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OF

THE THROAT AND LARYNX.

THEIR CLASSIFICATION, PATHOLOGY, DIAGNOSIS, AND TREATMENT.

BY

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SECOND EDITION.

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P R E F A C E

TO

THE SECOND EDITION.

THE first edition of "Affections of the Throat and Larynx," was mainly a reprint of contributions to the "Lancet" upon those diseases.

My object when writing those contributions was to classify cases which occur in the out-patient department of a Hospital, and which are therefore common in general practice.

In the second edition I have still kept cases steadily in view, but I have collected the symptoms from large numbers, and have given a more lengthened description of the classes of disease.

I have endeavoured to make the work as small as possible, and yet at the same time to omit nothing that ought to be contained in a complete treatise upon the subject. On this account I have avoided reporting cases, except where actually required to illustrate some phase of disease.

It will be seen that I have referred to but few authors, for the reasons, 1st, that authors on affec-

tions of the throat and larynx are not numerous; and, 2ndly, that every disease and every symptom here described has occurred frequently among the cases that have come under my care in the Throat department of St. Mary's Hospital.

The plates are not numerous, but I trust I have used discretion in the choice of them.

Many diseases of the throat can be sufficiently explained without illustration, whilst, on the other hand, some few need only to be seen to be understood; and these I have endeavoured to place before the reader in the form of lithographic representations.

ARTHUR TREHERN NORTON.

6, *Wimpole Street, W.*

CONTENTS.

	PAGE
Mode of applying the laryngoscope	7

DISEASES OF THE THROAT.

Acute parenchymatous tonsillitis, leading to abscess or quinsy	} 9 to 32
Acute catarrhal tonsillitis	
Acute peritonsillitis and quinsy	
Hypertrophy or chronic enlargement of the tonsil ..	
Operation for the removal of tonsil	
Atrophy and cystic degeneration of the tonsil	
Polypoid growths from the tonsil	}
Concretions or calculi in the tonsil	
Ulcers of the tonsil, palate, &c.	} 32 to 44
Ulcer of debility. Ulceration accompanying stomatitis.	
Phagedænic ulcer. Perforating ulcer	
Chronic syphilitic ulcer	
Ulcers produced by the irritation of decayed teeth ..	
Syphilitic ulceration with caries and necrosis	}
Uvula, elongation of	
Eczema of palate, fauces, &c.	44
Mucous patches of cheek, tongue, tonsils, palate, &c. ..	46
Cancer of throat	47
Dryness of pharynx	49
"Erysipelatous sore throat," or "Malignant or hospital sore throat"	51
"Sore throat" of diphtheria	53
"Sore throat" of scarlatina	56
Diseases of epiglottis	65
	67

DISEASES OF THE LARYNX.

Laryngitis acute	72
Œdema glottidis	76
Scalds of the throat	79
Chronic laryngitis—1, result of acute laryngitis; 2, result of syphilis; 3, result of struma or tubercular disease..	80
Necrosis of cricoid cartilage associated with phthisis ..	91
Acute catarrhal laryngitis or laryngeal catarrh	92
Chronic laryngeal catarrh due to damp residence. Abuse of alcohol. Public speaking (Clergyman's laryngeal catarrh)	95

HOARSENESS AND APHONIA

Due to the imperfect action of the true cords	} 98 to 119
Or of the muscles acting upon the cords	
Or of the nerves supplying the muscles	
Or to growths obstructing the movements of the true cords	
Hyperæmia of the true cords	
Hypertrophy of the true cords	
Ulcers of the larynx	
Growths in the larynx	
Muscular aphonia	
Paralysis of the laryngeal nerves	
Compression of the laryngeal nerves by cancerous or other growths or by aneurism	
Implication of the laryngeal nerves in surrounding inflammations	
Aphonia associated with hysteria	

DISEASES OF THE THYROID GLAND.

Acute inflammation	} 119 to 127
Abscess	
Goitre, or bronchocele, or hypertrophy	
Malignant disease	

Mode of applying the Laryngoscope.

THE proper manipulation of this instrument is the first thing to be acquired by the surgeon who would treat diseases of the throat. If carefully applied, patients can undergo its introduction into the throat without inconvenience ; but unless the strictest care is employed in its application, retching and dread of the instrument are produced, which it is difficult afterwards to overcome.

The whole apparatus for laryngoscopy consists of a lamp ; of a reflector, for the purpose of throwing light into the throat ; and of a small mirror, fixed at the extremity of a light metal handle, to be passed into the pharynx. On a clear day the lamp is unnecessary, and the larynx may be seen to better advantage with the ordinary daylight.

The reflector may be fixed upon the forehead of the operator by an elastic strap around the head, or it may be held in a spectacle-frame in front of the eye, the line of vision being maintained through an aperture in the reflector. It is this latter variety that I prefer.

The first thing to be done is to adjust the light, and for this purpose the patient should sit by the

side of the lamp, facing the operator. The patient should be requested to open his mouth, and the reflector should be then arranged to throw the light well into the throat without cramping the head of the surgeon in its movements.

The tongue of the patient, held in a napkin, must now be drawn forwards by the left hand of the operator; but in so doing the patient's head must not be moved. In order not to injure the tongue against the teeth, the left index finger should be placed beneath the tongue, slightly above the level of the teeth, and the tongue should be drawn over the finger without touching the teeth.

The patient should now be requested to breathe with prolonged inspirations and expirations, for by so doing the cavity of the larynx is freely exposed, and the space of the pharynx increased in size.

The laryngeal mirror, first warmed over the lamp, and its temperature tested by applying it to the face or hand of the operator, must now be held lightly in the right hand, like a pen, and passed in a curve along the roof of the mouth—great care being taken not to touch the tongue. The soft palate and uvula will now be pushed upwards and backwards by the mirror, which having reached the back of the pharynx, should next be depressed by elevating the hand until the cavity of the larynx comes into view. If the patient now articulate the expression, "Ah! Ah!" the cords will be seen to approximate.

When the cords are not closed, several rings of the trachea will be readily distinguished, and with a strong light the bifurcation of the trachea may be occasionally seen.

DISEASES OF THE TONSIL.

INFLAMMATIONS OF THE TONSIL.

In the tonsil, inflammation may attack either the *parenchymatous tissue*, or the *secreting tissue*. When in the former situation, if acute, it most commonly runs on to the formation of an abscess, though it may be stated that acute parenchymatous tonsillitis, is rare, and that so-called abscess of the tonsil, or quinsy, is more often an inflammation and suppuration of the tissue at the base of, or around the tonsil.

When in the latter situation, that is, in the *secreting tissues*, it rarely if ever develops an abscess, and its character may be more distinctly expressed by the name tonsillar catarrh.

Acute Parenchymatous Tonsillitis.—Acute parenchymatous tonsillitis being an inflammation of a fibrous tissue is attended with severe symptoms, both local and constitutional. It may be caused by the ordinary causes of inflammation, exposure to cold, &c., when it may be termed idiopathic; or it may be concurrent with debility, or with fevers, especially scarlet fever; or it may be the result of extension of some neighbouring inflammation, among

which may be mentioned the painful cutting of a wisdom tooth, inflammation of a molar socket, or contiguous caries, or necrosis.

Symptoms.—The attack is not so sudden, nor does the disease reach its height so rapidly as acute tonsillar catarrh.

For thirty hours or more a deep seated aching pain throbs through one or other tonsil; perhaps both may be affected, though it is rare for both to suppurate. The tonsil now swells, becomes pink-red in colour, hard, painful to the touch, at first dry, then covered with streaks of lymph, or morbid secretion. It projects into the pharynx, causing continued reflex deglutition, or even vomiting, both of which acts are attended with compression of the gland, and the production of severe pain.

The redness and inflammation extend to the parts around, causing œdema of the uvula and soft palate, of the tongue and cheeks, which receive the impress of the teeth; of the pharynx, which spreading to the Eustachian tube, induces deafness and neuralgic pains in the ear and head. The neighbouring lymphatic glands become swelled and painful. The voice is thick and indistinct.

The constitutional symptoms are those of acute inflammation, the tongue white and furred; the skin hot and dry, temperature 100° to 102° ; pulse rapid about 100, markedly hard; headache; often rigors; thirst, and the throat at first dry, but after-

wards covered with a collection of thick mucus; loss of appetite; constipation of the bowels, and urine decreased in quantity, and of a high colour, with copious deposit of lithates.

When suppuration has taken place, the symptoms change to some extent; locally, the swelling and pain are increased, the now formed abscess protrudes into the mouth, or down the pharynx, and is softened in part, or fluctuates if pressed upon by two fingers. Constitutionally, debility has increased, the pulse soft frequent, and thready; fear of and complete loss of sleep, and flushing of the cheeks.

Results.—In adults, acute parenchymatous tonsillitis extending to abscess, may prevent the patient from following his avocation for a fortnight or three weeks, and may give no further trouble; or, on the other hand, it may leave the gland in a state of passive congestion which, if the patient be not of a strong constitution, is liable to run into activity at any time as a result of some exposure, or of some slight constitutional disorder. But if the tonsillitis be due in the first instance to some irritation which is persistent, such as the persistent causes before mentioned, the patient now having the glands passively congested, will suffer from time to time from repeated attacks of quinsy.

In children acute quinsy is far more dangerous than in adults. The œdema is more extensive, and is more

likely to affect the larynx, rapidly causing death by suffocation from œdema glottidis, unless promptly recognised and treated.

Another painful termination not uncommon in children is death from hæmorrhage. The carotid artery, which lies in contact with the tonsil, becomes involved in the suppuration and gives way. The pressure of the blood, now pumping into the cavity of the abscess, soon causes it to rupture, and fatal hæmorrhage ensues. Many such cases are on record, and I myself have been unfortunate enough to have such a case under my treatment.

I was requested to attend a little girl, about four years of age, with quinsy. An unmistakeable abscess was there, the cavity was large, and the walls thin. There was no doubt that the abscess would burst within a few hours, but knowing the danger of hæmorrhage, I would never allow an abscess in that region to remain unopened in children. In this case, however, the mother absolutely refused to permit the lancet to be used, although I fully explained the risk to which the child would be exposed. Three hours afterwards I was again summoned, and on arriving found the child dead. The abscess had burst, a free discharge of blood followed, and in a few minutes the little patient had died.

Treatment.—In the treatment of acute parenchymatous tonsillitis, stimulating and astringent gargles of any description are not only useless, but irritating.

An abscess in the region of the tonsil should be treated on the same principles as an abscess in any other part of the body. The patient may gargle with warm water as frequently as he will take the trouble ; the warm water is soothing, and relieves the dryness of the throat which occurs in the early stage, and the adhesive secretion which follows in the later stages. A bran poultice, or hot flannels, should be applied externally, and the patient should be kept in a room free from draught.

Leeches often prove of marked value in reducing the inflammation, and therefore relieving the pain ; but I cannot say that I often avail myself of them. The cicatrix which follows from the bite is objectionable, and to be avoided, especially in females. I use them only in those severer cases in which the fever is high and the pain unbearable, under which circumstances the patient obtains no rest, is extremely irritable, and begs that something more may be done.

I have often given great relief in such cases by passing a knife into the substance of the tonsil, causing some slight local hæmorrhage, and relieving the tension of the gland.

Internally, I formerly gave emetics in the first stage, and I believed with good result in cutting short the inflammation ; now I do not often employ them. Whilst the fever and pulse are high, anti-phlogistic remedies are requisite, and as the case

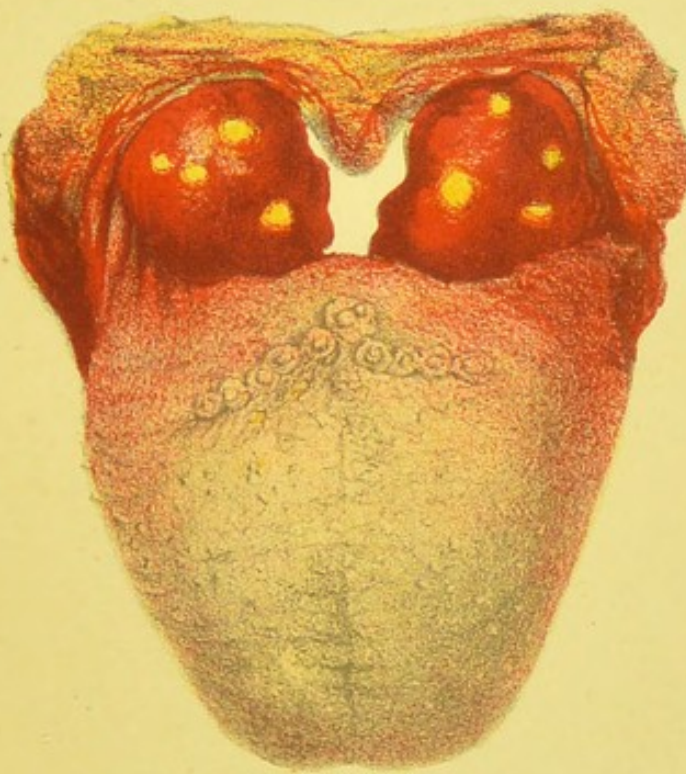
progresses stimulants and tonics are required in turn. Unless there are reasons to direct me otherwise, I prescribe a free purgative at once, and a mixture containing vinum antimonialis with liq. morphiaë acet. and camphor water every four hours, ordering the part to be constantly bathed with warm water externally, and a bran poultice to be applied in the intervals, the throat at the same time to be continually gargled with warm water. After about thirty hours, guided by the pulse and pain, I usually exchange the antimony for carbonate of ammonia and cinchona, continuing the morphia. As soon as matter forms, it should be at once allowed to escape ; its retention materially prolongs the convalescence. In children, as I have before explained, it is highly dangerous to allow the matter to remain, but in adults it is not of so great importance.

During convalescence iron and quinine are useful remedies.

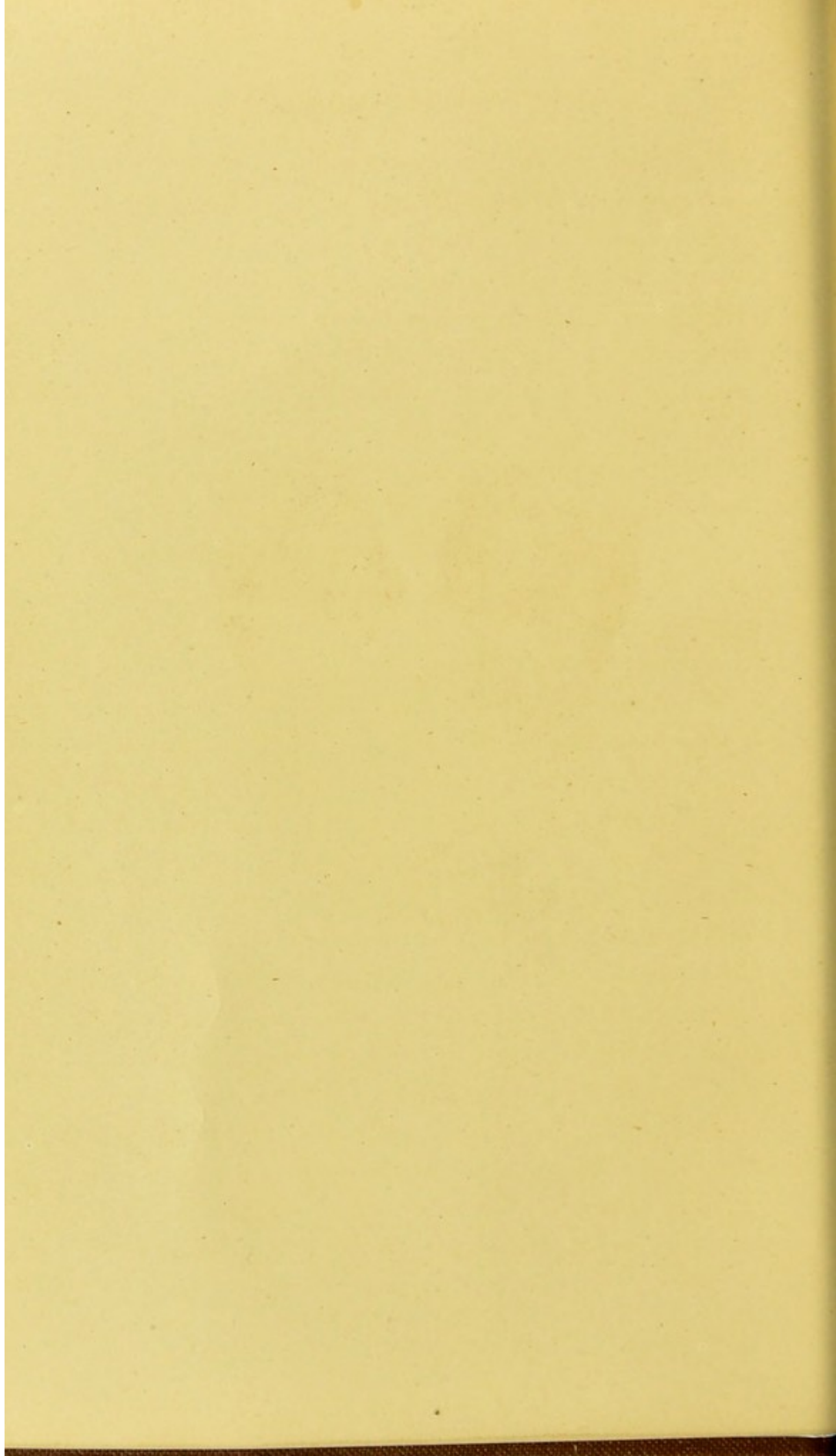
It should be understood and thoroughly impressed upon the patient, that exposure to the weather, as in too early attendance on business, is extremely liable to be followed by the formation of a second abscess.

ACUTE CATARRHAL TONSILLITIS. (*Plate I.*)

Acute catarrhal tonsillitis is an inflammation of the membrane lining the crypts of the tonsils. The membrane swells, becomes turgid



Acute Catarrhal Tonsillitis (page 14)



with blood, and by its increase dilates the crypts and channels leading from them into the substance of the gland, in this manner increasing the size of the gland, and causing pain by tension. Next, the lobules of the gland increase in size, and project into the ducts and crypts as small round nodular prominences. The secretion becomes thickened and opaque, white or yellow in colour, assumes an offensive odour, and blocks the mouths of the crypt, becoming visible on the surface of the gland.

Acute catarrhal tonsillitis being an inflammation of a mucous tissue, is accompanied by more depression than might be expected from an inflammation of so small extent.

It is a disease of very common occurrence, but under treatment usually of short duration. It is frequently mistaken for ulceration of the tonsils, collection of the morbid secretion at the mouths of the crypts bearing some resemblance to ulcers. It is common for people to remark in ordinary conversation, that they have been suffering from ulceration of the tonsils. I have no hesitation in saying that in a great majority of these cases the disease has been catarrhal tonsillitis, for in my experience ulceration of the tonsil, or any other part of the throat, is extremely rare, except as a result of syphilis; equally rare, I may say, as tonsillar catarrh is common.

The causes of this affection are those of other catarrhal affections, exposure to cold, damp, or

draughts; and the prognosis is highly favourable, for it rarely if ever runs on to suppuration.

Symptoms.—Generally, both tonsils are affected. They become enlarged, vascular, florid red colour, projecting into the mouth or pharynx, or perhaps almost closing the communication between the mouth and pharynx. There is pain only during deglutition, and then in character of a cutting soreness, totally different from the aching and deep-seated throbbing pain of parenchymatous tonsillitis. The throat is soon filled with an adhesive and annoying secretion, which cannot be thrown off. The mouths of the crypts are occupied by a thick yellow cheesy secretion, which when removed is found to be highly foetid, and to be composed of large multinuclear cells, like exudation corpuscles, and, therefore, quite different from the ordinary secretion of a healthy gland, which contains no cells; the voice is thick and indistinct.

The local conditions lead on to constitutional disturbance, with some prostration; the temperature is raised (over 100°); the pulse about 100 per minute, is weak almost from the first, and, therefore, differs materially from the very hard pulse which characterises the early stages of parenchymatous tonsillitis. The patient is hot and feverish at times, and at times bursts into a profuse perspiration. The tongue is furred, yellow; and not only is there no desire to eat, but the sharp lancinating pain produced in deglutition is too great to allow of

much food being taken. The bowels are usually constipated.

Treatment.—The bowels should be at once relieved with a brisk purge. Locally, gargles are of the greatest use; the best, in my opinion, is a solution of the chloride of zinc, two grains to the ounce, though all astringent gargles have their value. I would advise that to use a gargle three times a-day is insufficient, and to use a large quantity, and for several minutes together, is not only unnecessary, but often irritating.

A gargle should be used in quantity not more than a teaspoonful at a time, and not less than a dozen times a-day. Internally, a mixture containing nitrate or chlorate of potash, or an effervescing saline, is useful if there is fever, with heat of skin; but as the patient is usually somewhat prostrated, the majority of cases require quinine, or bark and ammonia, from the first.

ACUTE PERITONSILLITIS.

Peritonsillitis is an inflammation of the tissue around the tonsil. It is a somewhat common affection, invariably acute, and rapidly runs through its course. It most commonly occurs in front of the tonsil, but is very often met with behind the tonsil and extending into the pharynx.

It comes on from exposure, and occurs more often in debilitated people and after other diseases.

The symptoms are those of the formation of an abscess. There is swelling in front of or behind one or both tonsils. The swelling may be seen to occupy distinctly either the palate or the pharynx, and the tonsil may be felt scarcely if at all affected by the inflammation.

The swelling is highly red, and the neighbouring parts œdematous; to swallow is painful. Constitutionally there is some fever and debility, the pulse being quick and weak, the tongue furred white.

The inflammation may now rapidly subside, or an abscess may form, but whichever termination takes place, the length of time occupied by the disease is rarely more than week.

Treatment. Locally I advise warm water gargles, but never astringent gargles; externally the application of an ice bag is often of great service in reducing the inflammation in its early stages. Internally I employ bark and ammonia, or small doses of quinine, and usually also liq. morphiæ mur.

CHRONIC ENLARGEMENT OF THE TONSILS, ALSO CALLED HYPERTROPHY.

Chronic enlargement of the tonsils is usually the result of inflammation, though it may be congenital. Both are generally affected. The tonsils are often enlarged from childhood, but there are no records of cases in which they were examined and found en-

larged at the time of birth. It is quite possible that enlargement of the tonsils is sometimes congenital in strumous or in syphilitic children, nevertheless the disease occurs in the healthiest of children—in children who have no other sign or symptom of disease, or even of debility, and I am inclined to believe it is often due to exposure of the child during the first few hours of its life. If any infant has within it the elements of syphilis, the least exposure causes catarrh of the Schneiderian membrane, with snuffling, and doubtless also catarrh of the throat, and chronic enlargement of the tonsils is a result.

Inflammations of the mucous or secreting structures once established, are rarely altogether cured, the part remains more or less thickened or enlarged, and in a state of passive congestion ever ready to awaken into activity.

The majority of cases of hypertrophy of the tonsil, accompanied by any unpleasant symptoms, come under notice in people varying from four to twenty years of age, and those of the later period have mostly suffered some few years, and have been the subjects of continuous or of repeated attacks of inflammation.

Cases of chronic enlargement, due to contracted syphilis, rarely occur before twenty years of age, and they are common enough in both hospital and private practice, between the ages of twenty and forty.

In old people, hypertrophy of the tonsils is rarely

seen, but, on the other hand, these glands have a tendency to become atrophied, or to degenerate into a fibrous or cystic mass.

It appears from my notes, that no case of chronic enlarged tonsils has come under treatment over forty-five years of age.

Symptoms.—Locally the tonsils are seen to be enlarged and to project into the throat, often nearly meeting each other in the median line. Their colour is, in children, much the same as that of the surrounding tissues, and they are often crossed by vessels of some size. Later the colour varies from an anæmic whiteness to a purple blue congestion, the latter being invariably the colour in those cases connected with syphilis.

I have invariably found that those cases in which the colour is that of congestion, are by far the most amenable to treatment, but no doubt this fact is due to the syphilitic variety being of the purple colour, and these cases always yield to the treatment of syphilis, and rarely require that the tonsil should be removed.

Enlarged tonsils are not painful, except during attacks of more or less acute inflammation, which in many people so affected are very common. They are, however, a source of great trouble and inconvenience. The breathing is loud and snoring, and at night, whilst the patient is asleep, is often from time to time interrupted, giving rise to nightmare and

painful dreams, and causing the patient to wake suddenly, startled by illusions.

The voice is nasal, and the articulation thick and indistinct: the throat dry and irritable. Often the enlarged glands pass backwards, and prevent the admission of air into the Eustachian tubes, producing deafness and tinnitus aurium. Severe cases in which the tonsils have been enlarged over a period of years, sometimes present a pitiable appearance; the lower jaw fallen, to enable respiration to be carried on more freely through the mouth, the intellect blighted through deafness, which has prevented a free association and intercourse with others, they assume both the appearance and the character of an idiot.

Pathology.—All the enlarged tonsils that I have examined had the appearance of having undergone subacute inflammation, unless indeed one can say that a mucous tissue may be thickened and exaggerated without inflammatory action. In some there was distinct proliferation of the fibrous tissue element: the parenchymatous tissue was not only plain to vision, but existed at the expense of the cavities of the crypts and their connected channels, forming a greater portion of the gland structure, and giving to it a somewhat intense hardness; such a condition would be the result of chronic parenchymatous tonsillitis.

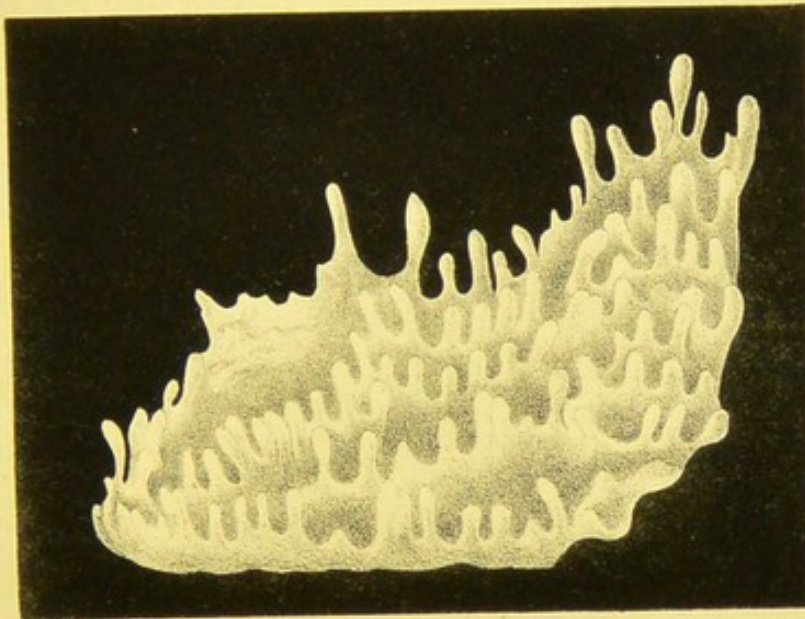
In the majority of the hypertrophied glands it appeared that the mucous and secreting tissues had

been chiefly affected, a condition accompanying chronic catarrhal tonsillitis. The crypts and their channels formed large open spaces, occupied, and in fact dilated, by rounded nodular elevations upon the surface (Plate II, Figs. 2, 3). The nodular elevations, which were not unlike grains of sago, were covered with pear-shaped processes, attached by their apices (Plate II, Fig. 1). These villous processes are present in all tonsils, healthy or unhealthy, though I have not hitherto seen a description of them. In healthy tonsils they are slightly conical or even throughout their length, and rounded at their free extremity: they are covered with epithelium, and contain within them a plexus of blood-vessels. When inflamed they increase twice or three-fold in size, and appear as a soft velvet pile, becoming distinctly visible to the naked eye. If there has existed catarrhal hypertrophy of the gland for any length of time, the parenchymatous tissue becomes secondarily affected, and by proliferation increased in thickness.

Treatment.—When the tonsils of children are enlarged, it is necessary to treat them constitutionally as well as locally, and it is well to give the treatment a fair trial before proceeding to remove them. Locally they may be painted with a solution, composed of equal parts of tincture of iodine and water, or with the pure tincture, ceasing the application for a day or two at a time, rather than allow

Fig. 1.

CHRONIC CATARRH OF THE TONSIL.



1-inch Objective.

Papillae upon the lining membrane of the crypts and channels (page 22).

Fig. 2.

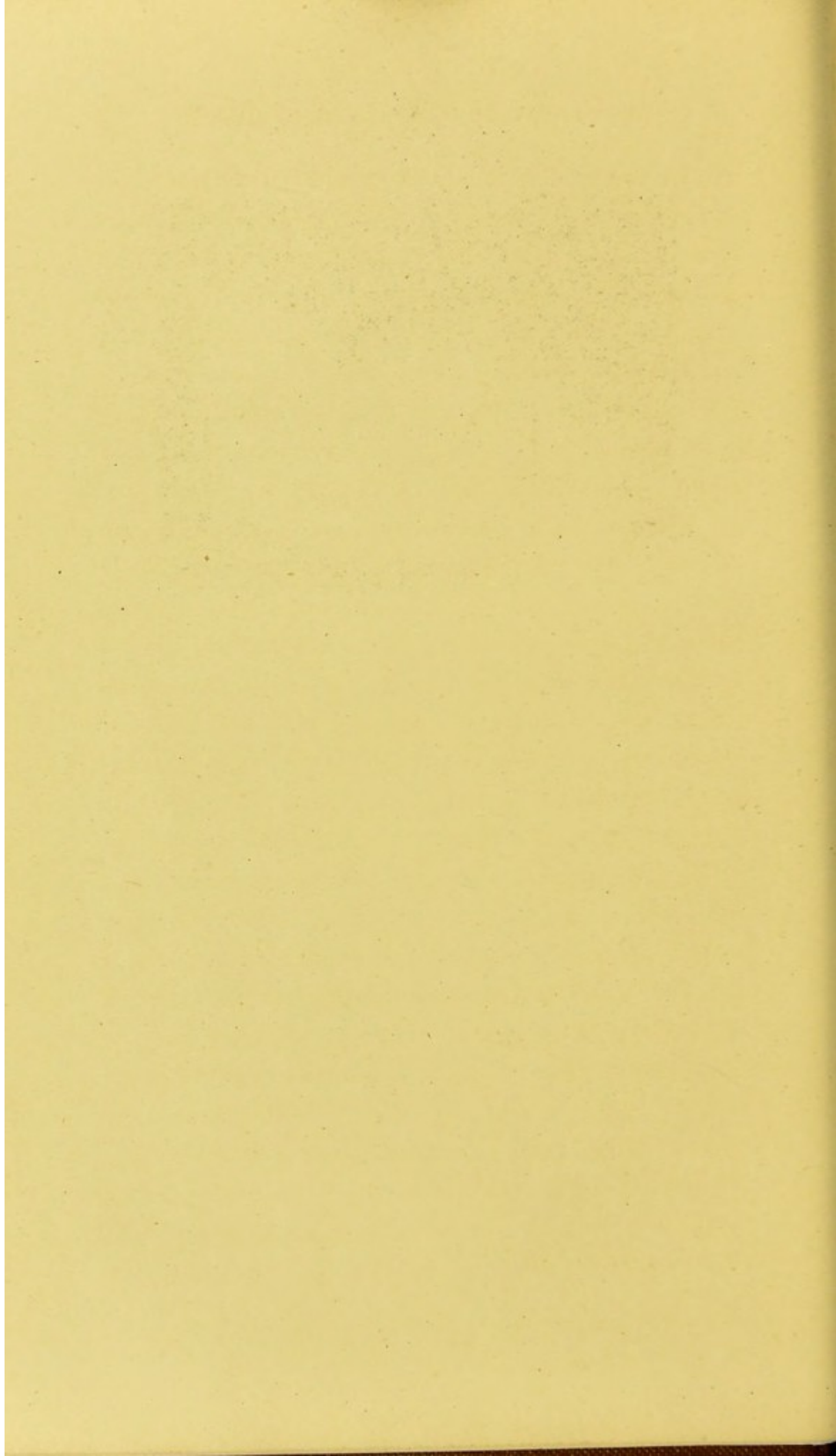


Hypertrophied lining membrane within the crypts (page 22).
Natural size.

Fig. 3.



Hypertrophied lining membrane of the crypts projecting through the lacunae (page 22).
Natural size.



the surface to become abraded by the irritating effect of the iodine. The child should be taught to gargle, and the application may be then exchanged for a gargle of tannic acid (grs. viij. to $\mathfrak{z}\mathfrak{j}$), or of tincture of iodine (3ss to $\mathfrak{z}\mathfrak{j}$).

The injection into the substance of the tonsil of a few drops of tincture of iodine, by means of a subcutaneous injecting syringe, may be followed by good result.

Internally the treatment must vary with the circumstances of the case. If the child be of a strumous constitution, the iron tonics, as citrate of iron and quinine, or the phosphate, or the iodide of iron, or cod-liver oil, must be the treatment, and if the presence of inherited syphilis be traced, then the above must be changed week by week with iodide of potassium, gr. ij. three times a-day, accompanied by small and repeated doses of grey powder.

If the treatment has availed nothing during a period of two months, I think the condition may be looked upon as incurable, and advise the removal of the glands if they are an annoyance to the child, or if the voice is affected by them.

In young persons of from fifteen to twenty years of age, in whom the tonsils have been enlarged for two or three years or more, I have rarely found any treatment of use, and at once put the points before them for their own decision, whether they prefer to undergo the operation of removal of the tonsils, or

to continue to suffer the discomfort they have already undergone. In people over twenty years of age, by far the great majority of cases of hypertrophied tonsils are due to syphilis, and here the treatment is that of constitutional syphilis.

In diagnosing these cases there is usually but little difficulty. The tonsil is of purple or dark blue colour, not very hard in consistence, not painful, very liable to ulcerate. The pillars of the fauces are thick and fleshy. With these local conditions there are generally other signs of syphilis which render the disease manifest.

In the treatment of such cases there may be some difference of opinion. I have been in the habit of giving a mixture containing potass. iodidi, grs. v. liq. hydrarg. perchlor. ʒiss and decoc. cinchon. ʒj. I rarely increase the dose of the iodide to more than six grains, and after adopting this internal treatment for a fortnight to three weeks, I change the medicine to tr. ferri. mur., or to the citrate of iron and quinine, alternating the two classes of remedies from time to time.

I never allow the least salivation to take place, and if there appears the slightest symptom of such, I cease the mercury at once.

Locally I order a gargle to be used night and morning, or three times a-day, of perchloride of mercury (gr. ij. to ʒviij.) changing it from time to time to a lotion of nitrate of silver (gr. iij. to ʒj.) to be

applied to the tonsils night and morning, or a gargle of chloride of zinc (gr. ij. to ʒj).

Nothing can be much more satisfactory than the treatment of these cases. The tonsils should never be removed, they are only a local sign of a constitutional disease.

The drink diet is, however, of importance, more particularly in persons of the middle and better classes. Spirits and most wines, and malt liquors should be prohibited. The chief drink should be claret or claret and water, but as this wine has, in many people, a tendency to produce an irritable bladder and urethra, I would not object to the use of brandy or whisky, diluted to the strength of one ounce with eight ounces of water.

Operation for Removal of the Tonsil.—With regard to the instruments used in this small operation, some prefer one of the varieties of guillotine, others a guarded bistoury. The instruments used, however, are a matter of but little importance.

The tonsil should be removed to a level with the pillars of the fauces, or if it is ascertained that the deeper part of the gland is hypertrophied, a point generally recognised by the bulging of the anterior pillars of the fauces forwards and inwards, then the tonsil should be drawn well out from between the fauces by the vulcellum forceps before removal.

Removal of the tonsil is not often followed by any severe hæmorrhage, but such cases are on record,

and the surgeon should be prepared for the emergency. In every case, without exception, in which I have seen hæmorrhage take place in greater quantity than a drachm or two, it has been in consequence of the operator wounding, or removing a portion of the pillars of the fauces. I think, therefore, it ought to be laid down as a strict rule, that the operator should take sufficient care to avoid such a contingency. One is too liable to look upon these small operations as insignificant, and to disregard the risk, which though extremely small, yet exists. If more than usual hæmorrhage take place, the surface may be swabbed with the strong tincture of the muriate of iron; ice should be applied both internally and externally; the patient kept in perfect rest and in a sitting posture. Should the hæmorrhage be more severe than would cease under such treatment, the bleeding point should be seized and twisted. The removal of the tonsil from a child used formerly to be a most troublesome undertaking. Since the introduction of nitrous oxide gas that trouble has completely disappeared. The little patient may be placed in the position for a tooth extraction, with the ivory gag between the teeth on the opposite side to the diseased tonsil. When the patient is under the influence of the gas the tonsil may be readily removed by the guillotine, or if the bistoury is preferred, a tongue-depressor may be applied by an assistant.

The following cases may be given as interesting examples of the varieties of chronic enlargement of the tonsils :—

F. W., a boy, six years of age, was stated to have had enlarged tonsils from birth. They produced no pain, but as the boy took no notice of anything, unless spoken to in a loud voice, his mother thought he might be suffering from “throat deafness,” and applied at the hospital. The tonsils were found to be enlarged, and somewhat congested; the boy was deaf and his voice was nasal. He frequently suffered from “sore throat.” The tonsils were painted with the pure tincture of iodine, and a gargle was prescribed composed of tincture of iodine and compound tincture of cinchona, of each one drachm to the ounce of water. The syrup of the iodide of iron was given, and grey powder every alternate night. The child was under treatment altogether about three months, when the tonsils had decreased considerably, though they were still larger than normal. The deafness had entirely disappeared, and the voice was natural.

A. F——, aged forty-two, wife of a painter, had suffered for years from repeated attacks of sore-throat; had had eruptions upon the skin from time to time. She complained of dysphagia, of aphonia, and of deafness. Her tonsils were found to be much enlarged and indurated; they were also congested. A laryngoscopic examination was made with a small mirror, and the congestion was seen to extend to the

epiglottis and false cords ; but the examination was tedious and imperfect, owing to the tonsils closing in front of the mirror. A mixture of iodide of potassium and perchloride of mercury was ordered, and a gargle of perchloride of mercury. She was also requested to steam her throat. The tonsils gradually decreased in size ; and in one month—less three days—she stated that she had been able to hear tolerably plainly with the left ear. In the following week she could hear also with the right ear ; but the voice still remained small. The tonsils were now considerably decreased in size, and a good view of the larynx could be easily obtained. There was general congestion of the epiglottis, larynx, and trachea. The true cords were likewise congested ; but the right more so than the left. The false cords were swollen, and overlapping the true cords ; so that during articulation they approximated and produced a small whispering voice. A solution of chloride of zinc (two scruples to the ounce) was applied to the cords with a laryngeal brush ; and an inhalation of creasote was ordered to be used three or four times a-day. The bowels were kept freely open. The iodide-of-potassium mixture was continued ; and a gargle was ordered of tincture of iodine and compound tincture of cinchona. This treatment was adopted for nearly a month, when as the larynx still remained congested, a blister (two inches square) was applied to the region of the

thyroid body. She now improved rapidly; and in three weeks from this date the patient had completely recovered.

H. F., a housemaid, applied with hypertrophied and indurated tonsils, and complaining of a sharp pricking pain, which she stated to be low in the throat. She refused all solid food, as the pain was too great to swallow. She had been previously gargling for some time with an astringent gargle. On examination, the tonsils were found enormously enlarged, indurated and anæmic. She was not deaf, for the tonsils did not project backwards, but the voice was nasal. The laryngoscope could not be well used, for the tonsils closed in front of the mirror.

She stated that the tonsils had been enlarged for many years, and that they were the cause of very frequent sore throat. They were both removed, and in the following week, by means of the laryngoscope, an ulcer was found on the right side of the pharynx, extending to the right arytenoid cartilage. The ulcer was sponged with a solution of nitrate of silver (3j. to ʒj.), and as there was considerable debility, the patient was ordered a mixture of carbonate of ammonia and compound tincture of bark. Improvement at once commenced, and the patient shortly left London.

W. P., a youth about nineteen years of age, had suffered from enlargement of the tonsils as far back as his memory could carry him. The glands nearly

closed upon each other in the central line ; hearing was deficient on both sides, but especially on the left ; the voice was thick and nasal ; respiration was noisy, and during sleep was so much interfered with as to become a painful and anxious annoyance. From time to time one or other, or both, tonsils became inflamed, producing dysphagia, and accompanied by all the symptoms of acute catarrhal tonsillitis. There was no doubt as to the treatment to be adopted. The tonsils were at once removed, and the patient recovered rapidly from all symptoms.

Sections from these tonsils are represented in Plate II.

ATROPHY AND CYSTS OF TONSIL.

In advanced years the tonsil has a tendency to atrophy, and in elderly people I have found from time to time the formation of cysts. These cysts contain a fluid, or a cheesy substance, more often the latter.

No doubt such cysts may remain over a lengthened period without producing any inconvenience ; but they may, on the contrary, produce an amount of irritation around, or may themselves inflame and suppurate. It is only when they are troublesome to the patient that they come under the notice of the medical practitioner. If the cyst be single it should be laid freely open, and caustic should be applied to its sac ; but if the cyst be

multiple, or if there be a benign cystic mass growing from the tonsil, it is well to remove it with the knife or guillotine.

Polyps of the Tonsil.—Several cases of a pedunculated growth, proceeding from the cavity of one of the lacunæ, have come under my notice. They have occurred in individuals who have suffered frequently from tonsillitis. They are of a fibrous structure, and often granular in appearance, apparently springing from a granulatory surface. The cause of such formation is probably as follows: the mucous surface of a crypt becomes denuded from a continued or a repeated catarrhal tonsillitis; granulations now spring from the denuded surface, and the granulating mass protruding through the orifice of the crypt continues to increase in size.

The treatment is removal with a wire ecraseur, and as a rule it never recurs.

Concretions, or calculi, in the tonsil are found from time to time. I have myself frequently removed from the tonsil small pieces of chalky substance; but cases have been reported in which the masses have attained considerable size. Should a concretion not be expelled from the tonsil when of small size, it would extend into the several channels connected with the crypt, and would therefore assume a coralline appearance. It has been suggested that tonsillar calculi are the resolution of tubercular deposit, but I see no reason to consider

them such. Small particles of concretion are comparatively common in chronic tonsillar catarrh, where the secretion of the gland is considerably increased in quantity, and abnormal in composition. Such secretion is frequently retained within the crypts of the gland; and no doubt from such secretion calculous deposits would readily take place.

Tonsillar calculi, or concretions, may not be inconvenient to the patient, but if they become of large size they protrude through an orifice, and irritate the surrounding tissues. They can now be plainly seen, and may, perhaps, be drawn away with the forceps, or it may be necessary to enlarge the orifice with a knife for withdrawal. Sometimes by their pressure upon a crypt mouth they cause its enlargement, and are then pressed out by the movements of the tongue of the patient.

ULCERS OF TONSIL, PALATE, &C.

Ulceration of the tonsil, palate, &c., occurs in association with chlorosis, phthisis, struma, and syphilis; but it is comparatively rare, except in connection with the last named disease.

The *weak ulcer*, or ulcer of debility, is not usually of an acute character. It is of an anæmic appearance, very superficial, resembling an abrasion, and generally occurs on a hypertrophied tonsil; it is not, as a rule, decidedly painful, but produces a

pricking sensation during deglutition. With it occur the symptoms of the disease with which it is associated, and which must be treated in order to cure the ulcer. Locally, the mildest remedies alone need be employed, such as an astringent application, or gargle of tannic acid, or alum, about five grains to the ounce, or chloride of zinc, two grains to the ounce. If the ulcer occur on an indurated, hypertrophied, and anæmic tonsil, it is certain to continually recur on the least exposure to draught or cold, and in such a case the tonsil should be at once removed.

The acute ulcer occurs both in children and in adults, but is perhaps more common in children. It is the result of an inflammation of the mucous membrane upon the surface, and in the neighbourhood of the tonsil. In children it is often associated with stomatitis. It rarely extends deeper than the mucous membrane, unless syphilitic. In all cases there is some slight general disturbance, with elevation of temperature, a quick and weak pulse, and a white or foul tongue. The ulcer, if situated upon the tonsil, is not necessarily accompanied by much enlargement of the tonsil, but there is always an inflamed and fleshy appearance of the surrounding tissues. The ulcer is often very painful, deglutition being accompanied by a tearing, lancinating pain. The breath is usually tainted. This form of ulcer readily yields to treatment. Having

concluded that it is not the result of syphilis, the remedy is chlorate of potash grs. x., with dilute hydrochloric acid m. x., and decoction of cinchona ad. ℥j. ; the dose being decreased for a child. The best gargle is carbolic acid, grs. ij. to the ounce ; or if the child be unable to gargle, the throat may be washed with a lotion twice that strength.

The *phagedænic ulcer* is most commonly syphilitic, but it may occur in persons of debility, or in those who have resided in close chambers, hospitals, or in the neighbourhood of cesspools or decomposing animal or vegetable matters.

It is similar to the phagedænic ulcer of other parts. Locally a mass of the tonsil appears to have sloughed away, and the ulcer is covered with a greenish-yellow lymph, or particles of slough. The part around is swelled and inflamed, the breath is loathsome, deglutition extremely painful. The constitution is affected, the temperature increased, the face flushed, the pulse quick and weak, tremulousness, nervousness and mental depression, loss of appetite, sleeplessness.

Formerly I treated this class of ulcer differently both locally and constitutionally, according to whether it was the result of syphilis or not. If syphilitic I prescribed a gargle of perchloride of mercury (3 grs. to ℥ x), and obtained fairly good results. Now, however, whatever may be the cause, the local treatment is the same. So long as there is a foetid breath with

green lymph upon the ulcer, I continue a gargle of carbolic acid (gr. iijss to ʒj), and request that it may be used frequently during the day, a dozen times at least; in addition, the patient may gargle with warm water as often as he will. After the ulcer is well cleaned, I consider that carbolic acid is not only no longer needed, but that its continuance is actually a preventive to healing. Simple water gargle may be now of use as the healing usually progresses rapidly, but occasionally it takes place slowly, and any of the astringent gargles very weak may be employed with advantage. Internally the treatment must differ according to the cause. I have, however, no hesitation in saying, that when the constitution is much affected by the disease, opium or morphia will always be found of great service in all cases, syphilitic or otherwise, unless contra-indicated by renal or other disease. If the case occur in a syphilitic adult, the mixture I prescribe is pot. iod. gr. v., liq. opii sed. min. x, dec. cinchon. ʒj, three times a day.

In these cases no mercury should be given internally, but mercury may be administered in the form of a calomel bath, ʒj, twice a-week.

If there be no syphilitic taint, but rather a blood poison, then I would prescribe pot. chlorate, gr. x., acid mur. dil. min. xv., liq. morphiæ mur. ʒss, dec. cinchonæ. ʒj. The diet must be warm milk, with bread, broth, &c., &c. Wine will be rarely found

necessary. It flushes the face, and if given it must be well diluted with water, or the spirit is extremely irritating to the ulceration. The quantity of wine to be given must depend rather upon what the patient has been in the habit of taking previously than upon the character of the disease.

PERFORATING ULCER.

I have seen many cases in which a phagedænic ulceration has attacked some central portion of the palate instead of the margin. It has then extended through to the other side, forming a perforation. When such cases have come under treatment in the early stages, I have invariably found that the perforating ulcers of the palate commenced by a small gummatous deposit, which could be detected with the finger, as an indurated enlargement, generally in close proximity to or connected with the hard palate; the gummatous deposit sloughed, and the ulceration rapidly extended through the substance of the palate. Most gummatous deposits are syphilitic, so it follows that perforating ulcers of the palate are almost invariably syphilitic. The treatment is similar to that of the phagedænic ulcer, but a great object in the treatment is to obliterate the perforation, and this can generally be effected, unless the original gummatous deposit was very extensive. As soon as the phagedænic character of the ulcer has passed away, and the wound appears clean and

granulating, its entire margin, both in front and behind, wherever the wound and the epithelial surface join, should be touched with the solid nitrate of silver twice or three times a-week. By these means cicatrisation is prevented, and the granulations continue to increase and to fill up the space. It is astonishing what a large aperture can be filled up by carefully attending to this plan of treatment.

CHRONIC SYPHILITIC ULCER.

There is a form of ulcer which occurs in connection with syphilis, and the character of which is best expressed by the name chronic syphilitic ulcer. The ulcer increases in size very slowly, or it may have remained for a variable length of time in *statu quo*; it may be single or multiple, situated on the pillars of the fauces or on the pharynx, epiglottis, or base of tongue. In appearance it is oval or irregular, with an indurated base, generally raised somewhat above the surface, and if situated at the base of the tongue and out of sight, can be readily distinguished by the finger. This ulcer is common in advanced syphilis, that is to say, in people who have contracted syphilis some years back, though the disease may have exhibited itself only in some mild form, or perhaps lain altogether latent. It is associated often with gummatous deposits elsewhere, and the most marked case in which I have seen the multiple syphilitic ulcer, was one not under my own care, which proved, by

post-mortem examination, to be associated with syphilitic deposit throughout the parenchyma of the liver.

Many chronic syphilitic ulcers of the throat, tongue, &c., are not raised nor indurated, but often, on the contrary, depressed.

Such ulcers will be diagnosed syphilitic by the other signs or symptoms accompanying that disease.

The treatment of these syphilitic ulcers must be constitutional and local, constitutionally iodide of potassium, changed fortnightly with quinine and iron. I strictly avoid mercury internally, but use it externally in the form of a calomel bath, ℥j or grs. xxv., either once or twice a-week. All wines and spirits are to be avoided, except the clarets.

Locally the ulcers may be touched from time to time with the solid nitrate of silver, and the patient himself may apply to the ulcers a lotion of nitrate of silver (gr. ij. to ℥j) twice a-day.

With regard to the object one has in applying the solid nitrate of silver; it may be employed to stimulate freely a surface which is neither progressing nor retrograding, or, on the contrary, to cause the destruction of granulations of any variety, if projecting above the surrounding surface, or it may be applied to margins which are cicatrising, in order to prevent the formation of epithelium before the granulations have filled up the wound, such for instance, as a perforating ulcer of the palate.

Though perhaps the most common cause of ulcer of the tongue is syphilis, yet ulcers in the neighbourhood of decayed teeth, and produced by the continued irritation of a decayed tooth, often exactly resemble a syphilitic ulcer, and must not be mistaken for it.

An ulcer produced by the irritation of a decayed tooth is generally of irregular form, and is somewhat indurated ; it may be small, but I have seen them of large size. I have seen such an ulcer on the side of the tongue, near to the front, in an individual whose every tooth was diseased, scarcely differing in appearance from an epithelioma. It occurred in a man about fifty years of age, and was nearly an inch long by about half an inch broad, irregular in form, elevated at its edges, indurated to a considerable depth. It was painful, and irritated by any condiment, such as mustard, pepper, salt, &c., or by anything warm. It had existed for some eight months, and was said to be increasing gradually in size. It was difficult to say that such an ulcer was not epithelioma, but the numerous jagged teeth pressed into its substance, and I advised the immediate removal of the teeth ; the lotion of nitrate of silver (grs. ij. to ʒj) was applied every night, and the ulcer rapidly healed.

Of course the purest treatment for all diseases is to remove the cause, and in ulcers produced by carious teeth, the teeth should be removed, or, under

the advice of a dentist, should be carefully filed down.

Extensive Ulceration of Soft Palate, Fauces, Base of Tongue, and Epiglottis, induced by exposure.

—A. M., aged 32, a street coffee-stall-keeper, stated that her business was to keep the stall through the whole night and early morning; she was therefore very much exposed to wind and weather. She said that she had not been able to swallow anything solid for more than a fortnight, and that even fluids gave her great pain. She was very low spirited, and complained of great bodily weakness. On examination, all the structures at the junction of the mouth with the pharynx were found to be ulcerated. The uvula was paralysed, indurated, and ulcerated, and, being much elongated, became the cause of troublesome retching and of a painful cough. The tongue was white, and the pulse 96 per minute. The ulcerated surface was washed with a solution of chloride of zinc (two scruples to the ounce); a mixture of citrate of iron and quinine was ordered, and an alum gargle (six grains to the ounce). At the following visit the debility of the patient had increased, and the mixture was therefore changed to carbonate of ammonia and bark. The uvula, by its elongation, had become so troublesome that it was considered advisable to remove a large portion of it. The alum gargle was still continued. The following week she had considerably improved in health, and the ulcerated

surface was in some parts granulating. The mixture was again changed to quinine and iron. From this time she progressed favourably, though slowly, and left the hospital after remaining under treatment from May 1st to the middle of July, no further changes having been made in the medicine or application. She continued her work at the coffee-stall throughout the treatment.

Syphilitic Ulceration with Subacute Pharyngitis.
—H. P——, aged twenty-five, a carpenter, attended the hospital on the 1st of April. He complained of dysphagia, of loathing of food, and of general debility. On examination, the pharynx was found to be dry and inflamed, and an ulcer of elongated form was found extending from the right side of the base of the tongue downwards to the epiglottis. The margins of the ulcers were elevated and reddened; but the surface was smooth, and showed no signs of granulation. A mixture of iodide of potassium and infusion of quassia was prescribed, and also a gargle of perchloride of mercury. At the following visit (one week) the appearance of the ulcer was improving, and it did not feel so indurated to the finger as at the first visit. The mixture was repeated; but the gargle was changed to chloride of zinc, as he complained that the mercury produced great dryness of the throat and soreness of the cheeks and gums. There was, however, no salivation. On the 15th of May the patient complained only

of slight pain on swallowing, and the ulcer was seen to be greatly reduced in size. At this time the lymphatic glands over the parotid region became enlarged and painful ; for which a soap and ammonia liniment was ordered to be rubbed in. On the 5th of June the ulcer had healed ; but the glands remained enlarged, though not now painful. They were, therefore, painted with compound tincture of iodine. He remained under treatment till July 17th, and was then discharged cured.

Syphilitic Ulceration with Caries and Necrosios of six years' standing.—A. G., aged 26, came under my care in the hospital, in January, 1875.

She made the following statement : Six years ago an ulceration commenced in both tonsils, and since that time the throat had never healed, but, on the contrary, the ulceration had continued gradually to spread. Eighteen months ago a piece of bone came from the roof of the mouth, and about the same time she became deaf, and also lost her voice. About eight months ago the nose became painful and inflamed, and two small pieces of bone separated ; at this time she lost the sense of smell. Three months ago the lips became inflamed, swelled and ulcerated.

On examining this case, I found ulceration of the roof of the mouth, of the back part of the pharynx, and over both Eustachian tubes. The soft palate, both tonsils, and a portion of the hard palate had

disappeared. All these parts were in a state of ulceration. The septum of the nose had given way, allowing the cartilages to fall in; the inferior and middle turbinated bones had in part necrosed; a foetid discharge issued from the nose, irritating and inflaming the nostrils and upper lip. The lip was hard, swelled, and extensively ulcerated on its oral surface. She could neither hear nor smell, nor speak above a whisper. The ulceration extended into the cavity of the larynx, and the false cords were covered with irregular granulating masses. Only an occasional glimpse could be obtained of the true cords, which were slightly reddened. Of course at this time she was in a very low state; the tongue was foul and the appetite gone, it was difficult for her to take anything but milk. The girl had a good character, and was of a very respectable family, and, consequently, the disease had hitherto been looked upon by her medical attendant not as syphilis but as epithelioma.

Treatment. A mixture was ordered, composed of pot. iod. gr. v., liq. opii. sed. min. vj., and decoc. cinchonæ. ʒj. three times a-day. A calomel bath grs. xxv. twice a week. All the part which was ulcerated, or showed irregular granulations, was touched with the solid nitrate of silver from time to time, and a lotion of nitrate of silver (gr. ij. to ʒj.) was applied night and morning. After a fortnight the pot. iod. was changed to quinine and

tr. of iron for a week. The two medicines were alternated in that way. No other treatment was adopted. Towards the end of January she could smell and hear distinctly, the lip had entirely recovered, the Eustachian tubes could be readily discerned by a mirror in the throat, the ulceration having completely healed. No discharge issued from the nose, she appeared in good health, and enjoyed her food. The voice reappeared, but it was hoarse. In February she left for a convalescent home, though some patches of irregular granulations and ulceration still remained, but they were healing satisfactorily.

ELONGATION OF THE UVULA.

The uvula, as part of the soft palate, is liable to affections to which the soft palate is liable. The uvula, however, may become elongated as a result of such diseases, and may cause considerable annoyance to the patient. It may be swelled by oedema accompanying surrounding inflammation, or enlarged by plastic effusion accompanying chronic ulceration of the soft palate. In chronic bronchitis and catarrhal affections of the throat the uvula is liable to become elongated and enlarged.

The muscular fibres of the uvula may be paralysed either by such effusion, or as the result of diphtheria or injury.

The treatment of elongated uvula must depend upon the cause.

Elongated uvula accompanying catarrh of the pharynx, or bronchial catarrh, is usually relieved by an astringent gargle, such as tannic acid (gr. vj. to ʒj.). Cases occur from time to time in which it is necessary to remove a part of the uvula. They are, however, very few in number, and in my practice have occurred only in the proportion of one in fifteen hundred cases of throat affection. Were it not that the azygos uvulæ becomes paralysed, slight swelling would be of no importance. But if the muscle is paralysed, the uvula hangs as a helpless mass in the throat, falling against the tongue or pharynx, and changing its position with the passage of the air. It produces then a sensation of sickness, or perhaps an irritative cough.

Sometimes in acute tonsillitis the sense of fulness in the throat and the sickness and retching produced by an œdematous uvula is extremely troublesome. This condition is relieved by puncturing the uvula, or by superficially snipping it with a pair of sharp scissors to drain off the serum, whilst at the same time the treatment of the causative disease is of course fully attended to. Instances in which it is necessary to remove a part of the uvula are these, provided that it is producing any continued discomfort to the patient, either as a cause of retching or coughing :—

1. When the uvula has become hypertrophied and indurated, a result of chronic inflammation of the neighbouring parts.

2. Where the uvula is elongated in association with chronic catarrhal affections, and refuses to yield to treatment after a fair trial.

3. If the uvula is paralysed, in which case it usually swells and flaps within the throat as a foreign body.

ECZEMA OF THE PALATE AND FAUCES.

Minute vesicles appear upon the uvula, soft palate, and fauces, and extend for a variable distance forward upon the mucous membrane covering the hard palate. The vesicles may coalesce, and, the epithelial layer then falling off, a denuded surface remains; or the epithelial layer may remain as opaque white spots, with here and there a denuded patch.

In these cases the throat is generally very irritable, the patient complaining of burning and dryness. The process of deglutition and mastication are irritating. Food too hot or too cold, and all condiments, produce a smarting or burning pain.

The disease may be concomitant with syphilis, but I have found it in persons in whom there was evidently no syphilitic taint. I have, however, never seen it in children. Whatever may be the cause the disease is always obstinate. Probably its

obstinacy is due to the continual irritation to which the part is subjected in taking food.

Treatment.—One main point in the treatment is to prevent the part from being irritated. It is therefore necessary to prohibit all condiments—salt, mustard, peppers, spices, &c., all salted meats, &c., and excesses of the temperature of the food, either hot or cold.

In the administration of remedies it is of course necessary to determine if there be a constitutional cause. If it be syphilis, the remedies for that disease must be administered, and the best local application is a solution of nitrate of silver (gr. ij. to ʒj.). In cases in which syphilis was not traced, I have found the best results obtained by the administration of iron and arsenic, and as gargles chlorate of potash and borax. For a long time after the vesicles disappear, and after the throat may be considered cured, the part remains red and injected, and appears likely to again assume the diseased condition.

MUCOUS PATCHES UPON CHEEK, TONGUE, TONSILS, PALATE, &c.

Mucous patches are greyish white patches which occur on the cheeks, tonsils, tongue, palate, or even in the larynx, and which remain for a lengthened period. These patches are almost invariably syphilitic, but I have seen them occasionally on the

mucous membrane of the cheek in individuals in whom there was undoubtedly no syphilitic taint, but in whom decayed jagged teeth was probably the promoting cause. I take them to be an infiltrated condition of the epithelium of the part, and due to slight subacute or chronic inflammation. The inflammatory condition is not sufficient to produce a rapid shedding of the epithelium, otherwise a denuded or ulcerated surface would be the result; but the infiltration often extends into the basement of the mucous membrane, and so slightly elevates the whitened patches.

They are, as a rule, painless, but if elevated above the surrounding surface they are irritated by the condiments taken with the food. The irritability of these patches is usually in the same ratio as their elevation above the surrounding tissues, and the reason is, doubtless, that the elevation depends upon a corresponding extent of inflammation.

When the patches are situated upon the tonsils, those glands are invariably increased in size, and in many cases I have seen both tonsils appear like a mass of condylomatous growths from the presence of exaggerated mucous patches. When situated in the larynx the voice is invariably altered, varying from slight hoarseness to complete aphonia.

Though perhaps the mucous patch may not extend to the true cord, yet invariably is there some alteration of the voice. But then the presence of

these mucous patches is a proof that an inflammatory condition exists within the larynx, and often this inflammatory condition may be further detected by some discoloration of the true cords.

Treatment.—The treatment of mucous patches must necessarily depend upon the cause. If it is evident that the condition is due to irritation from some irregular tooth, the removal of the tooth is sufficient to cure the disease, but if constitutional syphilis be detected the treatment must then be both constitutional and local. The treatment of constitutional syphilis adopted by me has been already referred to on several occasions (vide page 38); the local treatment consists of the application of nitrate of silver from time to time, or a lotion of nitrate of silver (gr. ij to ʒj) may be applied by the patient night and morning upon a camel hair brush.

CANCER OF THE THROAT.

The form of cancer which usually attacks the throat is epithelioma.

It may commence in the pharynx, tonsil, or epiglottis.

It never comes to the notice of the surgeon till ulceration has taken place, for until that time it produces no inconvenience to the patient, and therefore no symptoms attend it.

The ulcer is extremely irregular in outline and

upon its surface. It may be in part elevated above the surrounding surface, and in part depressed below it. It is very hard to the touch, and the induration extends to a distance beyond the ulceration. It is painless on pressure.

Once having commenced to ulcerate it never ceases to progress, and this is one of the chief points by which it may be recognised from a syphilitic ulceration of the same parts which has existed over a long period of time. As soon as it ulcerates, the glands in the neck, those along the sterno-mastoid and beneath the angle of the jaw, become enlarged and hard, and never again decrease in size, another sign of great importance in the diagnosis of the disease.

The pain accompanying epithelioma of the throat is of a sharp pricking character, extending into the neck and ears. Often the pain is not great on swallowing, and it is sometimes astonishing how little pain occurs at the time, even when the ulceration is very extensive, but after swallowing, the pain comes on in paroxysms.

The ulceration seems to spread chiefly along the mucous membrane; the tonsils and palate disappear, but the bony structures remain for a time intact; the epiglottis and perhaps the opening of the glottis become involved. Œdema of the glottis may now suddenly terminate life, unless tracheotomy be performed.

As the pharynx becomes increasingly involved,

attempts to swallow drag upon the indurated and adherent mass, and produce sharp cutting pains, followed by continued aching and pricking sensations. On this account the patient refuses to swallow, he continually wipes the saliva from his mouth rather than allow it to pass into his throat; he refuses almost absolutely to take even fluid nourishment; he obtains no rest, rapidly emaciates, and if the disease should not destroy life by extension to the air passages, he dies from inanition and exhaustion.

Treatment.—I have but little to say upon the treatment of established epithelioma.

If a case should come under treatment in a very early stage, I would endeavour to eradicate the disease by the application of strong nitric acid, but such opportunities are rare, and even the treatment is doubtful. It is then left to us only to advise upon the diet and to regulate the administration of stimulants, and of opiates and anodynes.

DRYNESS OF THE PHARYNX.

Cases from time to time come under treatment of an extremely troublesome dry condition of the pharynx. There is no inflammation, there is no pain. The mucous surface is remarkably thin, dry, and glazy, and seems to possess no secreting glands; it is often wrinkled longitudinally. If any mucous pass from the nose into the pharynx, it adheres and dries into hard layers, which by their irritation induce

retching and vomiting. Some patients suffering from this disease state that they always drink before swallowing anything solid. This condition of the pharynx is sometimes sequent upon fevers, but I cannot say that I have seen it connected with syphilis, though when a cicatrix forms upon extensive ulceration of the pharynx, such as is most common in syphilis, the same character of the pharynx is present, accompanied by the same symptoms, but the cicatricial surface is evident, and may be readily recognised from the thin wrinkled mucous membrane of the disease under description.

I am not prepared to say what is the cause of this disease, and it is difficult to advise a line of treatment until the cause of the disease is determined. Such cases must be treated on general principles, the health of the patient must be attended to, and symptoms which show themselves separately must be separately treated. The clothing of the patient should be looked to, and a damp residence must be avoided. The best local application I believe to be warm water injected through the nose and upon the pharynx.

E. G., aged twenty-six, married, had suffered from dryness of the throat, together with dryness of the nasal secretion, which adhered to the pharynx and frequently produced fits of vomiting. She stated that she had suffered from these symptoms for two years. On examination, the pharynx ap-

peared perfectly dry and longitudinally wrinkled. The mucous membrane was evidently very thin. Tannic acid and glycerine was applied. Tonics were given internally. No improvement took place. Small doses of mercury were now administered in the form of the perchloride, and a lotion of chlorinated soda was injected through the nose. This treatment was certainly beneficial. The nasal secretion no longer adhered, and the vomiting ceased, but only for the time that the lotion was injected. At the present time she uses only the injection of warm water through the nose or direct upon the pharynx.

ERYSIPELATOUS OR MALIGNANT SORE THROAT, OR HOSPITAL SORE THROAT.

This disease, so called, is an erysipelalous inflammation, attacking the tonsils, uvula, and soft palate, rapidly producing œdema, and spreading to gangrene. It commences with a soreness of throat and some difficulty of swallowing, increase of temperature, and a rapid pulse, soon becoming weak, soft, and fluttering. The tongue is thickly coated with a yellowish fur; the bowels are constipated. Upon the tonsil, soft palate, and uvula, may now be seen one or more yellowish patches, like a pseudo-membrane, to an extent resembling the false membrane of diphtheria, but, unlike that of diphtheria, it is readily removed from the greater part of its attached surface, and is not regenerated. When removed,

the surface beneath is denuded of epithelium, or even the tissue itself may have sloughed, but the membrane is not regenerated. If now the disease continue to advance, œdema spreads over the entire throat, extending to the nose, pharynx, epiglottis, and larynx and tongue ; respiration is interfered with, often rendering tracheotomy necessary. Sloughing may now take place, and the sloughing may even occur with advantage, for the œdema may then cease to spread.

It is rare for this disease to destroy life without spreading to the larynx, and it is also equally rare for the treatment to prove successful if it spread to the larynx. Tracheotomy may be performed, but the extent of blood-poisoning is generally sufficient to destroy life ; and though the operation may prove successful, yet the patient succumbs in a period varying usually from six to thirty-six hours in a state of collapse.

These patches upon the throat might at first sight be mistaken for catarrh of the tonsil, for they are usually more than one in number, but on closer examination they will be found to occur not upon the tonsils alone, but upon the pillars of the fauces, or perhaps upon the uvula, and the tissues around the tonsil will be of a dark congestive blue colour, accompanied by neighbouring œdema ; whilst it will be recollected that in catarrhal tonsillitis there is no œdema around, and little or no inflammation except

of the tonsil itself. Furthermore, the yellow deposit of catarrhal tonsillitis is a semi-fluid secretion occupying the crypts, whilst that in hospital sore throat assumes the form of a membrane or patch, and is probably not only a plastic effusion upon the surface, but a plastic infiltration of the epithelium covering the mucous membrane, which when removed is not regenerated.

The cause of this disease is usually a vitiated atmosphere such as that of hospitals—hence its term, hospital sore throat. It is difficult to say whether the disease first takes possession of the throat, and then develops its poisonous effects upon the constitution, or whether the blood is first poisoned by the respired vitiated atmosphere, and secondarily develops the disease of the throat.

Treatment.—At once remove the patient from the air which is the cause of the disorder. If house surgeon or nurse, it is sufficient to remove them from the wards, though, no doubt, removal from the Institution is preferable. Locally, when there is ulceration or sloughing, a gargle of carbolic acid, gr. iij to ʒj, or nitric acid gargle should be used at least every hour, not more than about a teaspoonful at the time; intermediately warm water gargle is soothing and of good service. Internally, an immediate purge and afterwards opium and belladonna are, I am convinced, the most reliable remedies. For an adult, I prescribe Liq. opii. sed. m xv or m. xx.

Tr. bellad. m.x, dec. cinch. ʒj., every four hours. Warmth to the neck, either poultices or hot flannels ; complete rest, in one room or in bed, at the judgment of the medical attendant.

The diet is of course necessarily nourishing liquids — plenty of milk, essence of beef, beef tea, &c., &c. ; port wine, as the pulse lowers ; brandy at discretion. I must admit that I am not anxious to put my patients on the stronger stimulants at once. If they take spirits they will not take milk, and it is only as the pulse flags that I make use of the brandy as a restorative.

With regard to tracheotomy, that operation must be performed if the dyspnœa is sufficiently urgent. The laryngoscope will readily tell if there is œdema in the neighbourhood of the glottis ; and should there be, then the laryngoscope should be used from time to time, that is to say, every two or three hours ; and if the œdema continue to increase, the instruments should be prepared, and a surgeon capable of performing the operation should remain with the patient.

DIPHTHERIA.

Diphtheria at the commencement of an epidemic is one of the most fearful diseases with which we have to contend. But it fortunately does not always attack with the same virulence. There are grades

of the disease varying from the very severe to the very mild form.

Mild Form.—For a few days the patient may complain of slight sore throat, but perhaps may think it insufficient to trouble the medical adviser. On the third or fourth day the tonsils become considerably swollen, the skin becomes hot, the appetite goes, and the patient becomes restless at night. Medical advice is now sought.

At this time the throat is red and inflamed; the uvula, soft palate, and tonsils are swelled; but there is possibly no diphtheritic membrane. The throat has the appearance of a catarrhal tonsillitis. The temperature reaches its highest point, perhaps 103° F., and on the same day or on the following morning patches of diphtheritic membrane appear on one or both of the anterior pillars of the fauces or upon the tonsils. These patches, which are of a yellowish-white or of an ash-grey colour, and which have made their appearance somewhat suddenly, are not readily separated from the deeper tissues. It has been said that they are composed of the epithelial surface of the mucous membrane, swelled and infiltrated by inflammation, and, in fact, in a state of necrosis; but perhaps this point is questionable, for it is well known that if any raw surface occur in a patient who is the subject of diphtheria, that surface is liable to become covered with a similar plastic membrane to that formed in the throat. The patches

may spread over the soft palate or the uvula, or they may spread backwards into the pharynx, but the more the patches spread backwards into the pharynx the more unfavourable does the prognosis become, and the more dangerous is the affection, for the more likely is it to spread to the respiratory tracts, and so to prove fatal. Under treatment, perhaps, these patches cease to extend, and the disease is cut short. The nose is not affected; there is not necessarily albumen in the urine; the pulse which has perhaps risen to 120 soon runs to about 90, and the temperature rapidly decreases to a little above normal, but still the debility and nervous depression is great, often much greater than might be expected from so small an amount of local disease. The diphtheritic patches of false membrane now gradually peel off and disappear, or are removed by the application of the brush or sponge in the local treatment, and beneath them a surface excoriation remains—an excoriation, or ulcer, which is usually slow to heal. The nervous debility and depression remain for many days after, and the stage of convalescence passes through a month or more.

The Severe Form.—For some few days the patient complains of slight sore throat, and of having taken cold. Chills may now attack him, or perhaps sickness. In this way three or four days pass away, whilst the disease advances unnoticed, then swelling of the throat takes place, but the pain of swallowing does not seem to increase.

When the throat is examined, there is general redness and swelling of all the structures in the back of the throat, but there may be seen circumscribed spots of deeper red, which soon become covered with a thin transparent film. If the film be removed, small points of ecchymosis appear, but the film is soon replaced, and now assumes an ash-grey colour, and becomes adherent to the tissues beneath, so that it is not easily wiped away or separated. This membrane may form first upon the tonsils or upon the pillars of the fauces, or within the pharynx. It is not common to find it forming in many patches. When the case first comes under notice, there is generally one patch upon each side or on one side only, and in addition a patch upon one side of the uvula.

One must not mistake for diphtheritic membrane that yellowish white secretion or rather epithelial mixture which escapes from the lacunæ of the tonsil, and which often spreads out like a membrane. It may be recognised easily by its character; it is no membrane, but only a collection of epithelial cells, with exudation corpuscles and mucus, and has, therefore, no adhesion or consistency; it is easily removed or wiped away, and the surface beneath it is not different to that around. If the disease is advancing the true diphtheritic membrane increases; it extends into the pharynx, into the larynx, trachea, and respiratory tract, and into the posterior nares.

Swelling in part, inflammatory infiltration, and in part œdema occurs in all the tissues around ; the tonsils, uvula, palate, tongue, pharynx, glottis, and nares, are all affected ; the voice is of that peculiar character well known in common swelled throat ; to swallow is difficult but not very painful, and the fluids passing up behind the paralysed soft palate find their way back by the nose ; the breath becomes foetid, the glands of the neck swell, and the neck itself is visibly increased in circumference. A thin yellow or sanious and loathsomely foetid discharge escapes from the nose and inflames the nostrils. At this time the pulse may vary from 120 to 140, weak and fluttering, whilst the temperature may be about 103° F. or less, diphtheria not being one of those diseases in which the temperature reaches any great height ; the urine is albuminous. As the diphtheritic membrane encroaches upon the larynx, the voice is often gurgling, from the presence of œdema around the entrance to the glottis ; hoarseness and aphonia supervene, the breathing becomes rapid and noisy ; respiration is obstructed, and the dyspnœa increases ; respiration is often obstructed when the membrane extends into the trachea, by the membrane flapping upwards into the glottis ; the face becomes livid, and the patient restless ; the temperature falls, and the pulse too may fall to 60 or 50 per minute ; now perhaps the patient becomes delirious or dozy, and comatose, and in this state he dies. Such is the course

taken by a severe form of diphtheria : but presuming that the disease does not destroy the patient, but advancing nearly to death, recedes. If membranous exudation has taken place in the bronchial tubes a cough ensues, and the membrane is thrown off in shreds and small pieces, respiration improves, and there is a gradual diminution of all the evil symptoms : the œdema of the throat is reabsorbed, and the membrane separates in thick shreds or slough masses ; large masses of the important structures of the throat appear about to separate, but when the shreds have cleared away little or no tissue has gone, shallow excoriated surfaces or ulcerations alone remain, and these, though they are slow to heal, yet finally fill up and leave scarce a trace behind. In some instances the diphtherite has affected the lining membrane of the alimentary canal, and diarrhœa sets in, the stools containing a quantity of membranous material having the appearance of a mucous surface.

Many cases die within 48 hours from the time medical advice is sought ; that is, I believe, generally about five days from the time the first slight symptoms of sore throat commence. No doubt the disease is sometimes more active than this. Death may take place at any time up to about the fifteenth day, according to the severity with which the disease may have attacked the respiratory tracts. After the fifteenth day death is pro-

bably from asthenia. If the patient survive the twentieth day still his term of convalescence may be long and tedious. Sometimes cellular suppurations occur, as after certain fevers; forms of paralysis may follow, from which ultimately the patient may die. Sometimes diarrhoea also results. Fortunately, however, many patients make a good though gradual recovery without suffering from any of the sequelæ.

At the post-mortem examination of a subject of diphtheria, the throat may be seen in the condition seen during life as already explained. The epiglottis is œdematous, or purple-red, with ecchymoses, and perhaps coated with false membrane. If the disease has extended into the larynx and trachea the surface of those tubes is likewise covered with the membrane, some of which may be loose and floating. Whilst the mucous surface in the larynx is swelled, highly vascular, and ecchymosed, that in the trachea does not swell, but it is covered with small red spots and with spots of ecchymosis. The false membrane may extend a variable distance into the bronchi and into the small bronchial tubes. The condition of the lungs depends upon the virulence of the disease. They may exhibit no point remarkable, or they may present scattered patches of inflammation, hepatization, with ecchymoses. The mucous membrane of the alimentary canal likewise may be ecchymosed, and in parts inflamed or con-

gested, and shreds of membrane may be attached in parts or loose in the canal. The blood in the heart and in the veins is dark and fluid.

Treatment.—In the severe cases of diphtheria, when epidemic, there is but little time for treatment. But in those cases which have survived some few days varieties of treatment have been adopted. When I have been called to cases of diphtheria in which the membrane was not yet developed, I looked upon them as catarrhal inflammations, and prescribed a brisk purge, a gargle of chloride of zinc, and if not much fever, a mixture of quinine and tincture of the perchloride of iron; and when those cases have afterwards developed the diphtheretic membrane, or when the glands in the neck have commenced to swell, my only change in the treatment was the alteration of the gargle. Instead of using the gargle the throat should be well sponged with nitrate of silver lotion (ʒj to ʒj)—some prefer the solid nitrate of silver—or with muriatic acid diluted equally with water, or one of the acid to three of water. The French believe very strongly in arresting the progress of the disease by preventing the local extension of the membranous formation. Believing such to be the case, the pharynx and surface for a distance around should be well sponged with the application night and morning for two or three days. I myself believe that the nitrate of silver, if used more

than twice or three times, tends to increase the oedema. When there is foetor of the breath, or if these shreds appear dark in colour, which is the case if there is much ecchymosis, carbolic acid mixed with water, in the proportion of one of the former to three of the latter, is useful both as a disinfectant and as a caustic.

When the foetid discharge escapes from the nose a lotion should be injected twice or three times daily, well into the nasal cavities, either carbolic acid (gr. iv, to $\mathfrak{z}$ j), or nitrate of silver, about gr. iv, to $\mathfrak{z}$ j.

Many cases have been treated internally with a grain of calomel every hour, or a collar of mercurial ointment, with supposed good result, whilst a spray of lime water has been inhaled, or powdered alum has been blown upon the throat.

If there is obstruction to respiration, tracheotomy should undoubtedly be performed.

I have myself performed tracheotomy, and I have seen the operation performed four times for diphtheria, and I am bound to state that it was a failure on every occasion; but life was prolonged for many hours, and such prolongation gives the patient the opportunity of rallying from the disease. The swelled glands should be frequently fomented with warm water, and a light poultice should be kept constantly applied around the neck. The temperature of the room should be maintained at 62°

to 64°, and the air should be moistened if necessary by steam from a boiling kettle.

SCARLATINA ("SORE THROAT").

Sore throat is one of the earliest symptoms of scarlatina. It is the symptom which first strikes the patient, and is generally the first referred to by the patient. It is at first a catarrhal sore throat, that is to say, that the mucous membrane of the soft palate and of the tonsils is a bright red colour, the tonsils swelled, often also the lacunæ filled with the secretion which always occurs in catarrhal tonsillitis, and which must not be mistaken for a diphtheritic sore throat. The neighbouring lymphatic glands become swollen. In mild cases these symptoms pass off as the eruption subsides, with little or no local treatment.

The throat symptoms, instead of subsiding, may, however, assume a more dangerous character. General œdema may arise over the soft palate, tonsils, epiglottis, and around the glottis, even obstructing respiration. Or if diphtheria is epidemic, or I believe if the patient is exposed to a septic poison, drainage, &c., a false membrane may be developed similar to that of diphtheria, or the conditions and symptoms may appear which accompany diphtheritic, or erysipelatous, or septic "sore throat." The mucous membrane in the pharynx and its neighbourhood swells and becomes œdematous, a

fœtid secretion flows from the nose; the breath is fœtid; perhaps sloughs may form upon the tonsils, leaving unhealthy ulcers; sores form around the nostrils, irritated by the nasal secretion. The disease may extend to the larynx, which, however, is rare. All these appear to be symptoms of excessive blood-poisoning, and with them the constitutional condition corresponds; the temperature decreases, the pulse is rapid, soft, fluttering; the skin clammy, sordes forms on the gums, tongue, and mouth, delirium sets in, and the patient perhaps becomes comatose, and sinks.

Again, an abscess may form in the substance of or around one or both tonsils, or about the glands of the neck, or the angle of the jaw, or the parotid region. The abscess in the tonsil is often slow in its formation.

The tonsils may become permanently enlarged or hypertrophied.

Occasionally the discharge from the nose leaves behind it chronic ozœna.

Treatment.—The treatment of the sore throat will in many cases fall in with the treatment of the fever, which it scarcely behoves me to touch upon in this work. Whilst the throat may be considered catarrhal, the swelling, the inflammation, and the pain of swallowing, are reduced by a gargle of chloride of zinc (gr. j, to ʒj). If the throat assume the characters of scarlatina maligna (putrid

sore throat), the treatment, both local and constitutional, should be carried on as described under the treatment of diphtheria. I have frequently been consulted in cases of discharge from the nose in scarlatina somewhat foetid in character, but very different from that which I have seen associated with diphtheria. I have advised the injection of a lotion of sulphate of zinc (gr. v, to ʒj), but if the discharge be highly foetid, which only occurs in the severe forms of "scarlatina maligna," a lotion of carbolic acid, or of nitrate of silver (gr. v, to ʒj) will better answer the purpose.

When an abscess forms in the tonsil it should be opened as soon as matter forms. It is dangerous in children to allow it to remain, in consequence of its close proximity to the internal carotid artery. This point has been discussed under the head Acute Tonsillitis.

DISEASES OF THE EPIGLOTTIS.

There is but little to be said concerning special diseases of the epiglottis.

Acute Inflammation of the Epiglottis.—With inflammation of the tonsils, or other parts of the throat, the epiglottis is usually also inflamed. It may swell to a large size in consequence of the effusion of serum or of lymph infiltration, but it is a matter of little importance provided the swelling does not extend to the glottis.

On the other hand, inflammation and swelling of the epiglottis is usually present with acute laryngitis, and in this case it may be suggestive of danger, a proof that the swelling in the cavity of the larynx is equally severe.

As the disease never exists alone, the treatment must be associated with the treatment of the inflammation in which the epiglottis is implicated.

Chronic Inflammation of the Epiglottis.—The epiglottis is thickened and subacutely inflamed, as a result of acute inflammation, or in association with syphilitic ulceration of the throat, or with phthisis. It is then of a deep red colour, of a spongy or fleshy appearance, and its normally sharp margin is obliterated. It is also more pendant or overlapping the larynx. In phthisis it is frequently studded with small yellow nodules of tubercle. Sometimes the epiglottis so completely overlaps the larynx that a view of the larynx cannot be obtained without elevating the epiglottis by means of a pair of seizing forceps, an act productive of considerable spasm and dyspnœa.

The symptoms of chronic inflammation of the epiglottis are a sensation of a lump in the throat, irritable cough, and often pain on swallowing, referred by the patient to the region of the thyroid cartilage, or even lower in the neck. In some cases of chronic inflammation of the epiglottis, where ulcerations exist on the tonsils, tongue, or pharynx,

the epiglottis becomes œdematous at one part, usually on one side—the side on which the ulceration exists. It is then often curved down, and held downwards more on one side than the other. Chronic inflammation is extremely liable to run on to ulceration in a syphilitic or strumous diathesis. The fold which connects the epiglottis with the larynx arytaeno epiglottidean is a chosen spot for gummatous infiltration in syphilitic cases.

An interesting case of chronic inflammation of the epiglottis with tubercular points came under my notice a short time ago.

I was requested to see a case in which swallowing was excessively painful, so much so that the patient refused to take food, and was becoming emaciated. I found thickening of the epiglottis, on which were situated three or four small nodules of tubercle. The manipulation of the laryngoscope induced retching, and as the patient retched an ulcerated surface appeared very low in the pharynx. Passing my finger into the pharynx as low as the cricoid cartilage, I could determine the presence of an ulceration with the point of the index finger. The patient was emaciated, had a constant cough.

Leaving the examination of the lungs to the Physician, I placed on record in the note-book phthisis, with tubercle of epiglottis and ulceration of pharynx and upper part of œsophagus. The Physician, however, determined that if tubercle

were present in the lung it was insufficient in quantity to be detected. In spite of treatment the disease progressed, and in about six weeks the patient died from inanition, refusing to take enough food to support life. At the post mortem tubercle was found in the brain and its membranes, throughout the peritoneum, and also in the lungs. The Physician, however, was perfectly correct in his statement that the tubercle in the lungs was insufficient in quantity at that time to warrant the diagnosis by means of the lung signs and symptoms. Nevertheless, from my experience, I believe that tubercle never occurs in the epiglottis and larynx without also attacking the lungs.

Ulceration of the Epiglottis.—Ulcers of the epiglottis may occur as extensions from ulcers of the tonsils or pharynx, or as a result of sloughing from acute inflammations, but they are almost invariably syphilitic or tubercular.

In several cases of both syphilitic and tubercular ulceration I have seen the epiglottis entirely disappear by the ulceration. Its loss was no inconvenience whatever to the patient; no food or fluid ever passed into the larynx. It is probable that during the action of deglutition the larynx was drawn more forward under the tongue to compensate for its loss, but it is certain that its absence in no way influenced the patients.

The cases in which I have seen the epiglottis

removed by ulceration were syphilitic phagedænic ulcer and tubercle. In cases of tubercle the epiglottis was enlarged and covered on both surfaces with small nodular points of tubercle. Phthisis was associated. In such cases the points of tubercle slough or suppurate away, and nothing can stay the ulceration until they have all disappeared. If, therefore, many nodules are visible, it is probable that the whole, or nearly the whole of the epiglottis will disappear, and no treatment can prevent it.

Treatment.—For the treatment of *syphilitic ulceration* of the epiglottis the reader must refer to the treatment of syphilitic ulcers of the tonsil, tongue, &c., page 34. *Catarrhal Ulceration.*—When the ulceration is chronic, and accompanied by ulceration in other parts of the mouth or throat, such as may occur, though rarely, in the poorer class of people, who are continually exposed to night air and damp, it is necessary to entirely cease such employment for a time. The ulcers may be then brushed every day with chloride of zinc or nitrate of silver solutions (ʒj to ʒj), whilst internal tonics and stimulants must be administered. Warmth must be applied to the throat, and warm water gargles will be found most useful. The disease is very likely to recur, and the patient should be advised of the necessity of clothing the skin in flannel. *Tubercular Ulceration.*—Locally, warm water gargling is alone to be relied on until the tubercle

has disappeared. Afterwards, should an ulcer remain without tendency to heal, the nitrate of silver lotion may be applied from time to time, but the constitutional treatment and dieting, as in the treatment of tubercle in other parts, are mainly to be attended to.

LARYNGITIS.

In using the term laryngitis, I refer to inflammation of the cartilages, or of the membrane covering the cartilages, including the submucous fibrous tissue, in contradistinction to inflammation of the secreting surface, or catarrhal inflammation. Laryngitis may be acute or chronic.

Acute Laryngitis.—Acute laryngitis, which in the idiopathic form I look upon as corresponding in character and symptoms to a case of acute periostitis, is always a severe and dangerous affection. It may be the immediate result of an injury, or of the common cause of inflammation, so called cold, that is, exposure to damp or cold. It cannot be said to be entirely localised in the larynx, for the inflammation without exception extends to the trachea, and to the parts above the entrance to the larynx, namely, the upper part of the pharynx, the epiglottis, &c. The symptoms are those of an ordinary acute inflammation, continued dull aching pain, with from time to time sharp lancinating pains in the neighbourhood of the thyroid cartilage: a

general feeling of tightness, or constriction, of the larynx : painful and difficult swallowing. With the laryngoscope the part is seen to be intensely red and swelled, the epiglottis and upper part of pharynx participating ; but after a time the whole area of inflammation becomes swelled with effused lymph.

It still, however, remains red, and in that respect differs from the œdematous, or serous infiltration of the larynx, which is common in children after swallowing hot water (mild cases), or which comes on during a less acute form of inflammation.

The swelling does not extend below the true vocal cords, because there is but little submucous tissue. It is probably on this account that tracheitis is accompanied by the development of a false membrane, whilst in the larynx the effusion infiltrates the submucous tissue, and produces the swelling. False membrane may, however, be developed also in the larynx.

The constitutional symptoms are rigors, fever, with elevation of temperature, and a hot dry skin, quickened respiration of a dry, or metallic, or roaring character, soon showing signs of obstruction, an irritable dry metallic cough, the voice at first hoarse, and finally lost ; the pulse quick and hard ; the urine small in quantity, and high coloured, with deposit of lithates, and sometimes containing albumen.

As the disease runs on, the glottis is decreased in size by the effusion of lymph ; and should not the

swelling suddenly abate, or relief be given by tracheotomy, the respiration no longer sufficient to support life, becomes laboured and noisy, the head is thrown back with each inspiration, the blood is insufficiently aërated, and the surface becomes livid. The patient becomes extremely restless, continually changing his position, or trying to leave the bed. He takes little notice of things or people around, though he may be perfectly conscious; if still no relief is given, he becomes delirious or comatose, and finally makes some wild and sudden start, and, falling back, dies.

Treatment.—The treatment must be most active. In a few hours the obstruction to respiration may be so great as to cause death. The disease is unmistakable from the first, and I would advise six or eight leeches to be applied at once around the thyroid cartilage, but not immediately over it. After the removal of the leeches a warm bread poultice should be applied well over the front and sides of the neck, and should be continued throughout the attack. Internally, a mixture composed of vin. antimonialis, ʒj. ; liq. morphinæ mist., ʒj. ; and aq. camph., ʒj., may be given every two or every three hours. Some prefer larger doses of the antimony, but it should not be continued when the pulse has lost its hardness. The room should be kept warm and moist by steam; totally free from all draught. It is well to fix curtains over and around the bed, and to let the steam from a so-called

bronchitis kettle pass within the curtains. If the breathing becomes laboured, and the face at all livid, tracheotomy, or laryngotomy, should be at once performed. It must be carefully kept in mind that in acute laryngitis, obstruction to respiration sometimes comes on in a few hours, and it is the absolute duty of the medical attendant to remain with his patient, or to see that some surgeon capable of performing tracheotomy, should it be required, is present throughout the time that the inflammation is running up.

It is said that many cases are lost from delaying the operation till it is too late. It becomes then a necessity to decide by symptoms the precise time at which the operation should be performed. If the medical attendant is watching the case by frequent visits, the increase of the disease may be more rapid than was anticipated, and the patient may die between the visits; or the operation has to be performed hurriedly, and regardless of attendant hæmorrhage. Such a case dying may, perhaps, be classed among those lost from delay. If, however, the surgeon remains with the patient, he watches the restless changes in position, and the gradually increasing labour of the respiration, and hears the changing sound of the inspiration; he sees the lips and face assuming a more blue or livid hue, he can have no hesitation in performing the operation. If he delay further, the patient will become delirious

or comatose; or, suddenly rising from the bed, and roughly flinging himself to one side, will cease to breathe. Should the surgeon arrive in time to see the patient cease breathing, still he should not neglect to operate, but his movements must be rapid. I have myself seen such an operation followed by success. In that case it was necessary to carry on artificial respiration, and to use the galvanic battery freely for more than half an hour before the patient breathed without assistance. If much blood has entered the lungs, a quantity may be sometimes sucked out through the tracheotomy tube.

ŒDEMA GLOTTIDIS.

Œdema, that is to say, serous infiltration in contradistinction to inflammatory infiltration, is very common in the mucous membrane over the cartilages of Santorini, and in the arytaeno epiglottidean folds, but in my experience it is rare within the space of the larynx. Œdema being an infiltration of serum in the submucous tissue, gives a greyish or even a white appearance, and the part sometimes resembles a serous cyst. It may occur over both sides or only on one side, without the other being at all affected. The mucous membrane over one or both cartilages of Santorini becomes swelled and rounded. If both are affected they fall together and prevent the cavity of the larynx from being seen. If the epiglottis is at the same time oedematous or swelled by inflam-

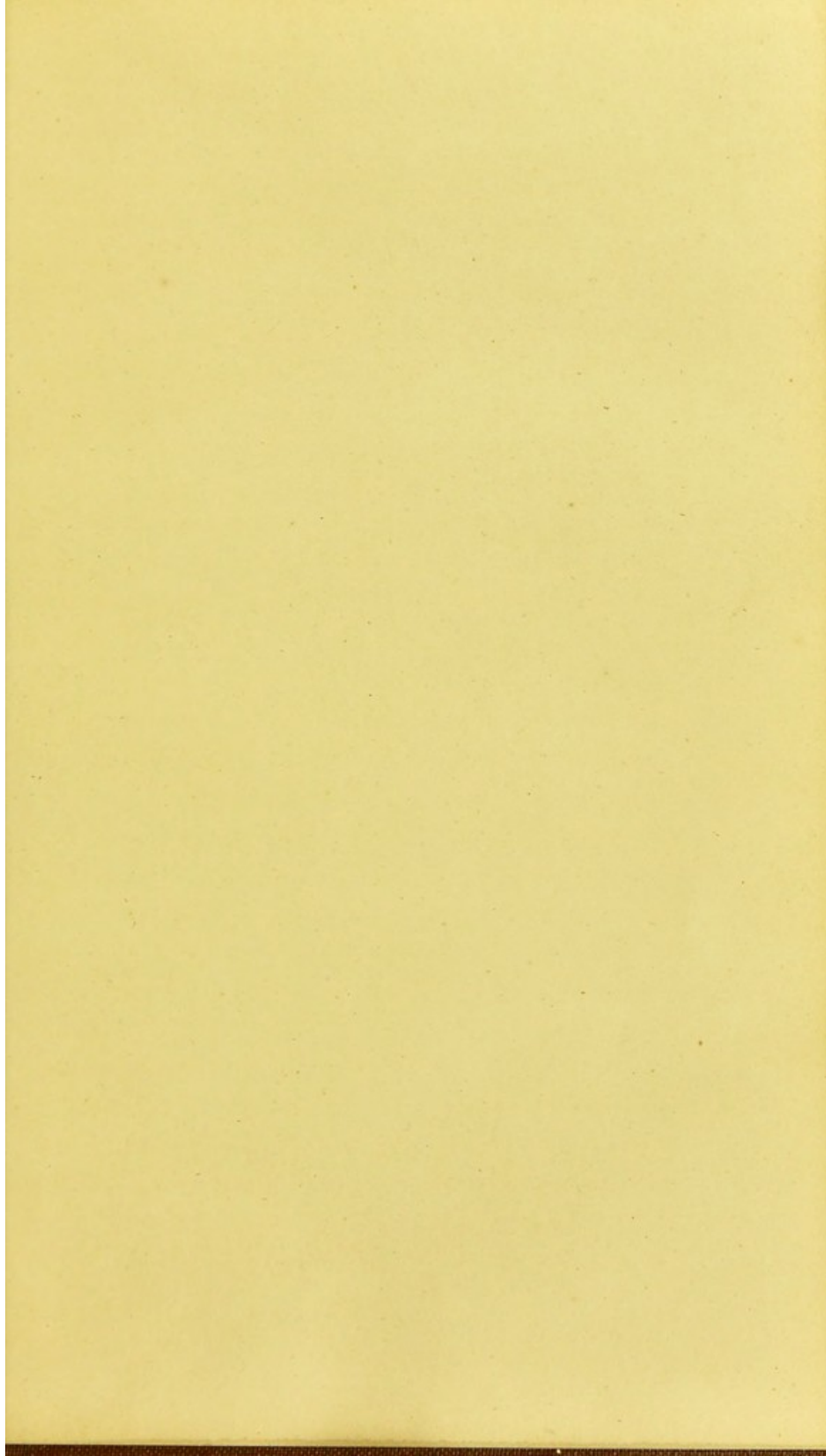
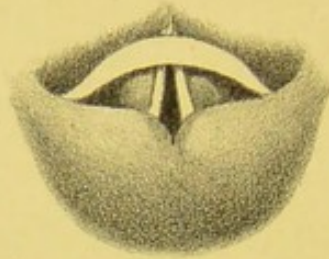
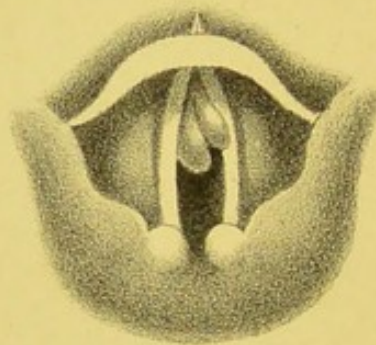


Fig. 1.



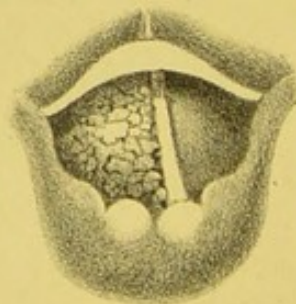
Edema of the Glottis (page 77)

Fig. 2.



Polyp arising below the true cords, but projecting upwards between them (page III).

Fig. 3.



Cancer of the Larynx (page 109).

mation, a very small amount of œdema of the folds or over the Santorinian cartilages prevents the condition of the larynx from being investigated, because the epiglottis is drawn down towards the glottis, and rises but little at each inspiration.

Œdema glottidis so called, that is to say, œdema over the structures at the entrance to the larynx, may be due to mechanical injury, such as occurs when children swallow boiling water, or it may be due to contiguous or neighbouring inflammation or ulceration. I have frequently noticed it in association with syphilitic ulcers of the epiglottis and pharynx, and also with tubercular ulcerations. Fig. 1, Plate III, represents œdema of the glottis, resulting from ulceration of the œsophagus in a case of phthisis. It not uncommonly occurs with posterior peritonsillitis, but in these latter diseases it is rarely dangerous, for the swelling rarely increases to a size sufficient to prevent or even to interfere with respiration. Persons having chronic ulceration in the neighbourhood of the entrance to the larynx, are liable to œdema on any exposure to cold.

The symptoms are not numerous, the sound of the inspiration alone pointing to any suspicion of œdema. The expiratory sound is not altered, for the air can readily push aside the swelled mucous membrane in its passage from the lungs, but inspiration resembles the passage of air through thick mucous, a gurgling or flapping sound.

The patient is aware of the existence of something in the throat, and continually endeavours to swallow it. The laryngoscope reveals the exact condition.

Should the œdema be sufficient to obstruct inspiration, the symptoms of asphyxia present themselves. The head is thrown back, the muscles of the neck are brought into action, violent efforts are made to inspire, the patient becomes restless and tosses himself from side to side, continually desiring to leave his bed and to sit in a chair, the face becomes blue or purple, and unless relief is at once given he dies from apnœa.

Treatment.—Many cases of œdema occur in association with ulceration, and in syphilitic and tuberculous cases, which give the practitioner little or no uneasiness. It is relieved by warm water gargling and steam inhalations, and by keeping the patient in a warm room, at the same time paying attention to the treatment of the special disease from which the patient is suffering. If the swelling continue to increase, it may be incised with a laryngeal scarificator, or even with a guarded curved bistoury. But should these forms of treatment be of no avail, and the swelling become obstructive to inspiration, it will be necessary to perform laryngotomy.

I believe it to be extremely rare for simple œdema to become so severe as to necessitate laryngotomy. In most, or all of such cases, there is, I

believe, laryngitis associated with it, and the obstruction to respiration is due rather to inflammatory infiltration than to simple œdema.

When a patient who has not been previously suffering from any affection of the throat or larynx comes under treatment with œdema glottidis, it is advisable to apply leeches to the throat at once, and in other respects to treat the case as one of acute laryngitis.

SCALD OF THE THROAT.

I have referred to œdema of the glottis being produced in children by drinking scalding fluids. In these cases the effusion takes place rapidly and the œdema soon reaches its height. It may cause death in a few hours by obstruction to respiration. But the subjects of this injury rarely die in a few hours, though invariably there is œdema, and if the symptoms warrant the operation of tracheotomy, and that operation is performed, still many cases die. I have not had the opportunity of witnessing many post-mortem examinations in children who have died after drinking scalding fluids, but judging by those that I have seen, I conclude that in cases in which the throat is much injured, acute laryngitis, acute tracheitis, and pneumonia follow.

The soft tissues of the larynx are found to be swelled, and the space occupied by a mass of lymph; a layer of lymph like a false membrane lines also the

trachea to the bifurcation, or perhaps extends into the divisions of the bronchi.

The term *œdema glottidis* is so commonly associated with this injury, that one would be led to believe that the whole of the danger was the *œdema*, whereas in my opinion the danger of the *œdema* is but little compared with the danger of the resulting inflammation.

Should the child survive, ulcers may form and remain for a lengthened period in the pharynx and œsophagus.

The treatment in such cases is to relieve the *œdema* by scarification. But to recognise the *œdema* and to operate upon it in a young child, is a very difficult proceeding with an ordinary laryngoscope. By means of a Labordette laryngoscope, much of the difficulty is removed. The rest of the treatment is that of acute laryngitis.

CHRONIC LARYNGITIS.

Chronic laryngitis in contradistinction to chronic catarrh of the larynx, is a subacute or chronic inflammation of the cartilages, or their fibrous membranes, including the submucous areolar tissue. It occurs as a result of acute laryngitis, or of syphilis, or of struma, or tubercular disease.

The symptoms of this disease are not numerous, but the disease itself is readily recognised by the aid of the laryngoscope.

Result of Acute Laryngitis.—When acute laryngitis is sufficiently severe to necessitate the operation of tracheotomy, the larynx is often a long time recovering its normal condition. The space of the larynx remains decreased in size, by the infiltration of the lining membrane, whilst the true cords appear in the middle line, or nearly so, and refuse to act. They appear to be pushed together by the infiltration in the neighbourhood of the ventricles. The whole mucous membrane is swelled and reddened, and occasionally the space left between the membrane of the two sides is irregular and narrow, so that the true cords are unable to be brought into view. No doubt the muscles acting upon the true cords are also affected by the infiltration, and are, therefore, unable to produce any movement of the cords either for respiration or for the formation of voice.

The subjective symptoms then are aphonia, some cough, due to local irritation, and productive of a soreness in the larynx, perhaps inability to breathe when the tracheotomy tube is removed. If the tube has a laryngeal communication, and the finger be placed over the outer opening, air may be forced between the true cords, and by this means the patient may be enabled to whisper a few words, though he is unable to inspire, and must remove the finger from the tube for that purpose.

Treatment.—In a variable time most of these cases recover and the tube is removed, but some have

been compelled to wear the tube permanently. As acute laryngitis subsides, it is necessary to keep the part warm by a broad flannel or velvet around the neck above the tube. The tube should always have a laryngeal communication, so that air may pass through the larynx as soon as there is space, and so that the muscles may be stimulated to bring the cords again into action; iron and quinine tonics may be of service. Iodide of potassium as an absorbent may have its virtue, and should certainly be used, whilst locally galvanism to promote the action of the intrinsic muscles, and counter-irritant absorbents to the skin over the thyroid region, as the ointment, or the tincture of iodine, or blisters should be employed.

Internally, if the mucous membrane is of a deep red colour, which is almost invariably the case, the vessels may be stimulated from time to time by the application of nitrate of silver or chloride of zinc lotion ℥ij to ʒj, on a camel hair brush or sponge. The patient should also endeavour to inspire steam either plain, or medicated with creosote or tincture of iodine.

Result of Syphilis.—Chronic laryngitis, associated with syphilis, perhaps commences in the membrane or in the perichondrium over any one or more of the cartilages entering into the formation of the larynx. As seen by the laryngoscope, the lining membrane in part or whole of the larynx is thickened, and of a deeper or pinker hue; the true cords also are usually

thickened, and have lost the normal white tone, becoming grey or red ; if grey, then do they seem to be hypertrophied, though dense ; but if red, they appear infiltrated, soft, often granular and spongy. In a great majority of cases of chronic syphilitic laryngitis, the above conditions only are to be made out with the laryngoscope, but if the disease extend then ulceration of the softer tissues or of the cartilages takes place.

Ulcers occur mostly on tissue over the false vocal cord, and are of a whitish appearance from the surface lymph, or of a phagedænic appearance, greenish white, whilst the membrane around is thrown out as a pinkish or fiery red. One or both the true cords may likewise be ulcerated. Ulcers on the true cords are not usually deep ; the cords are, as a rule, rather denuded of their epithelium than really ulcerated, though one meets from time to time with cases in which small particles have disappeared from the cords by ulceration.

If the cartilages are affected by the ulceration, the appearances differ with the part affected. The cricoid cartilage, or the aryttænoid, may be affected, and the crico-aryttænoid articulation may give way ; there is then no longer a fixed point to enable the muscles of that side to alter the position of the true cords. When the cartilages are in a state of ulceration the breath is foetid, and pus is thrown off in the expectoration. Immediately before the carti-

lage is exposed a small abscess may form over the part where the cartilage is affected in a manner precisely similar to ulceration of bone. This abscess, which necessitates an amount of acute inflammation, may produce an amount of infiltration sufficient to obstruct respiration, and should it not be detected in time, and the operation of tracheotomy not be performed, death must inevitably result.

The subjective symptoms produced by chronic syphilitic laryngitis are alteration or loss of voice, and some slight irritable dry cough, but when the disease has extended to ulceration, then the cough is accompanied by expectoration. Other symptoms of syphilis may or may not be present. The voice may be hoarse and deep, or if aphonia, then the whispering is of a dry metallic sound. The breathing is free, or if obstructed, then of a metallic dry sound.

Treatment.—The treatment must be both constitutional and local. The constitutional treatment is that of syphilis generally. With regard to the use of mercury, however, I have no doubt opinions are varied. I may say that I never give it internally in these cases, but I invariably employ it in the form of the calomel bath, gr. xxv, twice a-week, or three times in a fortnight. A mixture of iodide of potassium, gr. v, to the dose three times a-day. I rarely increase the dose to above grs. vj, and after administering the iodide of potassium for a fortnight, I often, or perhaps generally, change to the tincture of

iron and sulphate of quinine for a week, and again return to the iodide of potassium. All spirits and alcoholic stimulants should be avoided, except claret, unless there is cachexia or debility, when brandy may be given diluted with about eight parts of water. The skin should be kept warm and covered completely with flannel. The diet should be carefully advised as that for a convalescent invalid. Exposure to cold dry air should be avoided. Locally the larynx may be sponged from time to time with nitrate of silver, ℥ij to ʒj, or a spray of nitrate of silver, grs. ij to ʒj, may be inhaled by the patient twice a-day.

If an ulcer exist upon the false cords it should be touched with the solid nitrate of silver in a laryngeal caustic holder, or brushed with a strong solution of the same. If the disease has extended to ulceration of the cartilage, then the patient should be kept in doors, and allowed to go out only on very fine and warm days, the constitutional treatment with medicated steam inhalations alone being relied on. The prognosis in all cases is decidedly favourable. They all do well under careful treatment, almost without exception. After recovery, the patient must continue the constitutional treatment with intervals over a period of some months, or relapse is certain. When the patient has the means it is well to travel on the Continent. The air in most parts of France is decidedly advantageous to

throat diseases; it is drier than the English air. Numbers of English who in their own country suffer habitually from chronic laryngeal catarrh can testify to the immediate change effected by the air of the Continent.

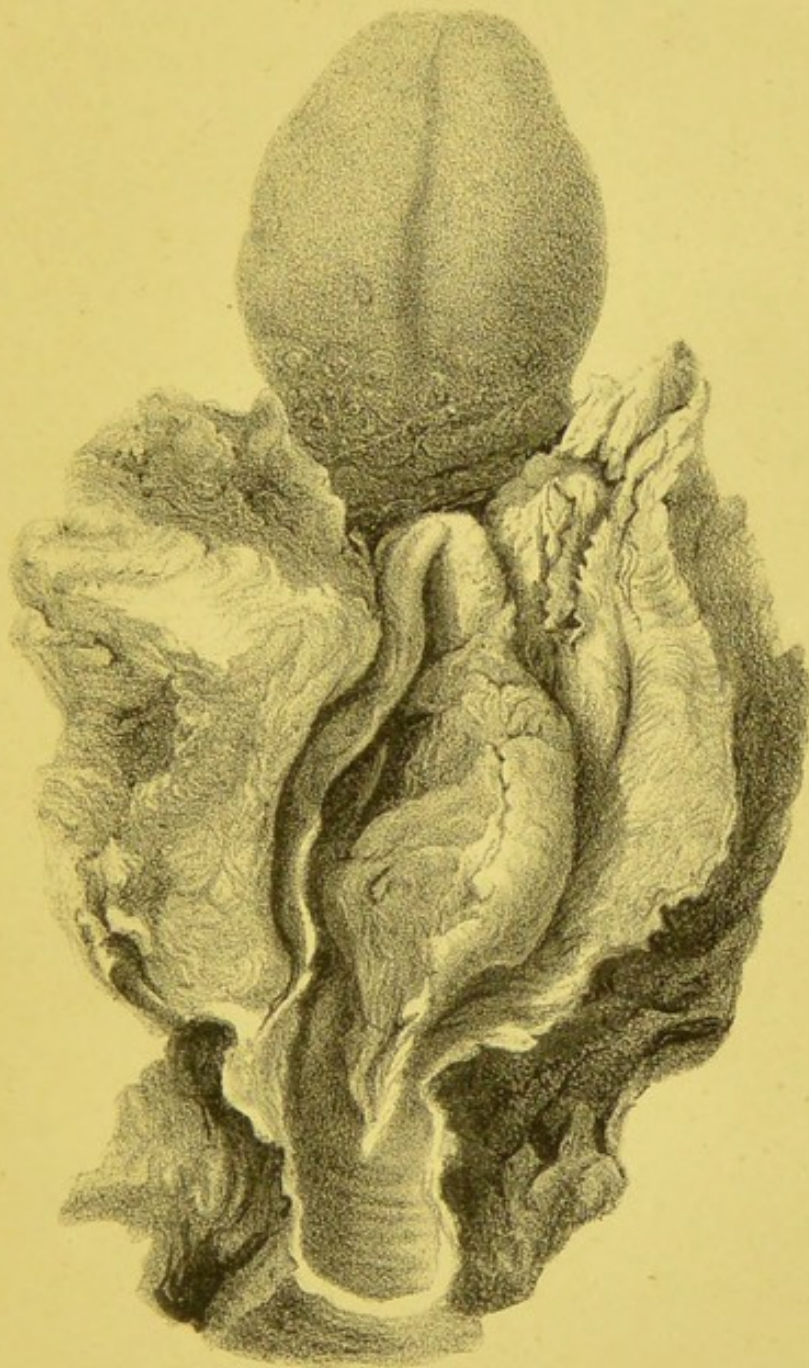
Suffocation produced by a syphilitic gummatous tumour (Plate IV).—This patient was admitted into the waiting-room at St. Mary's Hospital in an unconscious state, and died before assistance could be rendered.

It appeared that he had been under medical treatment for two months with syphilitic laryngitis, a sore throat, and pain, and difficulty in swallowing. At the *post-mortem* examination it was found that a tumour, larger than a pigeon's egg, occupied the right arytaeno-epiglottidean fold, and extended outwards into the pharynx, and inward into the larynx.

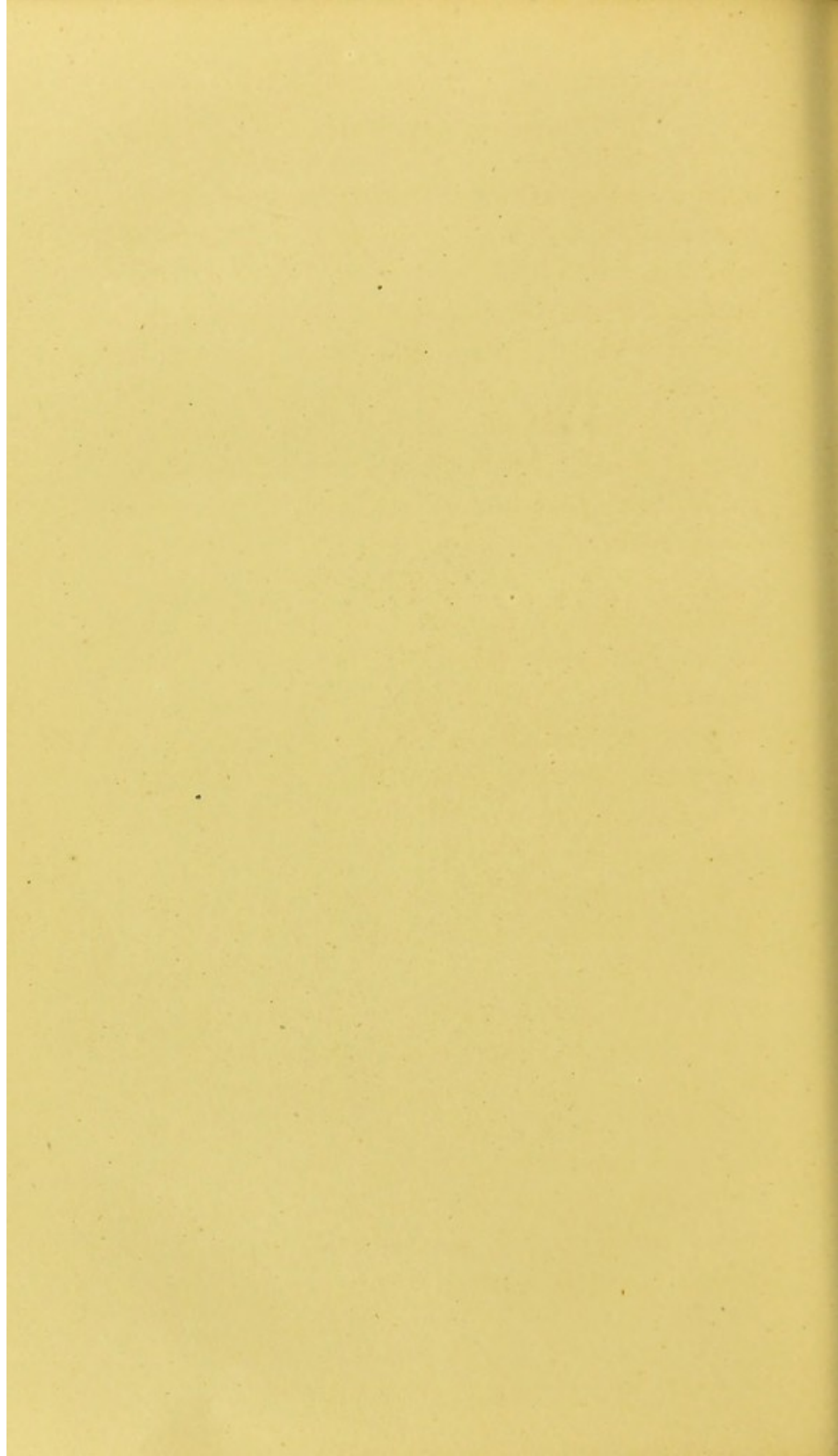
The epiglottis was swelled, and doubled laterally upon itself by the extension of the tumour upwards, and by contiguous inflammation, so that a posterior view of the larynx exhibited only a slight chink, leading to the rima glottidis, instead of the large space which normally exists between the cartilages of Santorini and the epiglottis. There were also ulcers at the base of the tongue, which could have been detected without the laryngoscope.

A section of the tumour showed an areolar tissue development. Numerous areolæ, varying in size from that of a small shot to that of a pea, contained

CHRONIC SYPHILITIC LARYNGITIS (page 86).



Syphilitic Gummatous Tumor, occupying the right arytaeno-epiglottidean fold, and extending into both the larynx and the pharynx.



softened yellow substance which, by means of the microscope, was found to be a nuclear or granular substance. Had tracheotomy been performed in this case the tumour, under judicious treatment, would have been absorbed, or it would have sloughed or suppurated, and the patient would have doubtless recovered. The tumour could have been detected by a simple mirror, without the aid of the laryngoscope, and had such been used the fatal result might have been prevented.

Result of Struma or Tubercular Disease.—Struma or tubercular disease may be the promoting cause of (1) laryngeal catarrh, or (2) a tumid condition of the fibrous structure of the larynx, the subacute laryngitis, or (3) the development of tubercular matter in some part of the larynx, leading on to ulceration of the soft tissues, or to ulceration of the cartilages.

1. The laryngeal catarrh is in every respect similar to an idiopathic chronic catarrh of the larynx, but the follicles of the mucous membrane in both the larynx and in the pharynx also are more distinct. The treatment is the same as that of chronic idiopathic catarrh, but it must be remembered that the constitution is at fault and the main treatment must be constitutional.

2. Chronic inflammation of the submucous and fibrous tissues is also invariably accompanied by chronic laryngeal catarrh. Here, in addition to

the enlarged follicles and the extra secretion from the mucous membrane, may be noticed the thickened condition of the mucous membrane generally, also a hypertrophied or thickened state of the true cords, with a deepness or hoarseness of the voice; but the most prominent point is the great increase in the thickness of the mucous membrane over the false vocal cords. In these regions the mucous membrane protrudes like two soft cushions falling near to, or even in contact with, each other during attempted phonation.

I have often noticed the swelling over these cords in the very early stages of phthisis, and where there is little or no laryngeal catarrh, and when the voice is but little or not at all altered.

3. With regard to the third form—the tubercular deposit in the larynx—I trust that I shall be able on a future occasion to give a lengthened account of this disease after further microscopical investigation.

However, as a concomitant with phthisis, we find numerous cases in the throat department of a hospital running the following course:—On finding that a patient is suffering from chronic laryngitis, and that it is not due to either a previous attack of acute laryngitis or to syphilis, one naturally makes a very careful examination of the lungs. Though the larynx affection may exist for some time before the lung mischief has sufficiently advanced to exhibit itself, yet the laryngeal affection should at once

raise the suspicion of lung mischief, and with due care it may be the means of warding off, or even of preventing the development of tubercular phthisis.

Patients with tubercular chronic laryngitis are generally between sixteen and thirty years of age. They first complain of some chronic catarrh of the larynx, which originated in "taking cold," on which occasion the voice was lost for some few days. Since that time they have been very liable to catarrh, and the voice has become hoarse from time to time, or has been altogether lost. They have suffered from some slight cough for a time, but have not expectorated. After this pulmonary consumption develops itself, and may be detected by an examination. It is not my intention to enter into a description of the signs and symptoms of phthisis, but I may state that as a rule the progress of the larynx disease depends upon the state of the lungs, and though the voice may, by treatment, be temporarily relieved, or some superficial ulceration cured, the prognosis is that the disease will be ultimately fatal.

An examination with the laryngoscope shows that the lining membrane of the larynx is thickened, and especially so over the region of the false vocal cords; the mucous glands are often visible, giving rise to the so called follicular disease; a thick secretion of a greenish colour is usually seen adhering to some part of the larynx; the true cords are thickened,

have lost their whiteness, and perhaps are even red, sometimes granular. If now the disease extend, points of tubercle may develop on the false cords, or arytaenoid cartilages, or in the epiglottis or pharynx; ulceration may take place upon any part of the mucous membrane, or at the root of or upon some part of the true cord. The stage beyond this is disease of the cartilages, or of their joints; the crico-thyroid articulation may suppurate, and one cord may in part or altogether cease to act; the cricoid, or thyroid cartilage may be attacked with ulceration or necrosis. In either condition ulceration or necrosis, the accompanying acute inflammation and lymph infiltration or œdema, may be so severe as to obstruct respiration and necessitate laryngotomy or tracheotomy. Even though the operation is not requisite, the cords will be seen scarcely to move during attempted phonation, and voice is almost or altogether lost. The patient may remain in this condition for a variable time, and finally he dies from lung disease.

I shall not dwell upon the treatment of this disease. Suffice it to say that one has to deal with a case of phthisis of which the larynx affection is but a local manifestation.

When the voice is interfered with by swelling of the membrane, warmth to the skin, keeping the patient in a warm atmosphere, and warm medicated inhalations are of service. When there is ulceration

local astringent applications are indicated. When obstruction to respiration takes place operative interference is called for. Beyond this palliative treatment it is to be regretted that all remedies are useless.

Scarification of the thickened mucous membrane has been advised, but to this I decidedly object. I would as well expect relief by scarifying a chronic and subacute strumous periostitis.

The following is the record of a case of necrosis of the cricoid cartilage associated with phthisis. It further illustrates paralysis of all the intrinsic muscles of the larynx, for, as will be seen, there was no fixed point for the muscles to act from.

A patient came under my care at the hospital suffering from subacute laryngitis. There was tumefaction of the whole mucous membrane of the larynx, and upon and behind the cartilages of Santorini the tissue was œdematous. Both lungs were tuberculous, and I looked upon the case as one of tubercular laryngitis. She was taken into the hospital on account of the dyspnœa, and was seen by Dr. Handfield Jones in consultation with myself.

During the week the dyspnœa increased, and the inspiration became stridulous. I therefore performed tracheotomy.

In three weeks the laryngitis had subsided, and the lining membrane of the larynx had become normal, yet no inspiration could be taken, and any

attempt so to do approximated the cords. It was necessary to retain the tracheotomy tube. After six weeks the patient died with large vomicæ in both lungs.

At the post-mortem examination it was found that the cricoid cartilage had necrosed, the tissue between it and the œsophagus had given way, and the main portion of the cricoid cartilage had been swallowed, only a small portion of the anterior ring of the cartilage remained; all the rest had disappeared, yet the mucous membrane of the larynx was sound and no communication existed between it and the œsophagus. The reason was now evident why an inspiration could not be taken. There was no attachment for the arytenoid cartilages, and there was no attachment for the dilators of the glottis, and therefore no power to open the glottis, therefore the air rushing towards the glottis filled the ventricles of the larynx and pressed the cords together in much the same way as a reflux of blood in the aorta closes the sigmoid valves, but air was not prevented from leaving the lungs by way of the glottis, and so the patient could whisper.

CATARRH OF THE LARYNX.

Catarrh is an inflammation of the mucous or secreting surface. Catarrh may be acute or chronic.

Acute catarrh rarely occurs unaccompanied by catarrh of contiguous parts, the nasal or bronchial

mucous membranes. It is associated very generally with what is commonly termed a cold in the head.

Those who are liable to frequent attacks of acute catarrh of the larynx state that they can detect the extension of the disease. That it first appears in the upper part of the soft palate in the form of a dryness and a pricking sensation, which, by its irritation, produces sneezing; that an increased secretion of nasal mucus follows; that after this a dryness occurs in the neighbourhood of the epiglottis, and a dry, irritable cough is produced, which may in a few hours effect a change in the voice or a loss of the power of phonation.

The symptoms are some elevation of temperature, sneezing, slight cough, with excess of secretion both in the nose and larynx; general sensation of cold and chills, perhaps, with headache, and constipation of the bowels. There is as a rule no pain or soreness, nor is the cough troublesome unless associated with extensive bronchial catarrh. The power of phonation is absent or the voice is spasmodically inarticulate. After the first few hours, when the dry stage has passed away, there is a constant desire to clear the throat of a viscid mucus which adheres to the vocal cords, but such attempts are useless, for other mucus is immediately thrown upon the cords during respiration, so that it is futile for the patient to attempt to clear the voice.

An examination with the laryngoscope shows a

slight inflammatory condition of the mucous membrane of the larynx, evinced by general redness and perhaps by slight visible swelling. The mucous membrane covering the true cords has lost its usual whiteness, and has become of a pinkish or bluish hue, and the cords may be increased in thickness, due no doubt to the swelling of their covering membrane. Thick yellow lymph and mucus adheres to the mucous membrane of the larynx, and forms shreds across the rima glottidis as the true cords separate from each other during attempted phonation.

In acute catarrh there is rarely complete absence of phonation, but the voice is hoarse or spasmodically inarticulate; and this, no doubt, is due to the swelling of the mucous membrane covering the true cords, in consequence of which the full vibration of the true cords is prevented, and at the close of each articulate sound, when the true cords should strike sharply against each other as hard lines, to sharply and suddenly terminate the sound, they, on the contrary, come into contact as soft cushiony surfaces, so that the end of a word can never be clearly formed, and the voice may be said to break.

Acute laryngeal catarrh is of short duration, but it may run on to chronic laryngeal catarrh, or it may be followed by continued hoarseness or by aphonia.

Treatment.—The treatment for acute laryngeal catarrh must be similar to the treatment of acute catarrh of any other mucous membrane.

It is well to commence with a purge, and afterwards to treat the disease locally, hot medicated steam inhalations four or five times a-day, such as inhalations of creosote or of tincture of iodine (ʒss. to ʒij.), or the inhalation of a spray of chloride of zinc (ʒss. to ʒj.).

If associated with cough, one of the numerous cough mixtures may be indispensable; and in such case the voice will probably improve as the cough diminishes. Dover's powder, with powdered camphor (gr. ij.) given at bedtime, may be of service to increase or stimulate the action of the skin and mucous membrane.

CHRONIC CATARRH.

Chronic laryngeal catarrh means simply a continued extra secretion from the mucous membrane of the larynx. It may be a result of acute laryngeal catarrh, or it may be caused by a damp atmosphere, or by a damp residence, or by over use of the larynx, or by a too powerful use of the larynx, as in the case of public speakers such as clergymen, &c., or by the abuse of alcohol; often more than one of these causes is present. The symptoms of this disease are few, but they are marked, and the disease is extremely common in this country. It is extremely troublesome and annoying to the individual from the effect it has upon the voice, but it is never dangerous to life, nor does it affect the health of the patient.

It is often quite a local affection unaccompanied by

catarrh of either the nasal or the bronchial mucous membrane, but it may be coupled with either or with both; and in the case of the bronchial catarrh of the drunkard, which is invariably accompanied by laryngeal catarrh, the disease is referred by the patient entirely to the throat, that is the larynx, and not to other parts.

The symptoms are a constant desire to clean the throat of a viscid mucus which adheres to the cords, each attempt to do so rather increasing the sensation than diminishing it. There is no pain or soreness; nor, as a rule, any cough except such efforts as would be used to cast off the adhering mucus. The voice is somewhat deep and is not clear. With the laryngoscope the mucous membrane of the larynx is seen to be more vascular than normal, and often thickened, whilst shreds of mucus cross the rima glottidis or small pellets of greenish mucus lie upon or between the true cords, or at the space between the two cartilages of Santorini. This secretion prevents the voice being raised, and the speaker finds it continually necessary to cough or to gruffly clear the throat in order to be able to proceed. After speaking the voice may become hoarse.

The treatment of this disease is undoubtedly to remove the cause, but in this lies the great difficulty. The cause of the disease often cannot be avoided, whether it be the climate, the dampness of the residence, the public speaking, or the abuse of alcohol.

Great relief can, however, be given, and by care the extreme annoyance can be prevented, or the disease entirely cured.

Treatment.—The patient should as far as possible avoid any effort to clear the throat. If speaking he should speak through it as the saying is, and he will then find that a viscid mass of mucus will separate from the cords, and may be readily and easily expectorated. Great effort may separate the mucus earlier, but it is immediately replaced, and the sensation continues as if something suggestive of a piece of flannel were occupying the glottis which no effort can displace.

As the disease generally occurs in those of a catarrhal diathesis, anti-catarrhal remedies may be adopted with good result. The action of the skin should be attended to, flannel should be worn, and the flannel jersey should extend well up into the throat to protect and warm that region; and in advising the use of flannel it may be remarked that the flannel waistcoat or jersey, or such like protector, should not be altogether cast aside in the hot weather.

Chronic laryngeal catarrh is perhaps as common in the summer as in the winter from the constant changes in the weather, and the careless exposure of the skin to the changes of temperature. If the patient be a male, the growth of the beard may be, and in cases under my care has been, entirely curative.

When the catarrh is not limited to the larynx, expectorant and local stimulants must be the treatment. The following pill, given three times a-day, is of great service, its proportions reduced according to the age of the patient, Quinæ Disulph. gr. j., Pulv. Opii gr. $\frac{1}{4}$, Pulv. Ipecac. gr. $\frac{1}{2}$, Confec. Rosæ q. s.

The local applications are the inhalation of medicated steam and spray, and the application of somewhat strong astringent and stimulant solutions by means of the brush.

Where the disease is quite local, brushing the larynx with a solution of nitrate of silver ʒj. to ʒj. or the chloride of zinc of similar strength is often effectual, where other treatments have failed.

Astringent lozenges of rhatany or tannic acid, both of which are now sold by chemists, astringe the mucous membrane of the throat, and by extension of their effect, reduce the vascularity of the larynx also.

HOARSENESS AND APHONIA.

The sound of the voice may alter in various tones of hoarseness, or the individual may be unable to emit sounds above a whisper. We speak of the last condition as aphonia.

Hoarseness, increasing to aphonia, is due to the imperfect action of the true cords, dependent either upon the true cords or the muscles acting upon

them or the nerves supplying the muscles, or upon growths obstructing the movements of the true cords.

The true cords are composed of ligament covered with mucous membrane, and inflammatory changes in either structure must change the character of the voice. The mucous membrane is often congested or is inflamed with a common cold, and this, perhaps, is the most common form of hoarseness or aphonia. The mucous membrane becomes hyperæmic also, as a result of long-continued speaking or of elevating the voice above its accustomed pitch, such as public speaking, singing, &c. Military officers well know the effects of raising the voice on field days.

When the alteration of the voice is due to any of these catarrhal congestions or inflammations, the cords are seen by the aid of the laryngoscope to be hyperæmic or reddened, instead of a pearly whiteness, and somewhat thickened or spongy.

The healthy mucous layer over the true cords is very thin, and closely attached to the ligamentous tissue, so that the cords, when in a state of tension, strike each other from time to time as two hard lines, and so suddenly terminate words or sounds. When the mucous layer becomes hyperæmic and thickened, two cushiony surfaces strike together, which do not perfectly close the aperture of the glottis, but, by reason of their softness, allow still a small quantity of air to escape between them, and

the end of an articulate sound is not clearly, but hoarsely defined or broken.

Hypertrophy of the True Cords.—The fibrous or ligamentous structure of the true cords may become increased in size. Such must be the result of inflammatory action. I do not think it possible that the true cords could be inflamed without some other part or parts of the larynx. When the true cords appear hypertrophied, they are almost invariably also somewhat discoloured, showing that the mucous layer is associated in the disease; but still cases occur, from time to time, in which the mucous layer shows but the slightest alteration in colour. It is, therefore, not always possible to recognise by the laryngoscope the extent of disease in the rest of the larynx, which is generally of a deep red colour, and which is invariably rendered more vascular by any attempt to examine with the laryngoscope. In cases where the true cords are visibly thickened, the voice is of a small sharp metallic character, or the patient is completely aphonic.

As before said, other parts are usually, or perhaps always involved, and the hypertrophy must be due to a form of laryngitis, either syphilitic or tubercular, or else the effect of long-continued chronic laryngeal catarrh.

Treatment.—For the treatment of hoarseness or of aphonia, due to change in the structure of the true cords, the reader must be referred to the treatment

of laryngeal catarrh (page 97), of chronic syphilitic laryngitis (page 84), or chronic tubercular laryngitis (page 90), according to the diagnosis of the form of the disease.

Ulcers of the Larynx.—Ulceration of the true cords is rare, yet ulcers are occasionally met with upon the true cords, and more often in other parts of the larynx.

I have, from time to time, seen loss of the mucous surface upon the true cords, in acute laryngeal catarrh, but, as the catarrh subsides, the denuded surface rapidly recovers.

If the ulceration is more than a mere rawness of the surface, it is, I believe, invariably due to syphilis or else to tubercle. I cannot recall to memory any case in which I could not satisfy myself that syphilis or tubercle was the cause. In a case reported below, the patient stoutly denied that he had had venereal disease, but he was treated with iodide of potassium, and made a good recovery. Nevertheless, his statement may have been correct.

Whether the ulcer be upon the true or upon the false cord, there is hoarseness or loss of voice. If upon the true cord, it may act mechanically upon the formation of the sound; if upon the false, the rest of the larynx participates in the disease sufficient to affect the voice. There is rarely pain, unless the ulcer is high enough to be compressed during the action of swallowing. If the ulcer is situated upon

the arytaenoid cartilage, or spread upon the pharynx, swallowing produces a sharp, pricking pain, which seems to pass into one or both ears. There is generally cough, of a dry character.

The ulcer, when seen by the aid of the laryngoscope, is either whitish in colour, from a lymph-coated surface, or of a greenish white phagedænic character, whilst the surface around is pinkish red. As the ulcer assumes a healthy tone, its colour, of course, changes to a flesh red.

Treatment.—The treatment of ulcers of the larynx must depend upon the cause. Where the true cords are denuded in acute laryngeal catarrh, warm inhalations are sufficient, or the inhalation of creosote may be used. Where constitutional syphilis or tubercle exist, those diseases must be treated according to their special requirements, and the ulcers may be brushed with solutions of nitrate of silver (℥j to ʒj), or of chloride of zinc (℥j to ʒj), every three days, or the solid nitrate of silver may be, from time to time, carefully applied (not the true cord).

In addition to the ulcers above described, ulceration may take place in the larynx, in association with enteric and typhus fever, and with small-pox. They require no local treatment, unless they assume a chronic form during the convalescence of the patient.

H. R.—, a youth nineteen years of age, pale and emaciated, had been losing flesh for several months,

and had been suffering from a cough for about a year and a-half. He frequently spat blood, but had never thrown up any large quantity at a time. His voice was of a hoarse, ringing character. Swallowing produced no pain, but coughing was accompanied by a soreness in the throat. He complained of great exhaustion, and was too weak to attend to his vocation, which was that of a carpenter. An examination with the laryngoscope showed the right true vocal cord reddened and superficially ulcerated in nearly its whole length. The right false cord was also inflamed, and upon it was situated a deep excavated ulcer, of elongated form. The patient denied that he had had venereal disease in any form, though the character of the ulcer led to the belief that it was specific. Iodide of potassium was ordered, and the ulcer on the false cord was touched with solid nitrate of silver. Inhalations were also ordered. Little alteration took place for some time, but under a continuation of the medicine, and a change of the local application from nitrate of silver to a solution of the chloride of zinc, the disease was entirely cured in two months.

GROWTHS IN THE LARYNX.

There is great difficulty in estimating the percentage of growths in cases of laryngeal affections, for, in private practice, only cases of a serious or of a chronic form usually referred for consultation come

under notice, whilst in hospital practice, many of the more acute and simple affections of the throat come under treatment. On this account the percentage has been given by different observers, varying from one per cent. to $\frac{1}{5}$ th of one per cent. Neither can one speak with confidence of the causes of laryngeal growths.

Certainly, if an individual suffers from one or more warty growths in the larynx, and is at the same time the subject of syphilis, we have no hesitation in referring the local condition to the constitutional disease; but warty growths occur apart from a syphilitic taint, and many growths occur in the larynx which are undoubtedly not due to constitutional disease. It cannot be said why a polyp should develop in the larynx any more than it can be stated why the same character of growth should be developed in the nasal cavity.

Growths of the larynx are malignant and non-malignant.

Growths may occur on the true or the false cords, or they may spring from the ventricle, or from the mucous surface between the anterior tubercles of the two arytaenoid cartilages.

Malignant growths rarely commence on the true cords.

Growths may be small or large, and upon their size and attachment depend the symptoms they produce.

They can be invariably detected with the laryngoscope, though a pendulous epiglottis may in some cases prevent the cavity of the larynx from being explored during the first laryngoscopic examination.

By the application of the ear or stethoscope to the thyroid cartilage, a growth has been heard to flap during respiration. If the growth be very large it will give a dull sound on percussion over the region of thyroid cartilage.

The subjective symptoms are the alteration of the voice, dyspœna, sometimes a dry hacking cough from local irritation.

If the tumour be altogether above or below the true cords, so as not to effect their action, the voice is not interfered with unless the growth is so large as to alter the size of the breathing space.

If the tumour occupy such a position that it is free of the cords, except from time to time, when it falls in contact with them, or overlaps the true glottis, the voice may be at one time normal, at another time spasmodically inarticulate. If the tumour is grasped by the cords when phonation is attempted, no articulate sound is produced, but conversation is carried on by the individual in a peculiar metallic sounding whisper.

Dyspnœa may not exist, but if the growth continue to increase, dyspnœa must of necessity occur. If the growth occupy a position between the cords it will rapidly induce dyspœna if increasing in size,

but it is astonishing how a large growth even here may scarcely or not at all interfere with respiration, so long as the patient is resting or not taking any violent exercise or great exertion. An individual may carry on his work at the desk or walk without discomfort, but when he attempts to run or to ride, a paroxysm of dyspnœa is brought about. If not surgically interfered with, and still the growth continue to increase, paroxysms of dyspnœa become more frequent, and one of these must end in suffocation.

Malignant growths, or growths with ulceration, are frequently accompanied by severe paroxysms of dyspnœa evidently induced by the infiltration which takes place.

Treatment.—In some few cases it is advisable to adopt no treatment; in some few a local application is sufficient; and in some it is necessary to remove the growth either by the mouth or by incision from without through the crico-thyroid membrane.

A medical man, with whom I am acquainted, has at the present time a small growth upon one of the vocal cords. It does not alter the voice nor does it otherwise cause any inconvenience; it appears not to be increasing in size; it has been touched with a caustic lotion, I believe nitrate of silver, but the application gave rise to so much spasm that he objects to have the lotion again applied. In the case illustrated by Plate V, the tumour was below the

POLYPOID TUMOR OF THE LARYNX (page 106).



The growth appears below the true cords, but projects upwards between them. During phonation the cords must have pressed the growth downwards, for their action was not interfered with, nor was the voice affected.

growth upon them ; and there is no doubt that cases occur in which, no matter how skilful the operator, it is impossible to remove the growth by way of the mouth. In these cases it is necessary to resort to the operation of laryngotomy or tracheotomy, the choice of operation depending upon the exact position and size of the growth ; if small, and near to the cords, as it will probably be, then laryngotomy is to be preferred.

In removing tumours through the mouth, the following instruments are made use of, according to the circumstances of the case :—

Ordinary laryngeal forceps of large size, tube forceps, ecraseurs, wire loops, guillotines, laryngeal scissors.

Treatment of Malignant Growths of the Larynx.
—Malignant growths have been removed piecemeal, by means of the laryngeal forceps : they have been cut away through an external incision, and the larynx has been removed bodily.

To remove an epithelial growth of the larynx through the mouth is far worse than useless, for it starts a more rapid growth of the tumour. To remove a part or the whole of the larynx is a most serious operation, likely enough to result in death ; certain not to be followed by a permanent cure. It may be well not to lay down a definite treatment for malignant growths in the larynx, for no definite plan would be generally approved. There will always be

surgeons sanguine of success, who would think it advisable to excise the growth and some extent of tissue around.

However, no treatment is successful: the growth gradually increases and perhaps ulcerates. It may obstruct respiration and cause death by suffocation, or a large portion of the structures composing the larynx may disappear in the progress of the ulceration and widen the communication between the pharynx and larynx. In this case death may take place from inanition or exhaustion, or in a paroxysm of dyspnœa.

Fig. 3, Plate III, represents an epithelial tumour of the larynx. The drawing was taken after death: it represents a whitish granular growth the length of the true cord, and about $\frac{5}{8}$ inch deep, extending from the false cord and obliterating the true cord.

The following is the history. R. L., æt. 62, was sent to me by Dr. Broadbent, in November, 1870. He complained of loss of voice, of some cough, and of pain in the larynx after coughing. On examination with the laryngoscope, I found a white patch slightly elevated and granular situated immediately below the true cord, but not incorporating it. It was circular in form, and rather less in size than a threepenny piece.

The treatment adopted was the application of a solution of nitrate of silver. The patient attended

for about three weeks, during which time the voice greatly improved, but the patch remained unaltered. I informed Dr. Broadbent at that time, that I considered the case epithelioma, and that treatment was useless. I did not see the patient again till the 23rd June, 1871, when he was admitted into St. Mary's Hospital, under Dr. Sieveking: he then stated that he had had difficulty of breathing for a few days only, but that he had complained of the throat for fourteen months.

The respirations were laboured and were distinctly audible at the far end of the ward; expectoration was frothy mucus streaked with blood; face and lips purple colour; pulse 112, intermitting. The laryngoscope exhibited the condition represented on the diagram.

The patient refused to have tracheotomy performed and he died from asphyxiation three days after admission. The post mortem records state that the lymphatic glands in the neighbourhood of the carotid artery were enlarged and indurated.

This growth was examined by Dr. Burdon Sanderson and Dr. Green, after being exhibited at the Pathological Society, who stated in their report, "The superficial and central portions of the mass consist almost exclusively of epithelium, which in many parts is arranged concentrically so as to form epithelial nests. The deepest portions of the growth, where it is in contact with the laryngeal cartilages,

show epithelial cells and nests infiltrating the sub-mucous tissue. The latter is also the seat of active proliferation, being infiltrated with small round elements."

The following is the report of a case in which the individual had lost his voice in consequence of a polypoid growth between the true cords, and was thereby prevented from earning his livelihood:—

Polypoid Tumour of the Larynx.—C. L. had lost his voice for six months, he was able only to whisper: the voice had not gone suddenly, but was at first hoarse and gradually became worse.

By the laryngoscope (Plate III, Fig. 2) a growth could be detected protruding upwards between the true cords; a smaller growth was connected with a larger; the attachment was single and broad, and was seated in the front of the larynx in the angle of junction of the two alæ of the thyroid cartilage, and immediately below the true cords. The double growth was grasped by the cords during attempted phonation, and occupied very nearly half the space between the apex and base of the opening of the glottis.

Several attempts were made to catch the tumour in the laryngeal ecraseur, but as these attempts failed, it was resolved to remove the growth from below. Laryngotomy was accordingly performed, and a tube ecraseur, made specially for the case, with a short but nearly rectangular curve, was in-

serted through the opening. The smaller part of the growth was grasped first and removed, and the rest was removed in pieces, partly by the ecraseur and partly by curved forceps. Immediately after the removal of the growth, the voice in part returned, but it was hoarse: towards evening and for some days afterwards, the patient became again aphonic, owing to the inflamed condition of the cords, resulting from the irritation caused by the operation. Two or three small particles of the growth were afterwards coughed up through the mouth. About a week later the voice had returned. I then satisfied myself by the laryngoscope that the whole of the growth had disappeared, and that the traumatic inflammation had subsided, and removed the laryngeal tube. The wound readily closed. When the patient left the hospital the voice was a deep powerful tone; much deeper the patient stated than his natural voice had hitherto been.

Muscular Aphonia.—The aphonia or hoarseness may be due to an abnormal condition of one or more muscles. Such must be either paralysis or infiltration. When a muscle of the larynx is paralysed, it is almost invariably due to some injury to the nerve supplying, but it may be due to infiltration of the muscles.

The muscles may be perhaps strained by too great an elevation of the voice, or by retaining the voice at a high pitch for too long a period.

The muscles of the larynx, like those of other regions, are, doubtless, liable also to rheumatic affections.

The muscles may be secondarily affected by the chronic inflammation either of the secreting surface or of the deeper structures of the larynx.

The diagnoses that the hoarseness or aphonia is due to a muscular affection is, perhaps, rather difficult.

There is rarely complete paralysis of any one or more muscles, or the absence of action could be recognised by the laryngoscope, but if the muscle acts in part, the imperfect action is not so readily detected.

It is, however, not a difficult matter to prove the absence of other diseases, and in that way to prove negatively that the hoarseness or aphonia is either functional or muscular.

The treatment consists of counter irritation in the form of blisters and of galvanism—Faradization.

There are very many cases on record of supposed paralysis of the larynx cured by galvanism. Perhaps if they were thoroughly investigated, they would be found to be rather imperfect action of one or more muscles than paralysis.

Aphonia or Hoarseness due to Affection of the Nerves.—The laryngeal nerves may be involved in surrounding inflammations, or they may be com-

pressed by cancerous and other growths, or by aneurisms.

If a laryngeal nerve be involved in surrounding inflammation which subsequently subsides, the muscles temporarily paralysed by injury to the nerve will recover their power, or they may remain for a time in *statu quo*. In such a case galvanism would almost certainly prove curative.

The most common nerve paralysis is compression of the recurrent laryngeal nerve by aneurisms of the arch of the aorta or innominate artery.

If a recurrent laryngeal nerve be compressed sufficiently to produce paralysis, the crico-arytænoideus posticus, crico-arytænoideus lateralis, thyro-arytænoideus and part of arythænoideus muscles are paralysed. The crico-thyroideus and in part the arythænoideus are not affected.

The crico-thyroideus is the tensor of the vocal cord, and as its antagonist muscles are paralysed, the vocal cord of that side is held in a state of tension.

If the thyroid cartilage be held down by one tensor, the cord on the unaffected side is also necessarily somewhat tensed, and may appear to an extent paralysed, inasmuch as its movement is less than normal, but it is only an apparent and not a real paralysis: the laxator of the cord and the dilator of the glottis on the unaffected side have to overcome the action of the crico-thyroid muscles of the two sides.

When then a recurrent laryngeal nerve is paralysed, it is seen by the laryngoscope that the cord of that side is tense and does not move either during respiration or phonation. It is either straight or slightly curved outwards from the median line. Phonation is husky or hoarse, because the two cords cannot be adapted for the same pitch of the voice, that is to say, the voice is husky and uncertain, a high note being occasionally produced involuntarily. Ordinary respiration is but little affected, because the unaffected muscles have the power to open the glottis sufficiently wide for the required amount of air to enter; but if respiration be excited by exertion, then is the space insufficient, and inspiration is accompanied by stridor. The expiratory sound is normal, for the air in expulsion readily pushes aside the cords and escapes.

The surface of the paralysed cord is usually congested.

If the muscle supplied by both recurrent laryngeal nerves were paralysed, inspiration could not be carried on, for there would be no power to open the glottis, whilst, on the contrary, the tensors of both cords not being paralysed would hold the glottis firmly closed, and so prevent the admission of air to the lungs.

HYSTERICAL APHONIA.

Hysterical aphonia is a functional derangement

unaccompanied by any local change or disease. On this account it is diagnosed without difficulty, but for the same reason it sometimes resists treatment extended over a long period of time.

Constitutional debility, hereditary tendency to hysteria, association with hysterical and nervous people, circumstances of marriage, sterility, and things conducive to emotion are among the causes of hysterical aphonia.

It occurs almost invariably in women, though man is not exempt from it.

It seems to confine itself to no particular age. It is common between the ages of 15 and 35, but I have met with it unmistakably in a lady of 70.

Like other diseases simulated by hysterical sufferers, it is most liable to commence about the time of a menstrual period, and is most liable to occur in those in whom the catamenia is abnormal.

Symptoms.—The aphonia is always complete, the disease never assuming the form of hoarseness. It, therefore, comes suddenly; perhaps the patient rises in the morning unable to speak above a whisper. There is no other sign or symptom of laryngeal affection. The patient complains of no catarrh, no pain.

The aphonia may be associated with other forms of hysteria, or, as before stated, the catamenia may be abnormal, and other symptoms will then arise.

On the other hand, the aphonia may be unas-

sociated with any other form of hysteria, and in that case the loss of voice is the only change that has occurred, and the patient showing no signs of debility, will occupy herself as customary in her household duties, talking as much or even more than usual, but always in a whisper.

I have met with the case of a lady who lost her voice for six months. On rising one morning she found she could speak only in a whisper, and never once did she utter an articulate sound during the period of six months. During that time she suffered herself to be galvanised continually, saw her medical adviser frequently, and took, or was supposed to take, throughout the treatment large doses of all the nauseous varieties of anti-spasmodic remedies.

She stated that she felt herself in excellent health; and it was remarked by all her friends, that they never knew this lady to make so many calls or to talk so incessantly as during the six months in which her whole conversation was in whisper. Her voice returned in the same manner in which it left her. To the astonishment and delight of her family she greeted them one morning at the breakfast table with her usual voice.

Examining with the laryngoscope the larynx is generally found to be anæmic, but this condition is found only when the conjunctiva and other mucous surfaces are anæmic. Except anæmia, the larynx appears normal. When the patient is told to

articulate the expression, Ah! ah! the false cords approach each other, whilst the true cords either remain stationary or approach each other but slightly.

This imperfect movement of the vocal cords is not to be looked upon as paralysis, or want of power on the part of the muscles. It is that the patient refuses to bring the muscles into action, or has not the power to will that they should come into action; for if whilst the patient expresses Ah! ah! in a whisper the true cords should suddenly close, articulation in a natural voice would take place.

Treatment.—The treatment consists of antispasmodic and nerve tonics, whilst the cause of the disease must be searched out, and, if possible, removed.

If the catamenia be at fault, regulating that function will cure the disease.

If the larynx be anæmic, iron and quinine are undoubtedly needed. Among the antispasmodics, assafoetida and valerian, given with camphor, are perhaps the most useful. Local treatment is entirely unnecessary, for no local disease whatever exists.

Galvanism is invariably applied in cases which do not readily yield to other treatment. I have known several instances in which the voice was recovered after a single application of the battery, and I have known several in which galvanism was applied, even cruelly, without result.

Galvanism may be applied with two objects in view,—1st. As a gentle nerve stimulant, in which case the galvanic bath is the most elegant and pleasant method of application, though the application of one pole to the spine and nape of the neck, and the other to different parts of the body, may be equally effectual. 2ndly. As a revulsive, the object being to occupy the attention of the patient by a sudden application of a strong current, in which case she may possibly, forgetting the nature of her disease, give utterance to an expression of pain, and recover her voice.

Whatever the object, nothing is gained by applying galvanism directly to the larynx in cases of hysterical aphonia.

DISEASE OF THE THYROID GLAND.

The thyroid gland is liable to acute or chronic inflammation, leading on to abscess; to hypertrophy, also called goitre or bronchocele, and to malignant disease.

Acute inflammation of the thyroid gland, terminating in abscess, is not common, yet occasionally occurs. Abscess, accompanied necessarily with acute inflammation, occurs as a result of injecting the thyroid gland. Abscess may also occur as the result of a chronic inflammation of a part of the gland.

About three years ago I saw a *post mortem* examination upon a case in which an abscess had

resulted from a long-continued chronic inflammation, and had burst into the trachea, producing suffocation. Acute inflammation of the thyroid gland, terminating in abscess, differs in no way in symptoms from acute abscess in other parts.

The local signs, the swelling, induration, attachment of the skin, pain, and discoloration, are present. The breathing is noisy and whistling from pressure on the trachea; to swallow is painful. The constitutional symptoms are somewhat severe. There is a throbbing headache, a pulsation of the vessels of the neck and head, excessively discomforting to the patient; a tightness across the neck, and more or less dyspœna; the temperature is high; the tongue and mucous membrane of the mouth are white, and marked by the impressions of the teeth; there is thirst and refusal to take food. As the matter forms, fluctuation may be detected, and the local conditions become more severe, the difficulty of breathing and the pain in swallowing are increased.

The abscess, which is forming, is beneath the deep fascia of the neck, and close to the trachea; there is, therefore, considerable danger of it opening into the trachea, and producing death, as in the case I have referred to. On this account it is advisable not to delay opening the abscess after matter has been detected. The rest of the treatment consists of continued fomentation and poulticing. At the onset of the inflammatory symptoms the disease may be,

perhaps, arrested by the application of half a dozen leeches. The constitutional treatment must commence with brisk purgatives and antiphlogistics, but as the inflammation advances it must be changed to refrigerants, associated with opium or morphia.

GOITRE OR BRONCHOCELE.

Goitre is an enlargement of the whole or of a part of the thyroid body, and occurs much more often in women than in men. It appears to be indigenous to certain places, and in England is often termed the Derbyshire neck. It is common in Derbyshire, Nottinghamshire, and Hampshire, and is said to occur frequently in other counties, Yorkshire, Norfolk, Surrey, and Sussex. In the Alps and Pyrenees it is associated with Cretinism, and it is stated that it is rare to find a Cretin who has not goitre. It is common in parts of India and America. In most places where the disease is frequent, limestone abounds, and the water is impregnated with sulphate or carbonate of lime. It appears to be certainly proved that the drinking is a very frequent cause of the disease. But still it is not uncommon to find cases of bronchocele in London hospitals, and in many of these cases I have ascertained that the individuals were born in London, have drunk the London water, and have never lived out of London for any length of time. It is probable that the water is not the cause in these solitary cases, for, if it were, we might expect to find a very great

many of the London poor afflicted with goitre. It has come under my notice, on several occasions, in girls of about fourteen years of age, and in these it has always been readily cured. I have seen it commence during pregnancy, and remain till the child has left the breast, and then gradually disappear. Such cases, coupled with the fact that the disease rarely occurs in males, suggest that it is sometimes influenced by the catamenia, but statistics of numerous cases must be collected before drawing conclusions. Goitre is sometimes associated with a prominent condition of the eyes, and is then termed exophthalmic goitre. Such patients are usually anæmic.

The tumour, when of long duration, is generally of slow growth; sometimes it ceases to grow for a length of time, and then again commences to increase. Sometimes it decreases, and again enlarges alternately. The growth may occur in one or both lobes, or in the isthmus. It may include the whole lobe, or grow from a part only. It is sometimes intensely hard, sometimes soft in parts, harder in others; sometimes distinctly cystic. In its early stages it is generally soft, but it often becomes hard as it increases. The tumour may be irregular and lobulated, or may retain pretty closely the shape of the normal gland.

Its size is extremely variable, from a slight enlargement, scarcely perceptible, to a mass which

projects upwards behind the ear and downwards overlapping the clavicle and sternum.

When of large size, it may press upon the trachea, and so produce noisy respiration, or upon the recurrent laryngeal nerve, and so in part paralyze the larynx and produce a hoarse voice. The veins crossing it are often enlarged. The tumour is painless.

Goitre often receives an impulse from its proximity to the carotid artery, and at first sight may simulate an aneurism, but it is readily and at once recognised from such, because it does not decrease in size on firm pressure, and again, by leaning forward the head, it may be sometimes drawn away from the vessel so that it no longer receives the impulse. The goitrous tumour moves during the act of swallowing.

Morbid Anatomy.—On section it is made up of spaces distinct to the naked eye, and filled with a material of the consistence of mucus or of jelly, usually stained of a reddish tint. Some of the cells may be of large size, and may contain a thin serous fluid. If the tumour has existed for any length of time, steatomatous or caseous or calcareous deposits may have formed. Some of the cells may have become inflamed, leading on to suppuration and the formation of an abscess.

Treatment.—If it be satisfactorily determined that the cause of the tumour is the drinking water or the local character of the residence, treatment

will prove of but little value, without a change of residence. If the conclusion is arrived at that neither the water nor the residence is the cause, then the following treatments may be adopted :—

When the enlargement of the gland is associated with anæmia, iron, in its several forms, is the treatment ; if during lactation, the child may be removed from the breast, or the treatment delayed till the time of weaning.

In other cases, where the growth is not of long duration, the treatment by absorbents, externally and internally, is generally successful. I usually prescribe a mixture of iodide of potassium, grs. v ; ammonio citrate of iron, grs. v, with infusion of quassia externally. Iodine, in the form of the tincture or the ointment or the iodide of mercury, has been largely used.

I prefer a lotion containing iodine in proportion, not sufficient to irritate the skin.

Tincture of Iodine 3ss. to 3 j.

Glycerine 3 ij.

Water ad. 3 j.

This lotion has the advantage of not evaporating, whilst the iodine, being very small in quantity, is not irritating to the skin, and, at the same time, is readily absorbed into the part, because evaporation does not take place.

It should be applied on lint, which should be always kept moist with the lotion ; over the lint

may be sewn a piece of oiled skin, and over this, again, a piece of velvet, which altogether hides the application.

It may be necessary, at the same time, to attend to the bowels, and to the other functions, especially the catamenia, and to any discharge from which the patient may be suffering, such as leucorrhœa, &c. When medical treatment fails surgical operations may be resorted to—puncturing cysts, setons, injections, ligaturing the thyroid vessels, and extirpation.

Cysts are sometimes large and fluctuating, and there is no danger in evacuating their contents. Setons of silk or of wire may be passed through the substance of the gland—silk setons are the best because they are more irritating and induce more inflammatory action. They frequently promote absorption of a large amount of the structure, and so remove the visible deformity, though I have never yet seen an instance of complete cure due to the seton.

Injections of tincture of iodine, or of the tincture of the muriate of iron.

Injections produce inflammation, and as the inflammation subsides absorption takes place. Sometimes the inflammation so produced promotes the formation of an abscess, and in this way a great portion or the whole of the disease may be got rid of. Sinuses remain for a time, but they invariably close. There is but little danger in the use of injections, but a case is on record in which the patient

died suddenly whilst the material was being injected. The injection used was the perchloride of iron. The cause of death was not evident, but I should think it probable that some of the fluid entered a vein and was carried at once to the heart. I have myself seen the injection of the perchloride of iron into a nævus, followed by extreme dyspnœa, lividity of the surface, and almost fatal result.

Ligaturing the thyroid vessels has been resorted to to prevent the nourishment of the gland. It would be useless to ligature either the superior or the inferior thyroid artery alone, in consequence of the very complete anastomosis which takes place between them.

Extirpation is a treatment which I have never performed, and which I have seen performed only once. In that case the patient died.

Considering the position occupied by the thyroid body, the danger arising from the proximity of the large blood vessels, the danger arising from supuration around large blood vessels, the exposure of the larynx and trachea, and the chances of inflammation of the air passages, a surgeon would, I think, not be inclined to perform this operation, unless, after grave consideration, he concluded that the symptoms were such as to necessitate immediate interference. I have never yet seen a case which called for extirpation. If the several other surgical operations failed, and the dyspnœa, from pressure on

the trachea became urgent, then, and then only, would I, with my present knowledge, extirpate.

Some individuals are anxious to get rid of the deformity almost at any risk, but I think few would be prepared to undergo the operation of extirpation simply to remove deformity, if the gravity of the operation were carefully explained.

MALIGNANT DISEASE OF THE THYROID BODY.

Malignant disease of the thyroid gland is extremely rare. No case has come under my care. Cancer in this region would follow much the same course as cancer upon any other superficial part of the body, but its contiguity with the larynx and œsophagus would cause a set of symptoms dependent upon a lesion of those parts.

Dr. Sieveking reports, in the Transactions of the Pathological Society, Vol. XXII, a case of death from cancer of the thyroid body. The subject of this disease suffered from persistent stridulous breathing and dyspnœa, which became increasingly severe, but the voice remained clear almost to the last. Dysphagia supervened, and increased gradually up to the time of death, still a sufficient amount of liquid food was taken, and no emaciation resulted.

Consciousness was retained to within a few hours of death, which appeared to result from the increasing dyspnœa.

THE FIRST PART OF THE HISTORY OF THE

REIGN OF CHARLES THE FIRST

IN THE YEAR 1625

BY JOHN BURNET

OF THE UNIVERSITY OF OXFORD

IN THE YEAR 1679

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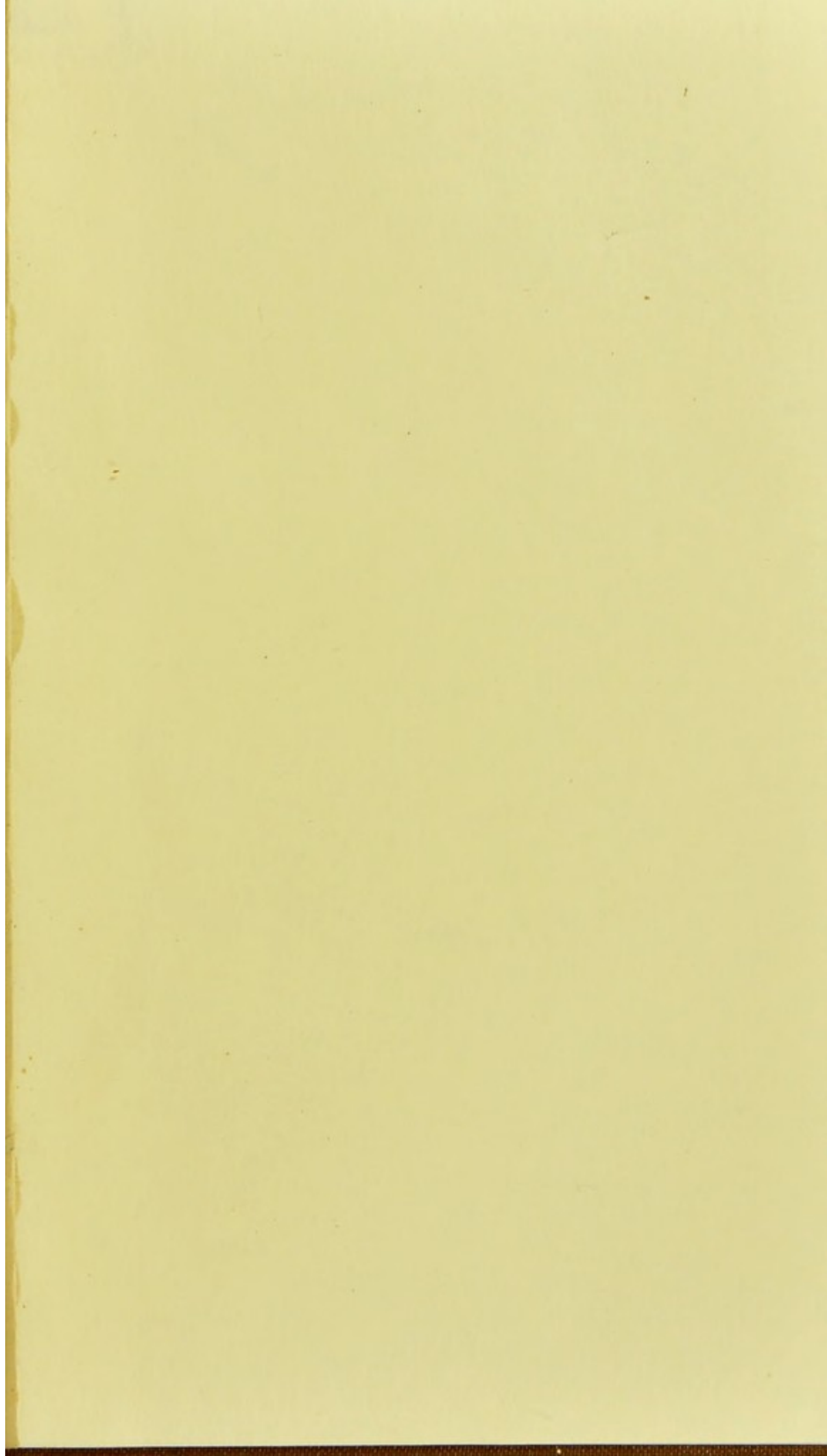
INDEX.

	PAGE		PAGE
Abscess of thyroid body ..	119	Diseases of tonsil ..	9
„ of tonsil ..	9	„ of uvula ..	44
„ peritonsillitic ..	17	Diphtheria..	56
Aneurism, paralysis of recurrent		Dryness of pharynx ..	51
nerve from ..	114	Eczema of fauces, palate, &c. ..	46
Aphonia, hysterical ..	116	Epiglottis, acute inflammation of	67
„ from aneurism..	114	„ chronic inflammation	
„ Acute laryngitis ..	72	of ..	68
„ Chronic laryngitis ..	80	„ œdema..	67
„ Acute catarrh..	92	„ tubercular deposits in	69
„ Chronic catarrh ..	95	„ ulcers of ..	70
„ Growths ..	103	Epithelioma of larynx ..	109
„ Nerve affection ..	113	Erysipelatous sore throat ..	53
„ Muscle affection ..	112	Glottis, œdema of..	76
„ Ulceration ..	101	Goitre ..	121
Bronchocele ..	121	Growths in larynx ..	103
Calculi of tonsils ..	31	Gummatous tumour of larynx ..	86
Cancer of larynx ..	109	Hoarseness ..	98
„ of thyroid gland ..	127	Hyperæmia of true cords ..	99
„ of throat and tonsils ..	49	Hypertrophy of thyroid gland ..	121
Catarrh of larynx, acute ..	92	„ of tonsils ..	18
„ „ chronic ..	95	„ of true cords ..	100
„ of tonsil, acute ..	14	Hysterical aphonia ..	116
„ „ chronic ..	22	Inflammation of epiglottis ..	67
Chronic laryngitis ..	80	„ of larynx, acute ..	72
„ catarrh of larynx ..	95	„ „ chronic ..	80
„ catarrh of tonsils ..	22	„ of tonsils, parenchy-	
Consumption, chronic laryngitis		matous ..	9
in ..	87	„ „ catarrhal ..	14
Cricoid cartilage, necrosis of ..	91	Laryngeal catarrh, acute ..	92
Cysts of tonsil ..	30	„ „ chronic ..	95
Diseases of epiglottis ..	67	Laryngitis, acute ..	72
„ of larynx ..	72	„ chronic, idiopathic ..	80
„ of thyroid gland ..	119	„ „ syphilitic ..	82
„ of palate, fauces, &c. ..	32		

INDEX.

	PAGE		PAGE
Laryngitis, chronic, tubercular ..	87	Syphilitic laryngitis	82
Laryngoscope, method of applying	7	„ patches on tonsils,	
Larynx, acute inflammation of ..	72	throat, and larynx ..	47
„ chronic inflammation of	80	„ ulcer, chronic	37
„ acute catarrh of.. ..	92	Tongue, ulcers on.. ..	39
„ chronic catarrh of ..	95	Tonsils, diseases of	9
„ cancer of.. ..	109	„ abcess of 9 and	17
„ tumours of	103	„ calculi in	31
„ ulcers of	101	„ cancer of	49
Mucous patches on cheek, palate,		„ cysts of	30
&c.	47	„ catarrhal inflammation of	14
Necrosis of cricoid cartilage ..	91	„ parenchymatous inflam-	
Nerves, paralysis of laryngeal ..	113	mation of	9
Œdema of glottis.. ..	76	„ hypertrophy of	18
Palate, ulceration of	32	„ polyp of	31
Paralysis of recurrent laryngeal		„ ulcers of	32
nerve	113	Tubercle in epiglottis	69
Phagedænic ulcer of tonsils ..	34	„ in larynx	88
Peritonsillitis	17	Tumours of larynx	103
Perforating ulcer of palate ..	36	„ benign	103
Pharynx, dryness of	51	„ malignant	108
Polyp of larynx	111	Ulcer of larynx	101
„ of tonsil	31	„ of tonsil, palate, &c. ..	32
Quinsy 9 and	17	„ perforating palate ..	36
Scald of glottis	79	„ of tongue	39
Scarlet fever, sore throat of ..	65	Uvula, elongation of	44
Sore throat, erysipelatous ..	53	„ removal of	45
„ hospital or malignant	53	Vocal cords, hyperæmia of ..	99
„ of diphtheria	56	„ hypertrophy of	100
„ of scarletina	65	„ paralysis of.. ..	113
		„ ulcers of	101





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