft palate and muscles of the posterior wall of the pharynx on the left side, and paralysis of the corresponding cord. He regarded it as a case of recurrent paralysis of neuritic origin.

ENTERIC FEVER.

In enteric fever there is a tendency to a catarrhal state of the mucous membranes, and the pituitary membrane suffers with the others. Two symptoms met with in enteric fever are due to the catarrh of the nose, namely: the deafness which results from extension of the catarrhal process to the Eustachian tubes, and their consequent occlusion; and epistaxis.

Epistaxis is so common a symptom at the commencement of enteric fever that, given a young adult who is feverish and has had an attack of nose bleeding, the possibility of enteric fever should be borne in mind. Epistaxis is most frequent in the first week of typhoid, on the second or third day. As a rule, it is of no prognostic significance, but occasionally the loss of blood has been so excessive as to destroy life. Devic³² states that buccal ulceration is fairly common in enteric fever. The ulceration is always superficial, oval or round in shape, with regular and not undermined margins. It occurs most frequently on the anterior pillars of the fauces. The lateral aspect of the tongue, the anterior surface of the soft palate, and lastly, the tip of the tongue, come next in order of frequency. The ulcers may be red or yellowish-red, and are frequently covered with mucus, but a false membrane never occurs. As there are usually no symptoms, the ulceration must be specially looked for in order to be recognised. According to Tripier, these ulcers run an absolutely parallel course with the intestinal lesion. He therefore considers them of great value as a guide to the condition of the intestines. Devic has been able in three cases to predict a relapse, owing to the fact that, though the patient had improved and the temperature was lower, there was no attempt at cicatrization of the buccal ulceration. He has met with this condition in about one-sixth of the cases of enteric fever; they do not in themselves affect the prognosis. They are best treated by mild antiseptic lotions; caustics are unnecessary.

At the commencement of enteric fever there may be some erythema of the pharynx and enlargement of the tonsils, but there is nothing characteristic. Dr. Gee³³ says: "Sore throat attends the first few days of typhoid fever with a frequency which is remarkable. Hereby for a time perplexities in diagnosis may occur." He regards it as a necessary part of the febrile state rather than a symptom of the specific fever. Ulceration of the pharynx has been noted in exceptional cases. According to Morell Mackenzie,³⁴ an herpetic eruption is occasionally seen on the mucous membrane of the pharynx and mouth, accompanied by pain in deglutition.

As in the other acute specific diseases a secondary diphtheritic deposit may occur on the fauces of patients suffering from typhoid fever. It usually occurs during the third week and is a serious and fatal, but, fortunately, rare complication. Out of 6 cases mentioned by Oulmont 5 terminated in death, and Peter states that it has been fatal in all the instances he has met with.³⁵

Clinically the laryngeal changes in typhoid fever may be considered according as to whether they occur as a complication of the fever or whether the symptoms they present are so severe as to mask the underlying disease. Of the first variety laryngitis is the representative; a mild form, characterised by slight injection of the larynx and increased cell proliferation, is fairly common in the second and third weeks of the disease. Landgraf³⁶ has several times seen yellow patches in the larynx formed by colonies of staphylococcus pyogenes. A more severe form may occur acutely during the third week of the fever, or it may show itself in a chronic form during convalescence. During the first two weeks of typhoid there is often reason to suspect a catarrhal condition of the larynx from the patient's voice and the signs of catarrh of throat and chest, but it is usually not until the third week that the

severe symptoms present themselves. These are hoarseness and feebleness of voice, dyspnoea (chiefly affecting inspiration, expiration being easy), pain and difficulty in swallowing. Laryngoscopic examination is naturally difficult in patients in the third or fourth week of typhoid fever, but, if practicable, swelling of the arytenoids and of the ary-epiglottic folds and some ulceration are the conditions most likely to be recognised. Tracheotomy is generally necessary on account of the increasing dyspnoea. Death may be due to a laryngeal ulcer spreading down into the connective tissue and giving rise to subcutaneous emphysema. Fagge and Pye-Smith mention cases of this sort recorded by Wilks and Ziemssen. There is an interesting case in the BRITISH MEDICAL JOURNAL of January 18th, 1896, reported by Dr. Parsons, in which the emphysema occurred after tracheotomy had been performed, death following about fourteen hours later. At the *post-mortem* examination œdema of the larynx or purulent infiltration of the mucosa, together with more or less chondritis, are generally found. The chronic variety most frequently occurs during convalescence, or it may not be noticed until recovery is apparently complete. The patient presents the usual signs of laryngeal stenosis; sudden death may be caused by œdema of the larynx or impaction of a portion of necrosed cartilage in the glottis. If the urgency of the dyspnoea necessitates tracheotomy, the cannula has generally to be worn permanently, as destruction of the cartilage leads to collapse of the larynx. Even if recovery takes place without tracheotomy, trouble in connection with the voice and breathing may result from the cicatrization of the ulcerated parts. I have recently had under my care a man who suffered from typhoid fever with laryngeal complication in 1856. In this case the ventricular bands were thickened, the left vocal cord was immobile in the cadaveric position, and there was thickening about the crico-arytenoid joint; the outward movement of the right vocal cord was somewhat interfered with, but as the cord crossed the median line it came nearly in contact with its fellow, so that the voice, though feeble, was fairly clear; there was no dyspnoea except on great exertion. This was an example of how good a recovery may ensue even in a severe form of typhoid laryngeal mischief.

I now propose to describe another class of cases to which the name of "laryngo-typhoid" has been applied, in which the poison of typhoid fever is at the outset focussed, as it were, upon the larynx, so that the symptoms of the local affection may, up to the end of the first week, so completely mask the underlying febrile state that it is not until the appearance of the eruption and other characteristic symptoms of typhoid fever that the diagnosis can be made with any degree of certainty. A typical case is one recorded by Gerhardt.³⁷ A man, aged 18, "has been subject to hoarseness and cough with the slightest colds. On December 24th, 1877, he was exposed to severe cold and wet. This was followed by severe chills, fever, pain in the throat, and cough, with mucous expectoration. The voice was affected immediately; soon he became hoarser; when he entered the hospital he was completely aphonic. In swallowing there was severe, and on attempting to speak slight, pain in the throat. From the first he had headache, dizziness, and debility; soon after, also, hardness of hearing. On the 28th he took to his bed; the nights were restless and disturbed by dreams. On January 1st, 1878, several copious bleedings from the nose occurred. On the 2nd he entered the hospital with fully developed symptoms of typhoid fever, particularly enlargement of the spleen, and the characteristic roseolar eruption." The laryngoscopic examination revealed swelling and injection of the epiglottis, with an extravasation of blood the size of a pin's head. The laryngeal mucous membrane generally was in a similar condition, and there were dark extravasations of blood over the vocal processes. The neighbouring lymphatic glands were swollen and tender. Ulcers eventually formed on the epiglottis and arytenoid cartilages. The fever ran a normal, though severe, course. The patient left the hospital on February 13th with a good voice; the ulcers were entirely cicatrised and strength completely restored.

A series of five cases reported by Dr. Watson Williams³⁸ is important as pointing to the possibility of typhoid being communicated by the breath. This method of communication

is, of course, most likely to occur in cases of laryngo-typhoid, hence special prophylactic precautions should be taken in these cases. Patients with any previous tendency to laryngeal affections seem to be more vulnerable to this form of typhoid fever than others; this was the case in Gerhardt's patient, and also in Watson Williams's first patient.

Shortly after writing the above a man, aged 45 years, was admitted under my care into the Westminster Hospital from the throat department. On admission his temperature was 99.4°, and rose the same evening to 103°. The nasal mucous membrane was dry and covered with crusts, the vocal cords were much congested, thickened and irregular, and covered with inspissated mucus. The patient had a cough, was very hoarse, and appeared much more ill than the local condition would account for. In the course of a few days I came to the conclusion that I had to deal with a case of laryngo-typhoid, and the subsequent course of the disease verified my diagnosis.

Edema of the larynx may occur as the result of any of the laryngeal complications of typhoid fever; it has been, the cause of death in a case of ambulatory typhoid fever without any previous symptoms of throat mischief.³⁹

Paralysis of the vocal cords is occasionally seen as the result of enteric fever. Lublinski,⁴⁰ for example, has seen five cases—four in men and one in a woman—all occurring between the ages of 27 and 39 years. In one case there was bilateral abductor paralysis, in three paralysis of one recurrent nerve, and in one paralysis of both recurrent nerves. The paralysis may be due to pressure on the recurrent nerve by enlarged glands or thickened pleura; or, inasmuch as it is sometimes accompanied by paraplegia or paralysis of peripheral nerves, we must assume the existence of an anterior poliomyelitis or a peripheral neuritis due to toxins. The symptoms usually show themselves during defervescence. Of the five cases recorded by Lublinski, one case—that of bilateral recurrent paralysis—died three days after the onset of the paralysis. In the case of bilateral posticus paralysis, tracheotomy had to be performed. The diagnosis in these cases is only to be made by means of the laryngeal mirror, and care must be taken to exclude cases of fixation of the vocal cord due to ankylosis of the crico-arytenoid joint. The most recent account of the pathology of the laryngeal complication of typhoid fever is that contained in the paper written by Dr. Kanthack and Dr. Drysdale, and the discussion thereon at the Laryngological Society of London on February 12th, 1896. The paper was based on the *post-mortem* records of 61 cases. In 14 there was loss of substance in the larynx; in 8 it was stated in the *post-mortem* books that the larynx had not been examined; so that, assuming that the larynx had been examined in all the remaining 53 cases, which is doubtful, ulceration was found in 26 per cent. of the fatal cases. This represents a great advance in numbers affected compared with Hoffman's figures, as quoted by Fagge and Pye Smith.⁴¹ He gives only 28 cases of ulceration in 250 necropsies, that is, a percentage of 11 as against 26. One explanation is that the larynx of late years has been more carefully investigated than formerly, and another is that Dr. Kanthack and Dr. Drysdale included slight losses of substance in their list, whereas Hoffman only reported cases of distinct ulceration.

According to Kanthack and Drysdale, the ulceration is most frequently seen over the tip and edges of the epiglottis and in the neighbourhood of the processus vocalis. Various explanations have been given as to the pathological nature of these lesions. Dittrich assumed that they were of decubital origin; the evidence on this point is conflicting. Rokitsky pronounced in favour of the typhogenetic nature of the ulceration, but clinical evidence and the results of recent bacteriological examination tell rather against this theory.

I am myself inclined to agree with Kanthack and Drysdale in their summary of the question: "The evidence in their possession convinces them that these laryngeal ulcers occurring during the course of typhoid fever are caused by fresh infections with pyogenic organisms which always abound in the larynx, and which gain a firm foothold on the debilitated tissues, although they cannot deny that in an individual case the typhoid bacillus may have escaped and caused the lesion."

Dr. Jobson Horne made an important remark during the

discussion to the effect that in some of the larynges of persons dying from typhoid fever the ulceration had been proved by microscopical examination to be of a tuberculous nature. From this he deduced two conclusions, (1) that typhoid may be a possible factor in the etiology of tuberculous ulceration of the larynx, and (2) that the tuberculous diathesis may be a factor in the etiology of typhoid ulceration of the larynx. One of the most characteristic features of the typhoid affection of the larynx is the tendency to suppuration about the cartilages leading to their necrosis and extrusion, and the tendency to destructive changes in and about the crico-arytenoid joints, so that if the patient recovers he does so with an immobile joint and consequently fixed cord. Lacoarret,⁴² in an excellent article on arthritis of the crico-arytenoid joint, has collected many examples of this condition occurring as a result of enteric fever.

ERYSIPELAS.

In the production of facial erysipelas chronic nasal affections play an important rôle, hence the frequency with which erysipelas starts from the centre of the face, the orifice of the nostril being a favourite point of departure. A large amount of literature has accumulated on the subject of erysipelas of the pharynx and larynx, but our ideas on this subject have been clarified since we recognised that the streptococcus erysipelas is the cause of erysipelas. If, as seems likely to be the case, the streptococcus pyogenes, the cause of various septic affections such as phlegmonous erysipelas, is proved to be identical with the streptococcus erysipelas the whole subject of erysipelas of the throat will be much simplified. I am strongly in favour of the view propounded by Dr. Semon that erysipelas, phlegmonous pharyngitis, angina Ludovici, and similar conditions are only modifications of the same process, differing in their virulence or place of development. I have discussed the subject of erysipelas of the pharynx and larynx in a paper presented at the meeting of the British Medical Association in 1891,⁴³ so that it is unnecessary for me to say more on the subject on the present occasion.

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ROYAL COMMISSION ON TUBERCULOSIS.—Sittings of the Royal Commission "to inquire what administrative procedures are available and would be desirable for controlling the danger to man through the use as food of the meat and milk of tuberculous animals" were held on January 27th, 28th, and 29th. There were present Sir Herbert Maxwell, M.P. (Chairman), Dr. R. Thorne Thorne, C.B., Professor G. T. Brown, C.B., Mr. Shirley F. Murphy, Mr. Thomas Cooke-Trench, Mr. Harcourt E. Clare, Mr. John Speir, and Mr. T. M. Legge (Secretary). The following witnesses were called and examined: Dr. Stafford, Medical Inspector, Local Government Board, Ireland; Sir C. A. Cameron, Medical Officer of Health, and Public Analyst of the City of Dublin; Mr. Conway Scott, C.E., Executive Sanitary Officer, Belfast; Mr. G. W. Cooper, Secretary of the Butchers' Trade Society, St. Helens; Dr. Robertson, Medical Officer of Health of St. Helens; Mr. Patten MacDougall, member of the Scottish Local Government Board; and Dr. Chalmers, Medical Officer of Health of Glasgow.