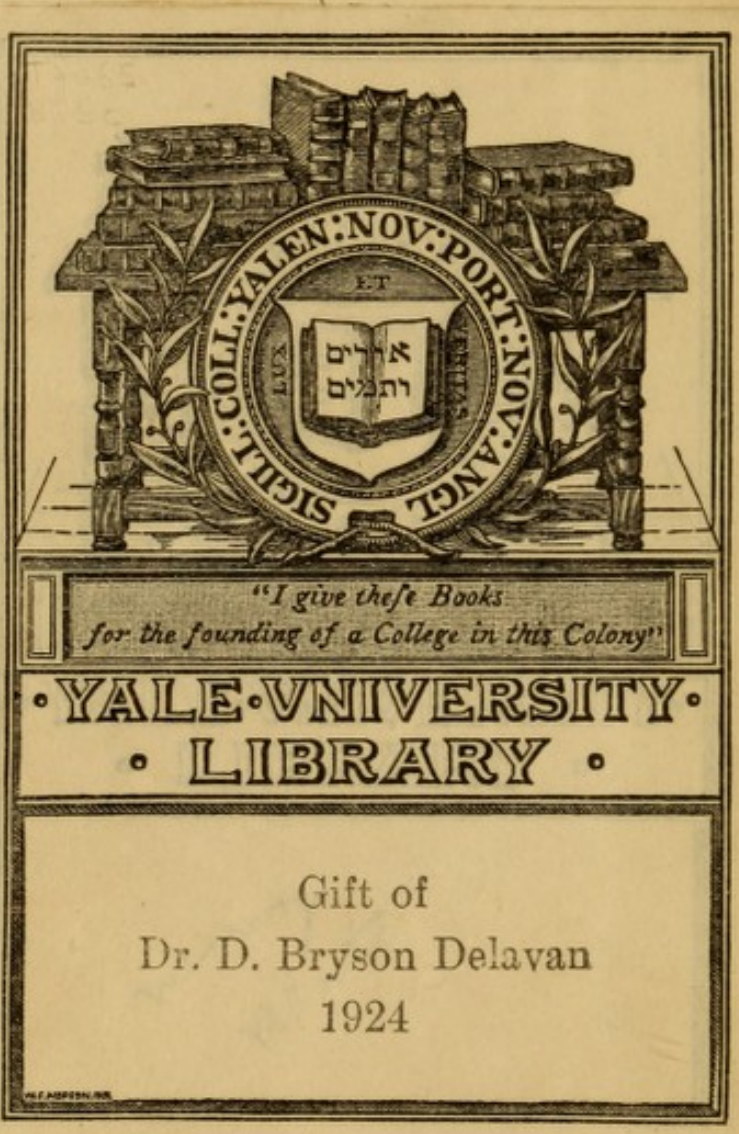
The pathology of the membrane of the larynx and bronchia.



THE

PATHOLOGY

OF THE

MEMBRANE

OF THE

LARYNX AND BRONCHIA.

By JOHN CHEYNE, M. D.

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WHEN I understood that another edition of my Essay on Croup was required, I determined to examine the subject again, and to add whatever I had derived from a greater extent of practice: to do this more effectually, it was necessary to alter considerably the arrangement. To those who are in possession of the first Edition, I think it right to say, that I have every reason to adhere to the principles which are there laid down for conducting the cure. I am aware that the change in the form of the Essay will expose me to some censure; but surely I shall not be blamed for having continued to prosecute the study of a subject of such general concern, or for having become sensible to the imperfection of my first attempt.

I thought it might be acceptable to many of my readers, that I should add an account of several other diseases of the membrane of the larynx and bronchia. The description of those diseases will probably reflect some light on the principal feature of this work.

THIS VOLUME

IS INSCRIBED,

AS A TESTIMONY OF RESPECT,

TO

JOHN ROLLO, M. D.

SURGEON-GENERAL TO THE ROYAL ARTILLERY, &c. &c.

BY HIS

MOST OBEDIENT SERVANT,

JOHN CHEYNE.

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Terms used to Express the Varieties of Disordered Respiration.

When a patient labours under a disease of the lungs, we ought to count the breathing as regularly as we do the pulse; and in expressing the different states of disordered respiration, our terms ought to be precise. I shall take the liberty of pointing out the sense in which the terms employed in these pages are used.

Respiration may be difficult, crowing, hissing, dry, wheezing, laborious, quick, slow, irregular, interrupted, painful. The four first modes principally arise from the condition of the larynx and glottis; the last six from that of the lungs.

Respiration is difficult, when there is an obstruction to the free transmission of the air in the windpipe. Difficult respiration is always more or less audible. According to the degree of difficulty or stricture, the breathing is crowing, hissing, dry, or wheezing. Dry breathing occurs when the mucous secretion is diminished; wheezing, when it is superabundant. Difficult breathing appears remarkably in thickenings of the membrane of the larynx; but it is often

seen in perfection in spasmodic affections of the glottis.

Respiration is laborious when there is unusual exertion of the abdominal muscles and diaphragm, and rising of the chest, as in an asthmatic fit. In laborious breathing, between the inspirations and expirations, we often see a hollow at the pit of the stomach. The breathing is often at the same time both difficult and laborious.

When the standard of respiration is known, quick and slow breathing are in fact defined. In health, there is one act of respiration for every four pulsations of the artery. " Il paroit, " d'après le calcul de plusieurs physiologistes, " que le cœur est dilaté quatres fois par l'influx " du sang dans ses ventricules, pendant que le " poumon, n'est gonflé qu'une seule fois par l'air " que le pénètre dans l'inspiration." *Portal, Anat. Med.* The breathing is quick in inflammatory diseases of the lungs when the lungs are capable of only imperfect dilatation; it is slow when the sensibility is impaired, as in some diseases of the brain.

The respiration is irregular, when one inspiration requires a longer period than the succeeding, or when the respiration is alternately regular and suspirious, or slow, or regular and quick, as in the hysteric passion, or in the stage of torpor in hydrocephalus.

Respiration is interrupted, when there is an evident pause at the end of the expirations and inspirations, as in the dying state. Painful and interrupted breathing are often combined; indeed, painful breathing is generally attended with a sudden catch, or interruption, at the end of the inspiration.

OF CROUP.

Section I.

History of Croup, *from the remote Causes, to the Description of the morbid Appearances on Dissection.*

It might seem strange that Croup, a disease so striking in the symptoms, and often so quickly fatal, should not have been clearly described before the middle of last century, were it not remembered that formerly all the diseases of children were much neglected, and that even the most eminent physicians, when called to children, went with reluctance, judging their diseases, as we learn from Harris, to form a labyrinth for which they had no clew.

Yet the descriptions, however vague, which are to be met with in the works of every systematic writer, of that dangerous angina in which no tumor is to be found in the fauces, afford sufficient evidence that the disease was not altogether overlooked.

Martin Ghisi, an Italian physician, published

the first regular history of Croup. The fullest account of Croup is that of Chris. Frid. Michaelis, de Angina polyposa sive membranacea, published at Gottingen in 1778. The frequency of Croup in Leith and the neighbourhood, furnished Dr. Home of Edinburgh with materials for an essay which appeared in 1765. Various essays on the subject have since appeared. The following observations, which I trust will present a faithful picture of this disease, are collected from the same district which formerly supplied Dr. Home.

The Croup is less known in the temperate than in the northern regions of Europe. Peculiar to no season, it however chiefly appears in the winter and spring, in low situations, exposed to air that has passed over large bodies of water, and it is most especially the disease of sea-port towns. It is very prevalent in cold changeable weather, often appearing after a cloudy and hazy day; insomuch that I have seen a mother, in whose family the disorder had been a frequent intruder, kept in great anxiety by this state of the atmosphere *.

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* The importance of situation we learn from a remark made by Dr. Crawford. He observes, that the disease prevailed in the Carse of Gowrie, a plain in Perthshire bounded by the river Tay; but he adds, "Hæc planities vero nuper exsiccata "fuit, et rarius occurritur morbus." Disquis. Medica Inauguralis de Cynanche Stridula, p. 13.

The Croup chiefly prevails in children from a short time after birth until puberty. I have known the disease in a child three months old, but it does not frequently occur before weaning. It has been observed by Dr. Home, and I believe very justly, that the younger children are when weaned, they are the more liable to the disease. It often attaches itself to particular families, and sometimes it affects the most robust and ruddy children. It also frequently occurs in children exhausted by some other disease.

The disease generally comes on in the evening, after the patient has recently been much exposed to the weather *, and often after a slight catarrh of some days standing. At first his voice is observed to be both hoarse and puling; he is dull and languid. His illness does not prevent him from going to sleep at the usual time, but he awakes with an unusual cough,

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* One child who had been confined for a good many days during a fall of snow, rose in the night, and followed a servant into a cold passage, where he stood some time before he was observed. Next night he had an attack of Croup. A sickly girl of thirteen, after having been confined to the parlour and nursery for a fortnight, had an alarming attack of Croup. A child thirteen months old, who had been confined to the house, on account of the weather, for above a week, was seized with Croup after a very cold damp day. These are the only instances of Croup in my practice, which have not followed exposure to the weather.

suffocative, acute, and ringing. His breathing is difficult; often the inspirations, particularly those which follow the cough, are crowing. His face is swelled and flushed, and his eye is watery and bloodshot, and he seems in danger of suffocation; his skin is hot, and he has some thirst. He labours in breathing; and still the difficult, and perhaps crowing inspiration continues, and the distinctive cough. He tries to relieve himself by sitting up, or coming out of bed; no change of posture gives him relief. Generally his sufferings are thus protracted until morning, when perhaps there is a slight remission; his breathing is a little easier; but the relief is imperfect, and the fever and cough remain. His tongue becomes white and furred. From florid, his complexion becomes purple, then pale and livid; and, weakened by the violence of his disease, he dies on the third, fourth, or fifth day. In some cases, it is said that the symptoms, after having continued several days, appear alleviated; the breathing is tolerably free; even appetite for food returns; the child amuses himself; and the hope of every one is raised. Yet the disease is fatal; his inspiration being suddenly obstructed, his face becomes livid and swoln, and he dies convulsed.

Croup terminates favourably in various ways. Most commonly, after the disease has arrived

at its height, the decline is, as it were, a retrogression of the attack ; the skin is moist ; the fever abates; the cough becomes loose, the breathing easy, and the voice gradually recovers its natural tone.

Sometimes, after the disease has continued a few days, a viscid, white, and tubular substance, somewhat resembling a membrane, hence called the membrane of Croup, is expectorated, and the child is relieved. Yet it ought to be well recollected, that the expectoration of this membrane generally produces only a remission of some of the symptoms, without materially affecting the course of the disease. Sometimes Croup is a more chronic affection, and does not subside for several weeks, when the resolution is very gradual, the child expectorating puriform mucus freely, and now and then portions of this white membrane.

When, in the urgency of the attack, the fauces and neck are examined, with a view to determine the cause of these symptoms, even when a sense of heat is complained of in the throat, the tonsils are seldom observed swelled or inflamed, and the inflammation is never considerable. In some few instances, corresponding with a low degree of pain in the course of the windpipe, there is some fulness to be observed in the swell of the neck. The patients always swallow easily.

It may be said of this complaint, in common with cynanche tonsillaris, that the first attack establishes a predisposition to the disease. I have observed, that after the first attack, a slighter cause will produce Croup than is required originally; nay, I believe, that external cold and wet, without any specific state of the atmosphere, will bring on a recurrence of the disorder. Indeed, children who have had Croup, when they are affected with catarrhal complaints, have more or less of the croupy cough, until they arrive at their fourteenth or fifteenth year.

Subsequent attacks of Croup are supposed to be more violent than the first; but, I am led to believe, that there is some error in this opinion. The danger is diminished by the steps which are immediately taken in consequence of the alarm excited by a knowledge of this dangerous complaint; yet I have seen a third attack more violent than any of the former.

I have, although not very often, seen the blood drawn, during an attack of Croup, with a buffy coat; but, in the beginning of the disease, I have always observed the coagulum consistent and firm, and of a florid colour.

I have no reason to think that Croup is a contagious disease. Some winters since, within ten days, I attended two children in

the same house, labouring under the second stage of Croup; but both had been exposed to similar excitements, and the second child was neglected while the first was dying. When a physician has to visit more children than one with a croupy affection in a family, or neighbourhood, he ought carefully to examine the state of the fauces

There are some remarkable changes in the progress of this disease, which, however, may escape the notice of a hasty observer. From the difference in the state of the respiration and circulation at the beginning of the disease and towards the end, Croup has been divided into the first, incomplete or inflammatory stage; and the second, complete or purulent. In the former stage, the membrane of Croup is not formed, in the latter the membrane is formed, and the vessels of the bronchial membrane are pouring a morbid secretion into the lungs. This distinction it is of infinite consequence to attend to, while engaged in the treatment of Croup.

Any person accustomed to this disease, will recognise the divisions in the following more detailed account of the state of the voice, breathing, and cough; and, by attending to it, the student may better learn what he has to encounter, and how he may distinguish the degree of danger.

1. There is the ringing croupy cough (to which many children are liable upon taking cold, more particularly those who have had an attack of Croup), attended with little or no change in the breathing or the sound of the voice.

2. The unusual shrill croupy cough, with difficult breathing; the necessary supply of air is with difficulty inspired, from the constriction of the passage. The voice is altered, broken, both hoarse and puling. The difficult breathing in Croup has been compared to the sound of air passing through thick muslin; it rather appears like the sound of a piston forced up a dry pump. This difficult breathing varies very considerably, according to the degree of stricture. It is either like the sound to which I have likened it, dry and hissing, audible in different degrees; or, when the swelling and spasm of the larynx is greater, it is crowing, and sometimes creaking and suffocative. Under this extremity of difficult breathing, children are said to have perished. Any person, by voluntarily contracting, less or more, the larynx, may imitate every degree of the difficult breathing.

3. The cough and voice are stridulous; the respiration is difficult, laborious, creaking, sometimes suffocative—varying in the degree of difficulty and laboriousness.

4. The voice is whispering and low, the cough less frequent, and not audible at the opposite side of the room. There is the act of coughing, without the sound; the respiration increasing in difficulty and quickness, laborious, and interrupted.

From the beginning of an attack of Croup to the very end, there are many exacerbations of difficult breathing, and many remissions. It is not unusual in this, as in other peripneumonic affections, to find the symptoms increased in the evening, or early part of the night.

The following are the observations which I have to make on these states:

1. Is a state which is rather the forerunner of an alarming attack of Croup. It is often without danger. It points out the children who, when exposed to the usual excitements, are most liable to Croup. It would seem sometimes to be sympathetic.

2. When, with the croupy cough, the breathing continues difficult, the serious attack has commenced, and the child is in danger. From this state, it is true, I have known the child immediately recover, even when medicines of little activity were given; but generally, if no effort is made to save him, he will soon get beyond the reach of medicine. In this state

the child's skin is warm, his tongue is white, his pulse full and quick, and his countenance is much flushed; but it is still the flush of heat and fatigue. The usual mucous secretion is interrupted; he is timid and apprehensive; and when advanced beyond infancy, he is willing to submit to any measures which may be thought necessary for his relief. His eye is heavy, watery, and bloodshot. In this stage, the degree of danger is to be learnt from the state of the breathing.

3. This state shews the existence of the second stage of Croup, that of effusion. Every person accustomed to the disease, knows how hopeless it generally is. The countenance is still flushed; but in the flushing we discover evidence of defective circulation. The lungs no longer purify the blood. There is a purple redness in the cheeks, eyes, and nails. The complexion is often mottled, or the flush on the cheeks is circumscribed. The pulse is smaller and very quick. There is sometimes an expectoration of mucus mixed with flakes of puriform matter. There is a sediment in the urine. The eyes are prominent and bloodshot; the pupil is dilated, and the iris has appeared to me pale. There is jactitation when the breathing is most violent, and lethargy when it is less so. During this stage it is not unusual

to find the child breathing with least uneasiness, in postures which might be thought unfavourable to respiration *.

4. This is the moribund state. The trachea is coated with effusion. The blood appears broken in the veins. The face is leaden, and the eye filmy. The extremities are cold and swoln. The muscular power is exhausted, and the child nearly insensible.

In the first stage, the breathing is difficult; in the second, it is both difficult and laborious. In the first stage, the affection of the breathing appears chiefly to arise from the state of the

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* This, as a symptom peculiar to the second stage, I have frequently observed. I find it taken notice of in two instances, but without any conclusion having been deduced from it.

"Malgré son oppression, il avoit toujours mieux aimé avoir "la tête basse qu'élévée." Vide *Observations sur une Maladie analogue à l'Angine polypeuse, ou Croup des Enfans, par M. Mahon, Associé Regnicole à Chartres. Histoire de la Société Royale de Medicine*, p. 207.

"Mitior respirationis difficultas, si capite paullulum reclinato "lecto incumberet, quam si sedentis potius sedem imitaretur." *Observat. a cl. Baeck ac Salomon Michaelis*, p. 285.

I apprehend the explanation of this to be, that the trachea, stuffed with the membrane, has its capacity increased, by being stretched out to the full extent, which happens when the head is leant backward; whereas, when the patient sits erect, which generally is the easiest position in difficult breathing, the head falls somewhat forward, and the membrane, being doubled together in the trachea, becomes impervious.

windpipe; in the second, as much, or perhaps more, from a disease of the whole pulmonary system: there is both heaving of the diaphragm and abdominal muscles, and a remarkable pulling down of the cartilages of the larynx at every inspiration. In Croup, the natural functions are sometimes but little disturbed; the child has been observed to take food when the disease was hastening rapidly to a fatal termination.

When the patient recovers after the second stage of Croup, sometimes the membrane is expectorated, but generally there is only a free expectoration of yellow mucus. The natural sound of the voice returns, the cough becomes loose, and the respiration is easier, particularly at intervals. The complexion improves; the constitution, however, has sustained a great shock. The febrile symptoms do not quickly subside, and the strength is but very gradually restored.

Upon dissection, we are able to demonstrate the cause of the symptoms of Croup. When the child dies after an illness of four or five days, there is found lining the windpipe, a white substance, sometimes of considerable tenacity, varying in thickness and somewhat in density. It arises at, or a little below the larynx, and is prolonged into the divisions of the trachea; and generally a quantity of a

white fluid, like purulent matter, with which they are filled, is seen working up from the lungs. The inner coat of the windpipe, to which the membrane is attached, is inflamed. Generally the inflammation is also discernible along the whole course of the membrane of the bronchia. A serous fluid appears to fill the cells of the interstitial substance. The lungs have a solid feel, from the interstitial effusion, the fullness of the blood-vessels, and the puriform fluid in the bronchial tubes. There is little or no recession of the lungs when the thorax is opened. There are sometimes evident marks of increased vascularity in the pleura pulmonalis. There is serous effusion in the cavity of the thorax, and in the pericardium. The cavities of the heart are, in general, unusually full of blood. It will be observed, however, that the adventitious membrane is not a necessary part of the disease. I have added a case, where the membrane, if it could be so called, was not more than a few detached crusts on a highly inflamed trachea. The increased action, the effusion in the lungs, and the general affection, had produced the same fatal effect. In one dissection of Croup, I discovered a quantity of a gelatinous effusion surrounding the thyroid gland, and passing from behind it round the trachea.

Although I have never failed, on dissection, to find the membrane of the bronchia, as well as the larynx, affected; yet I do not deny that there exist some rare instances of Croup, where the affection is nearly confined to the wind-pipe. This I infer from having seen one or two cases, where, with all the other symptoms of the second stage, the natural complexion remained, shewing that the lungs retained the power of purifying the blood.

Section II.

An attempt to explain the Pathology of Croup.

In considering the circumstances which predispose to Croup, we naturally attend to the condition of the bronchial system.

In no part of Britain, I imagine, is Croup more prevalent than in Leith and its immediate neighbourhood; yet, in the course of nearly fifty years of extensive practice, in which he has attended many hundred cases of this disease, my father has not seen one instance of Croup occurring after puberty, while he has attended many cases between the tenth and fourteenth year, both in delicate and robust children.

We find the organ of the voice sympathizing with the change which is taking place in the sexual organs. In those who arrive at puberty early, the larynx early arrives at perfection. In a case of premature puberty, described to me when in London, a few weeks since, the voice was said to be grave and manly, although the boy is only three or four years of age. When puberty is deferred, so is the change which is to take place in the organ of the voice; and if castration be performed, the

organ never arrives at perfection *. The larynx of an eunuch is one-third less than it is found in an entire man of the same size. In several animals, it is well known that the organ of the voice is developed only during the rutting season.

It is ascertained by the observations of Richerand, that the difference between the larynx of a child of three years of age and one of twelve, is almost imperceptible; whereas at the period of puberty, the aperture of the glottis in a male is augmented in the proportion of five to ten, and in a female of five to seven. From these considerations, I am led to think that the constitution is, in a great measure, secured from Croup by the increase and vigour which the larynx and bronchial tubes acquire at puberty.

No children are more liable to Croup than those who have had a previous attack; an exciting cause less violent than that which was at first required to produce the disease, will reproduce it. Croup very often attacks those children who are scarcely recovered from other diseases. Lastly, Croup very often supersedes a common catarrhal affection.

When it has been shewn that Croup is scarcely seen but in connection with an immature state of the bronchial system, and that

* " On assure que ceux qui ont été mutilés dans l'enfance " par la castration, ont toujours la glotte rétrécie." *Portal.*

it is favoured by general weakness of the body, but more especially by a relaxed or morbid condition of the mucous membrane of the lungs; I think it an allowable conclusion, that debility of the trachea is the predisposing cause of Croup; and that the greater degree of tone with which the trachea, after puberty, is endowed, enables it, in a great measure, to resist those excitements which would have operated on a less perfect organ.

Dr. Rollo's case, although in an adult, does not invalidate the opinion that debility of the trachea predisposes to Croup; for, in this patient, the mucous membrane of the bronchia was previously reduced to a state of debility, by a severe attack of catarrh; and moreover, he had repeatedly suffered under Croup before he had arrived at puberty.

Michaelis and some other physicians have thought that Croup occurs in adults as frequently as in children, with this difference, that adults possess the power of expectorating the lymphatic exudation before it becomes a solid membrane *. To be consistent, I must assign my reasons for dissenting from this opinion.

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* "Suspicor, nempe, morbum in adultioribus non rarius quam "in infantibus occurrere; cum autem adultiores, materiem "lymphaticam, primo statim tempore, quo in asperam arteriam "effunditur, antequam in solidum coagulari concrementum "possit, ore rejiciant, morbum in eis, primis jam plerumque in

1. In a disease chiefly of adults, in which also a membrane is formed (the disease I allude to, is that which produces the bronchial polypi of the second kind), the membrane is not expectorated until it acquires a density much greater than that of Croup.

2. In the very rare cases of Croup in adults, the power of expectoration does not appear greater than in children. By dissection, it is proved insufficient to expel the membrane.

3. Inferring from the effects of common catarrh in changing the sound of the voice at all the stages of life, the cough, which exists before the membrane is formed, should be equally characteristic of a diseased state of the organ in adults as in children.

4. In adults, in cases of diseased larynx, when the membrane of the trachea is coated with exudation, there are symptoms corresponding to those of Croup in children. The voice

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" incunabilis, suffocari, et sub communis affectionis catar-
" rhalis specie observatorum oculis se subtrahere.
" Infantum autem plane alia est ratio : isti enim initio ma-
" teriem in asperam arteriam effusam, mollem adhuc paucam-
" que, rejicere negligunt ; mox autem illa ita increscit, ut vires
" jam infantis ad eam rejicendam non sufficiant. Credo itaque
" rudimenta, initiumque morbi nostri, in adultis non minus
" frequenter ac in infantibus occurrere ; perfectum autem, atque
" completum morbum, cujus naturam membrana polyposa
" declarat, ob mox expositas rationes, in adultiore ætate rario-
" rem esse." P. 177.

is stridulous and whispering, and the cough suffocative, and the expectoration is exceedingly difficult.

It is said, that infants neglect to expectorate the membrane while it is soft and inconsiderable; but we have no reason to believe that the windpipe in children is less irritable than in adults; and a boy, ten, twelve, or fourteen years of age, has as perfectly the power of expectoration as an adult.

It is easy to understand the difficulty of breathing in the latter part of this complaint, when the adventitious membrane is completely formed, and the lungs loaded with secretion; but, in the beginning, the inflammation and tumour of the surface of the windpipe, which, probably, are then more considerable than afterwards, will hardly be thought to afford a sufficient explanation of this symptom. I must suppose, that along with this fullness, and, perhaps, occasioned by its stimulus, there is a spasmodic constriction of the larynx. This I am the more inclined to believe, because, in the first stage, I have observed the breathing, which is always difficult, performed at particular times with incomparably more distress. The inflammatory affection of the larynx is, doubtless, sufficient to account for the alteration which takes place in the sound of the voice and cough.

There is a circumstance mentioned in the history of the disease, which I have not seen explained. I allude to the fatal exacerbation which sometimes follows a considerable remission of the symptoms, during the second stage. Perhaps this ought to be attributed rather to a mechanical, than to a spasmodic affection of the parts. It sometimes takes place after the expectoration of part of the membrane, and I suppose that the connection of the remainder with the trachea is loosened; so that, in taking a full inspiration, the detached portion acts as a valve, shutting up the tube, and suddenly suffocating the child. This explanation is the more probable, as, in dissection, it is not uncommon to find the adventitious membrane, in some one part, detached from the larynx.

In Croup there is increased action, effusion, laborious respiration, circulation of blood with the venous colour, sensorial debility, and death. This is the course of the disease.

It may be presumed, as we are able to trace the effects of the increased action so low in the bronchial tubes, that the whole internal surface of the lungs is affected in the same manner, and that the membrane lining the air vesicles, is consequently thickened, and no longer well adapted for the absorption of the oxygenous part of the air, or the transmission of the carbone which the blood throws off; and it is,

most probably, partly from this condition of the membrane, and partly from the obstruction to the passage of the air to the vesicles, which is presented by the puriform fluid and adventitious membrane, that the blood in the lungs is no longer sufficiently purified for the purposes of general circulation. That the air vesicles are coated with the effusion, as " with a " varnish," in this disease, and in peripneumonia notha, is not improbable; yet, I imagine, this must remain as a conjecture only.

Although, apparently, the first of the vital functions which is arrested be respiration, yet this seems to arise from a want of muscular strength, in consequence of the failure of the sensorial power, the invariable result of a defective supply of pure arterial blood in the brain.

The nature of the effusion, in particular that part of it which forms the adventitious membrane, was formerly a matter of dispute; it was imagined to consist of inspissated mucus. It is now determined to consist of a puriform fluid, similar to that which is thrown out by other secreting surfaces, while suffering under increased vascular action. In enteritis a similar effusion is found on the surface, and sometimes binding together the various turns of the intestines. In pneumonia also it is effused, and becomes organized, forming bands of adhesion

between the lungs and pleura costalis. A similar discharge is poured from an inflamed eye and urethra.

That the adventitious membrane is an inspissation of the same discharge with that which, in a fluid form, fills the bronchial tubes, we can scarce doubt, from the resemblance between the colour of the membrane and of the effusion, and the continuity of the surface from which they are secreted; and the improbability that the same surface would be affected in different ways, is extreme. We can even demonstrate the adventitious membrane degenerating into the puriform fluid, and again gaining consistence in different parts of the same membrane. There is sufficient evidence, in the difference between their sensible and chemical qualities, that the membrane of Croup is not inspissated mucus. The fluid which composes the membrane of Croup, wants the resiliency of mucus. It bears maceration without having its structure destroyed. It soon becomes putrid. If mucus ever assumed this structure, we should see a similar membrane in those diseases of children, in which the secretion of mucus is profuse, and where, from weakness, the power of expectoration is lost.

Section III.

Of the Diagnosis.

I have seen several children so affected, that I at first imagined they were suffering under the second stage of Croup; but, upon examination, I discovered sloughs on the tonsils and uvula. In these cases, the attack was less violent than an attack of Croup. They ended unfavourably, and I should suppose, as there could scarce be any thickening of the larynx, that it would have been found lined, as the fauces were. The cough, voice, and breathing, were those of the second stage of Croup. I had not permission to examine any of the bodies.

These cases occurred singly, in different seasons. A similar affection is sometimes general. In one of the volumes of the American Philosophical Transactions, there is a disease, attended with sloughs in the uvula and tonsils, described under the title of Angina suffocativa, in which, if I recollect, a membrane, lining the larynx, appeared on dissection. I strongly suspect, that a similar complaint in our own country has been mistaken for genuine Croup.

Cynanche maligna and scarlatina are often attended with a croupy cough and breathing. As an instance of this, I shall relate the following short case: On the 6th November 1805, I was called to a boy, four years of age, who had obstructed respiration, stridulous cough, and pale complexion. I thought him in the second stage of Croup, until I observed a sick girl in the same bed with scarlatina. Upon inquiry, I found this the fourth day of his illness. He had not had any rash; more than once he had ate with a degree of appetite, and he was sometimes cheerful; he was always worse in the evening, and beginning of the night. Upon examination, I found the fauces sloughy. I ordered leeches to his neck, an emetic, a mercurial purge, a blister over the sternum, and an antimonial solution. He was said to have become very faint, after the application of four leeches. On the 7th, I found his complexion more livid, his strength sinking; there was not the least swelling behind the angle of the jaw. For eight or ten times, his respiration became more suffocative at the end of an hour; he died about midnight.

Although I had conceived that scarlatina sometimes ends in the formation of an adventitious membrane, till lately I had no opportunity of ascertaining this. But the circumstances which I am about to mention prove,

that a membrane was formed, at least, in one instance, of this disease. Some time since, several soldiers of a militia regiment, stationed at Woolwich, were daily brought into the general hospital with scarlatina. The disease was unusually fatal. One of these patients, who had been only a few hours in the hospital, died, with symptoms which the surgeon on duty thought proper to investigate by dissection. He cut out the trachea, and found it lined with a membrane, as in Croup. The preparation was preserved, and has since been presented to me by the surgeon-general, Dr. Rollo.

Croupy symptoms I once saw suddenly rise about the eighth or ninth day of fever*; and in a house, where there were three children lying with remittent fever, a girl of eleven, of a scrofulous constitution, who never had been affected with the Croup, complained, on going to bed, of some uneasiness about her throat. All afternoon, she had been observed hoarse; she awoke about two o'clock, with a ringing

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* The patient, a girl of eight, was bled and relieved. I have lost the case; but, in searching for it, I found the report made on the day after bleeding. *December 3.* Cough frequent; no longer croupy. Defined red spots in her face; pulse 116; skin hot; tongue dry in the middle, edges moist and furred; stools very bilious.

croupy cough. The interval between the fits of coughing was short, her throat was not inflamed, her tongue was clean, her pulse 120. The affection of the respiration was slight. She had an emetic at three; then she was put into the warm bath, and took five grains of calomel. She was exhausted with vomiting, and fell asleep immediately upon returning to bed; and during the rest of the night she had no return of the cough. In the morning she was hoarse, and her pulse was quick. Next night, she had a slight return of the complaint; she again coughed croupily. For two days she had a quick pulse, with a clean moist tongue. On the fifth day, her tongue was loaded, her bowels were disordered. After much medicine, she passed two or three small green stools. On the sixth day, she had every symptom of the fever.

Croupy symptoms, to an alarming height, sometimes usher in an attack of measles, and are relieved by the same treatment which relieves Croup. Whether the affection, if not interfered with, could end in the production of the membrane, I am not able to say; but the croupy symptoms, when less violent, generally subside upon the appearance of the rash.

During the severe epidemic of last year, a stridulous cough and voice, and obstructed

respiration, frequently appeared within a few days after the eruption of measles was over; but in these cases, as will afterwards appear, ulcerations were found in the membrane of the larynx.

I have seen a croupy affection, but I rather think without much cough, after the secondary fever of small pox, apparently bringing the disease more speedily to a termination. Has the larynx, after this case, ever been examined?

Whatever be the symptoms, when the fauces are sloughy, I am inclined to think that the disease is not to be considered as a case of pure Croup; and I would not admit, as cases of Croup, any complications of croupy symptoms with other diseases, unless these diseases, after weakening the membrane of the larynx and bronchia, are superseded by Croup.

The acute asthma of Miller has been distinguished from Croup, by the voice being croaking and deep, by the more evident remissions of the difficult breathing, by the pulse being less full, by the limpid urine, and by the evacuations which attend and bring relief, as belching, vomiting, and purging. I am so little acquainted with the acute asthma, that I merely repeat the symptoms which are held to distinguish that disease from Croup.

It is enough that these combinations of other diseases with croupy symptoms, are pointed out. The reader must be guided in practice by the nature of the original disease, and the urgency of the symptoms of impeded respiration.

Section IV.

Of the Cure of Croup.

OF BRONCHOTOMY.

I shall begin the observations which I have to make on the treatment of Croup, by considering the expediency of attempting to give relief, in the second stage of the disease, by a surgical operation; a measure which has many respectable advocates, and which, in this university, has been recommended *e cathedra*.

In as far as respiration is concerned, the cause of the child's death appears to be the want of a sufficient supply of air to purify the blood in the lungs, and fit it for general circulation. Before death the complexion is livid, the patient becomes lethargic, the pulse is small, thready, and irregular.

In what manner is it that the lungs are deprived of the necessary supply of air? I have lately dissected some bodies, with a view to determine this question. In these I found space left in the larynx for a current of air sufficient to support life. In the last child

whose body I opened, within the membrane there was a diameter exceeding two eighths of an inch*. Through a tube of this diameter, an adult can support respiration for a considerable time, without great inconvenience. In these bodies the air vessels of the lungs were full of a fluid, which it was impossible to distinguish from purulent matter. The cellular substance of the lungs was distended with serous effusion. The lungs were so filled, that they did not recede in the least when the thorax was opened; every surface which was cut, poured out this puriform fluid from several points. After insulating the trachea, we found a fresh discharge of this fluid from the glottis, whenever the lungs were handled. The membrane of the bronchial vessels was everywhere in a state of increased action. This was plain to the naked eye in the larger vessels; and when a magnifier was used, the same appearance was discovered in every vessel which we examined.

In one of the cases, before death, the respiration was interrupted and short. Interrupted,

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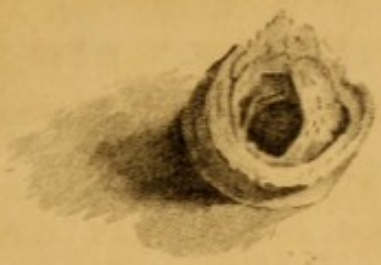
* This engraving (Plate VII.), taken from a drawing of the trachea after Croup, will illustrate my assertion, that there is sufficient space left within the adventitious membrane for the transmission of the air. This drawing was made without any view to the question which I am discussing.



from the decay of strength ; short, from a diminution of the capacity of the cavity of the lungs.

Although the respiration, in the first stage of Croup, is often more difficult than in the second, yet death, during the first stage, is an occurrence so rare, that I have never seen it. We do not even see the complexion livid in the first stage.

When an obstruction is confined to the larynx, breathing, as difficult as ever I saw it in Croup, is sustained for many days, and even weeks, and the patient is instantly relieved, whenever the obstruction is removed. Whereas, in Croup, as I have lately witnessed, the expectoration of the membrane, fully and largely formed, which had lined the larynx, and some of the principal branches of the trachea, has produced but a transient and imperfect alleviation of the symptoms.

From this view it appears, that the child is not destroyed by the obstruction* which exists in the larynx ; that if we would accomplish a cure in Croup, we must not only remove the

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* In only one case have I found the tube nearly plugged by the membrane, and it was so loose, that had there been srength, I should think the child might have expectorated it without difficulty.

adventitious membrane from the larynx, but the puriform exudation from all the ramifications of the trachea. We must also prevent the reproduction of the membrane, and limit and correct the secretion all over the internal surface of the lungs.

In reference to the mechanical part of this operation, I may mention,

1. That, in the most favourable cases, the membrane is no longer coherent after the air vessels have made a third ramification.

2. That the membrane in many cases, even in the larynx, possesses scarce any tenacity or consistence. The connection of the membrane with the inner coat of the larynx is stronger than its aggregate connection ; or, perhaps, in one part it is a considerable substance, while half an inch above or below it is a mere coating of puriform matter, without the slightest cohesion. Sometimes it is imperfect in the larynx, and fully formed in the bronchia.

3. That in some cases, and these too in which the diseased action runs the highest, there is not even the appearance of a regular and continuous membrane. The membrane of the trachea is highly inflamed, with, here and there, an insulated inflammatory crust. But, before dissection, we have no means of precisely knowing what is the state of the parts.

4. That the expectoration of the adventi-

tious membrane, although, doubtless, it has occurred when the disease was about to terminate favourably, has often been followed by the immediate reproduction of this substance, and at no long interval, by the death of the patient.

I would remind the reader, that the larynx of a child, from three to twelve years of age, is not more than three eighths of an inch in diameter; consequently, from the diminished scale of the parts, the operator must be embarrassed. Bronchotomy cannot be performed in the usual manner between two of the cartilages; to afford scope for the introduction of the forceps, a longitudinal slit must be made, cutting the cartilages across to a considerable extent: and, in performing this operation, there is considerable danger of immediate suffocation, from the bleeding of the thyroid veins. This objection is not speculative; a respectable surgeon, who lately assisted at the operation, informed me, that the patient perished on the table, from the irritation thus induced.

If the membrane is loosened without being extracted, it may meet the current of air during inspiration, and thus suffocate the patient; or, if it were sufficiently detached to be brought up from the branches of the trachea into the larynx, the ramifications of the adven-

titious membrane may obstruct the passage and destroy the child.

Every inspiration pulls down the larynx, and with every expiration it rises. In no disease of difficult breathing does this alternate movement of the part, which is a serious objection to the operation, appear more remarkably.

Is it a consideration entirely to be overlooked, that the operation is to be performed on an organ in a state of high inflammation?

The latter considerations are certainly worthy of attention; but I am satisfied to allow the question to be determined by the state of the lungs.

OF CALOMEL.

Of late years, calomel has been held out as a remedy, upon which we may rely in the cure of Croup.

Calomel, in full doses, generally excites sickness, griping, and a discharge from the bowels, which is watery and bilious. Even in the absence of the usual test of the mercurial stimulus in the system, calomel, in many instances of increased vascular action, has produced the most salutary changes, by what is called (without connecting the term with any

hypothesis) its alterative quality. In no diseases is this seen more remarkably than in those of the secreting surfaces. I might instance many diseases of the skin, of the bowels, and even of the membrane, which is the seat of Croup.

If our object be to excite sickness, purge the biliary system and the bowels, objects of unquestionable importance in this disease, our purpose will be more immediately accomplished by a preparation of antimony, than by calomel. It would appear, therefore, that those who trust to calomel in the cure of Croup, rest their expectations on its alterative power.

In Croup, our means ought to be well adapted to the end. It will be recollected, that the first, or inflammatory stage of Croup, generally lasts only eight or ten hours. Supposing the physician has not been called before three or four hours have elapsed, he can scarce see a case more instant, or less suited to the trial of remedies of questionable efficacy. I would lay it down as a rule, in no instance to be departed from, that the physician, when he is to trust to calomel in the cure of Croup, shall not leave his patient until the difficult breathing is relieved. He must wait the result of his experiment; and if it be not successful,

before the first stage is over, he must have recourse to practice, which never fails.

I cannot say that I have ever seen any benefit derived from calomel in the second stage. For two seasons, I used calomel freely during the second stage, in a variety of cases, all of which terminated fatally.

When the attack was alarming, during the inflammatory stage, I never have given calomel a fair trial; that is, I have not used it, unless in combination with other, and, what I conceived, more efficacious remedies.

When a serious attack is apprehended, as in the croupy cough, with febrile heat, experience enables me to say, that a free use of calomel is serviceable. I have reason to believe, that the high reputation of calomel is in some degree owing to its having been successfully administered in cases when the breathing has been but little affected.

I do not, however, wish to dogmatise. The plan of cure which I recommend, I know to be effectual; but in this disease, as in many others, there may be more ways than one of arriving at our object. Perhaps farther trials with calomel, under proper limitations, are still desirable.

Calomel appears applicable to cases which arise during the currency of some other dis-

ease; 2dly, To cases of the disease extending beyond the usual period, of a nature perhaps approaching to bronchial polypus; 3dly, In cases where there are remarkable intermissions of the croupy cough; when the child is seen for nights together, with many symptoms of Croup occasionally remitting and intermitting towards morning. But although calomel is to be relied on in these cases, I believe they are also to be cured by antimonial preparations. 4thly, When the disease arises in children of a scrofulous consitution, any substitute for the lancet is desirable. If the disease is not very urgent, large doses of calomel, repeated at short intervals, may be tried. Yet, in these cases, I have certainly seen the patient arrive at the second stage very expeditiously.

If calomel is determined on, it ought to be given in doses of one, two, or three grains every hour, or two hours *.

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* In Vol. II. of the Transactions of a Society for the Improvement of medical and chirurgical Knowledge, there is a paper, giving an account of Croup, as it appeared in the town and neigbourhood of Chesham, in Buckinghamshire, by Mr. Rumsey, in which this gentleman observes, that he had the satisfaction to see some patients recover while using calomel.

It is not my intention to enter into a review of this paper, which is creditable to the author's abilities; but I must be

In Croup, the first effect of the increased action is to alter or suspend the healthy secretion of the bronchial membrane. The sound of the respiration of the voice, and of the cough, demonstrates, that the inner membrane of the larynx is quite dry. When we have restored the healthy secretion, we may be assured that the inflammatory action is resolved. The favourable change is indicated by the cough becoming loose; a circumstance from which we derive the most favourable prognostic.

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allowed to say, that the disease was attended with some unusual concomitants: "Most of the cases were attended with "inflammation and swelling of the tonsils, uvula, and velum "pendulum palati, and frequently large films of a white sub-"stance were formed on the tonsils." Now, in no case of pure Croup, have I seen sloughs in the fauces; and I have discovered inflammation and swelling only in an inconsiderable number.

Mr. Rumsey admits, that while, in the years 1793, 1794, he had attended above forty cases, sometimes two or three children of a family about the same period; his father, in forty years practice, in the same district, had seen only eight or ten cases of Croup. It appears, that during 1793 and 1794, "ulcerous sore throats were now and then met with," and that he often saw "more than one child die in a family affected "with the disease." And he even observes, "that the dis-"ease was less severe towards the end of the *epidemic consti-*"*tution.*"

Emetics appear peculiarly fitted to answer the indications of cure in the first stage of Croup. They increase the secretion from the mucous membrane of the bronchia, while, at the same time, they lessen the general tone of the arterial system. Hence they are the only true expectorants.

In the second stage, when the lungs are filled with a fluid which the child, from weakness, can no longer expectorate, the agitation produced by the act of vomiting promises great benefit. The sickness may repress the action which still pervades the mucous membrane, and thus modify, rather than increase, the discharge.

The same morbid action appears to extend to every part of the inner surface of the lungs, from the larynx to the termination of the bronchial tubes. Whether the membrane which lines the air vesicles is inflamed and thickened, or whether the air is only prevented from reaching the vesicles by the puriform exudation which fills the whole cavity of the lungs, it must be of nearly equal moment to moderate the vascular action in the organ.

If, without dwelling upon their mode of action, we allow ourselves to be guided by experience of their effects, we shall have recourse to emetics in every stage of Croup, without any hesitation.

From the permanency of their effects, antimonial emetics will be preferred; and these generally relieve the biliary system and intestines, as well as the stomach and lungs.

Even when Croup is threatened, or at the beginning of the first stage, emetics will often interrupt the progress of the complaint. A very delicate child, with disordered bowels, who had an attack every night, for five or six nights, and who was tolerably well during the day, had, whenever the breathing became difficult, as much of an antimonial solution as induced vomiting, and invariably with relief of the difficult breathing. This was a case in which the lancet, nay a leech, was scarce admissible. When bleeding is contraindicated, or cannot be performed, I am persuaded that, by prolonging sickness, we may often keep Croup at bay, and perhaps remove it.

In very few cases have I known the child survive the second stage of Croup; and in all of these the children recovered while using a solution of tartarised antimony. Emetics I had repeatedly given in the second stage of Croup; but in these cases, the patients were kept sick for two or three days, with scarce any interval.

When the disease is confined to the larynx, as some persons imagine it often is, the patients

have so much the better chance of being relieved by emetics.

I have had many an opportunity of seeing an alarming attack of Croup removed by an emetic alone; and, with the exception of emetics, no medicine, with which I am acquainted, is entitled to confidence in the second stage of Croup.

Some of the popular remedies, as large doses of Florence or castor oil, I imagine, chiefly owe the virtues which they possess, in the cure of Croup, to the nausea or sickness which they induce. I imagine, it is thus that polyg. Seneka, which has been pronounced a specific for Croup, acts.

OF BLEEDING.

A certain degree of vigour is necessary to the existence of every increased action. General arterial power, as well as topical vascularity, is more effectually reduced by bleeding, than by any other means; and in all alarming cases of increased action, we should be inclined to empty the vessels, were we not withheld by the remote effects of depletion, and by the debilitating consequences of the disease.

These considerations are always in view.

They often prevent us from recommending a measure which would give present relief. They are often nicely balanced against the danger of the disease; and there are affections daily occurring, in which we are led, by the pressure of the case, to overlook consequences. Prospective danger must disappear, when the patient is under circumstances which decide his fate in a few hours. This is exactly the situation of a scrofulous child labouring under an alarming inflammatory attack.

However, it is not clear to me, that children of a scrofulous diathesis suffer, to the extent commonly apprehended, from bleeding. The disease which renders bleeding necessary, is as likely to excite scrofula as the bleeding. The less the shock which the constitution has to sustain, the less probably will scrofula ensue. A disease protracted may be more prejudicial to the general health, than the bleeding, which breaks its force.

Children, unless when there is something very defective in their constitutions, appear to bear all evacuations as well as adults. When a disease is subdued, their strength is sooner renovated. While the body is quickly increasing, from the activity of the organs subservient to nutrition, any loss is sooner repaired. There is more simplicity in the infantile system. Children are liable to fewer diseases. From the

superior irritability of their constitution, it immediately resists any hurtful stimulus: the whole frame is immediately disordered; but the affection is less intricate. We see few or none of those instances of complicated disease, the effect of the pliancy with which the adult constitution adapts itself to noxious stimuli when gradually applied.

In the first stage of Croup, when the voice and breathing are affected, the cough ringing, and the heat increased, we try the effect of an emetic, and the tepid bath, before having recourse to bleeding. On the first appearance of Croup, those who have had the management of croupy children are fully aware of the benefit to be derived from these preliminary measures. If emetics fail to give relief, then we have recourse to bleeding.

Generally, I recommend bleeding from the external jugular vein. When children are very young, we do not easily procure a sufficient quantity of blood from any other vein. When the child is five or six years of age, blood in sufficient quantity may often be procured from the veins of the arm; and this mode, I observe, most surgeons prefer. Some physicians recommend the application of leeches to the neck; and this I have seen availing in young children. But to determine the quantity, is

of more consequence than the vein from which the blood is to be drawn. The removal of three ounces of blood from a child between one and two years of age, or of six ounces from a child from eight to ten, generally appears to make a sufficient impression on the disease. Taken from the external jugular, the former quantity gives a shock to the constitution of a child of two years, produces a tendency to deliquium, and for a considerable length of time suspends the morbid action; and the after treatment, the purging, and the strictest antiphlogistic regimen, completes the cure.

When bleeding is performed at the commencement of the attack, the relief is often immediate; and I have scarcely believed that I saw the same child breathing easily, who ten minutes before lay gasping and convulsed.

In the course of the night, it is sometimes necessary to repeat the bleeding; and now and then in the course of the following night, upon a renewal of the attack. After one general bleeding, many are inclined to trust to leeches, or the cupping lancets.

The main objection to leeching is, that we cannot precisely know the quantity which is removed. From the gradual flowing of the blood, there is perhaps more removed with

less effect; and in many acute diseases, the effect is in proportion to the suddenness of the impression.

When leeches are used to young children, as a matter of convenience, they ought to be applied to the upper part of the breast, rather than to the neck; for this reason, that when the bleeding is to be stopt, pressure can be much better applied over the sternum or ribs. Children in Croup bear very impatiently any pressure in the neighbourhood of the larynx; and the bleeding may be carried to an improper length, unless pressure can be effectually made.

In the second stage, bleeding has often been largely used, perhaps from not duly attending to the great change which has taken place in the disease. From the appearance of vascular distension, and from analogy with other peripneumonic complaints, limited bleeding would seem to be indicated. To a robust child, a moderate bleeding may do no injury; we might even expect it to forward some of the other measures; but it is proper to say, that I have never witnessed any benefit from bleeding in the second stage of Croup. When the blood is but imperfectly oxygenated, bleeding is a doubtful remedy; and to determine the quantity of blood to be drawn, is a point of great delicacy.

If there should be any doubt in which stage of the disease we find the child, in a general view it will be better to bleed in the second stage of the Croup, than to omit bleeding in the first.

I cannot finish this article more impressively, than by quoting the following observations from a distinguished medical author: "The "course of genuine Croup is very short. If "the alarming symptoms which I have de- "scribed, are not mitigated during the first "six hours, the disease will generally prove "fatal. It has happened several times, that "I have been called, early in the day, "to patients who had become seriously ill "only on the preceding evening; and in such "cases I have only succeeded once. The pro- "per time for administering relief, is when "the cough, dyspnœa, and palpitation, in- "crease towards ten or eleven o'clock in the "evening." *Medical Histories and Reflections, by John Ferriar, M. D. Vol. III. p.* 139.

ON THE DIFFERENT REMEDIES IN CONNECTION,—INDICATIONS OF CURE.

The means to be used when an attack of Croup is apprehended, are an emetic, a bath of between 90° and 100° of F^{t}., a dose of jalap and calomel, and dilution.

When the first stage is formed, we have recourse to an emetic, the bath, a mercurial purge, venesection, a blister over the sternum, calomel in doses of one, two, or three grains every hour, diluents, the antiphlogistic regimen.

In the second stage, emetics are the chief agents. It is often with great reluctance that the friends of the patient second our efforts; there is an unreasonable and childish dislike entertained by many persons against the repeated use of emetics, and many vulgar people are obstinately determined against harrassing a child whom they consider dying. We must be at pains to explain the principle upon which emetics are given, and lead others to confide in the practice, by making frequent and anxious inquiries into the effects of the emetics. Half a grain of tartarised antimony, dissolved in a table spoonful of water, is to be given to a child two or three years old, every

quarter of an hour, until sickness and vomiting are produced; and in two hours after the last act of vomiting, the same process is to be recommenced, and so repeated while the strength admits. To produce a second effect, we often have to give a stronger dose. The want of irritability when the disease is far advanced, is sometimes so great, that I have known a child take six or eight gains of tartarised antimony without vomiting. This difficulty in producing vomiting is mentioned by various authors. Blisters are applied, or the breast rubbed with oil and tincture of cantharides. Medicated vapours, in diseases of the membrane of the bronchia, have been highly recommended; in Croup, they have disappointed my expectations. When the strength begins to flag, we use all the common cordials. One child gradually emerged from the second stage of Croup, after having been in the greatest danger for three weeks; he was supported chiefly by wine and burnt brandy. As the stools are so much disordered, the state of the bowels must be attended to. The antimonial solution generally acts sufficiently on the bowels.

There is but one indication in the first stage of Croup; all our endeavours tend to moderate the increased action which prevails all over the mucous membrane. The bleeding, blis-

ters, emetics, purges, and the bath, are all meant to reduce the power of the arteries, either directly or sympathetically. The mercury, however, by establishing its own influence, may be supposed to supplant that of the disease.

In the second stage we have various objects: 1st, We have to reduce and correct the increased action in the mucous membrane; 2dly, To promote the expectoration of the adventitious membrane and the effused fluid; 3dly, To support the patient's strength.

Section V.

Of the Prophylaxis of Croup.

Under this head we have two objects to attend to: 1st, To remove the child who has had Croup from the greatest excitement, a damp atmosphere; 2dly, When this is not practicable, to defend him, in as far as we can, against its operation.

If he cannot be removed from a low dwelling, exposed to the sea air, or in the immediate neighbourhood of a large body of water, we must have him clothed sufficiently, give him the cold bath daily, attend to his general health, and be careful that he shall not be exposed to the weather, when unfavourable, during the winter and spring months, more particularly if he is delicate. Every catarrhal affection in children, who have had an attack of Croup, must be considered as important.

CASES.

CASE I.

December 25.

Mr. R——'s daughter, five years old, with red hair, very fair, high complexion, and subject to a croupy cough. This child has had a hard cough for several days, and she has awoke every night from her first sleep with a frequent hoarse croupy cough. One bad day, before the cough came on, she was kept longer than usual in the open air by a careless servant.

She was bathed to-night in tepid water, and has not gone to sleep since. She has an incessant barking croupy cough. For two or three inspirations, after every fit of coughing, her breathing is rather difficult, and is said sometimes to be crowing; then it becomes tolerably easy, and the flushing, which the cough induces, soon becomes scarcely manifest; little heat of skin, pulse 108, tongue clean. She has frequently complained of a slight pain in the breast. ℞. Submur. Hydrarg. P. Cret. Cᵗ. a. a. ℈j. Div. in Pulv. vi. Sig. One to be taken every second hour.

December 26.

She complained several times of uneasiness in her breast, and the cough was incessant, till six o'clock, when, after a free stool, she fell asleep, and awoke a little while ago. She has had no cough since; her voice is hoarse, not broken, her tongue white, pulse about 112, not full or strong. Cont. Submur. Hydrarg.

Evening.

This child is asleep, breathing very softly, quite cool. She has coughed but little, and her cough is said not to be croupy. She has taken all the powders; she has had three large stools; the last loose; the two former consistent.

December 26.

She is languid and pale, but has no complaints; yet this morning she coughed several times croupily, and several inspirations were crowing, and highly difficult; so that her mother, who was in the next room, was much alarmed. But when she came to her bedside, she was again breathing calmly.

CASE II.

MAY 16. ONE O'CLOCK, P. M.

Mr. H——'s son, eight years old; dark eyes and complexion.

He has had several attacks of this disease; one very severe, exactly three years ago, when he was relieved by bleeding in the neck.

Last night, at bed-time, he was taken ill. His mother gave him an emetic, and, as usual in slight attacks, he was a good deal relieved by the sickness and vomiting. He continued free from all the symptoms of the disease, except the ringing cough, until about half an hour ago, when his breathing became so difficult as to excite great alarm.

His breathing is now laborious, and the sound resembles the hissing of confined air through a narrow opening; it is rather slower than natural; he has the vox rauca and ringing cough in the greatest perfection; his skin is warmer than is natural; his countenance is flushed; and his eyes are very heavy; his pulse is 120; he has had no passage from his bowels for two days.

He had been a good deal exposed to damp hazy weather; and while attending a child in the second stage of Croup, the night before he

was seized, I remember to have remarked, that I was afraid the weather would produce some more instances of this disease.

FOUR O'CLOCK.

With this boy Croup always occasions much apprehension; and at my last visit he readily allowed me to bleed him from the arm. Four ounces of blood were drawn, and I ordered him a dose of infusion of senna with tincture of jalap. His breathing was not relieved; and about half an hour after the bleeding, it was much oppressed, but he soon became easier. The purge has just operated, after sickening him very much.

EVENING.

His pulse, which in the morning was 120, is now only 100; his breathing is free; he has had a profuse perspiration ever since the purge operated; and he is again cheerful.

He was ordered a spoonful of the following solution every four hours: ℞. Sol. Antim. Tart. ʒvi. Aq. Cass. ʒi. Aq. ʒiii. m.

MAY 18.

He has been quite well since last report: His cough is still a little rough: Yesterday and to-day he has been running about the room, and amusing himself as usual.

CASE III.

April 19.

Mr. W——'s daughter, æt. 12.

This girl is exceedingly robust and big of her age, of a florid complexion. She has been threatened with Croup two or three times, and was taken ill yesterday evening. She had the day before been much exposed to the weather, which was damp and chilly. Though her cough was very rough, she went out to-day. I saw her at ten o'clock at night.

Her respiration was performed with the utmost difficulty; she breathed so high, that I heard her immediately on entering the house, although she lay above stairs. Her friends, tremblingly alive to the danger of her situation, were supporting her in bed, for she could not lie down. Her cough resembled the barking of a lap-dog, very hoarse and sharp; she was much flushed, and complained of pain, or rather great heat in the windpipe; her tongue was white; the tonsils and uvula were not inflamed nor swelled in the slightest degree; she swallowed easily; there was perhaps a fullness in the throat; her pulse was about 130, and pretty

strong; she had an evacuation from her bowels this afternoon.

I took from five to six ounces of blood from the arm, and should have taken more, but she nearly fainted under the operation: She got very sick in consequence of it, and vomited; but she could breathe in the recumbent posture immediately after the bleeding, though her cough was still very frequent.

Observing that while the sickness continued, she breathed, comparatively speaking, easily, I was willing to keep it up, and gave her an emetic, which emptied her stomach, about half an hour after the bleeding. When the sickness went off, I had her put into the warm bath, where she remained about a quarter of an hour. I then gave her, to be taken during the night, a nauseating solution, similar to that ordered in the last case. A large blister was applied to the sternum.

April 20.

Soon after I left her last night, she fell asleep, and slept softly for two hours. The medicine made her very sick during the early part of the morning. Since she was in the bath, she has constantly had a moisture on her skin, which is cooler. The blister rose very well. She had during the night considerable thirst, which still

continues. Her breathing is easier, but often is interrupted by the cough. Her pulse is 100, and somewhat irregular. The blood is rich and florid, but not sizy. She has had no passage from her bowels: ℞. P. Jal. C^{t}. ʒfs. Calomelanos g^{r}. ij. Sum. statim.

I was somewhat surprised to be again sent for in the evening to visit this girl. Her complaint had returned about four o'clock, and in expectation that it would soon abate, I was not sent for until eleven. Her cough was worse than ever; it was ringing and incessant; the effort it occasioned resembled the convulsions of the whooping cough. Her breathing was quicker than last night, although not so difficult; her pulse was 110, and pretty full; her tongue foul. I found her sitting in the warm bath, and there I bled her to eight ounces. Before I could get the arm bound up, she fainted. When she recovered, her breathing was manifestly easier. I continued sitting by her for half an hour, during which time she was not two minutes free from a convulsive shudder, which sometimes made her even start up in bed. Her pulse was now, however, under 100, and not very weak. As she was still faint and sick, I gave her a small tea-cupful of weak port wine negus. I ordered the volatile liniment to be rubbed on her neck.

April 21.

When I left her last night, her cough became much less frequent, and she has not coughed since one o'clock in the morning. Her pulse is 70; and she breathes like a person in perfect health. She had a very severe fit of convulsive shuddering about two hours after the bloodletting. I called in the evening, when she had rather more feverishness, and some cough, but it had quite lost the croupy sound. She has started much during the day. Her bowels are open, in consequence of using the laxative powder, which was not given before this morning.

April 24.

She is quite free from all her complaints.

CASE IV.

" A girl fifteen months old, living a mile " distant from the sea, appeared in the evening " to be somewhat indisposed, her skin being " a little more hot than usual. Dr. Home, " who went to see her in the morning, found " her breathing laborious, the pulse hard, and " beating 135 times in a minute. He ordered " five ounces of blood to be drawn off imme- " diately: her voice then grew sharp, and re- " sembled that of a cock; the breathing fre- " quent and deep; her forehead and inside " of her hands very hot; both hands and feet " swelled, but without any redness. The " pulse now being hard, she was bled again, " which gave her much ease. She was made " to drink and breathe the vapours of warm " water mixed with a little vinegar: this had " a good effect, and promoted expectoration. " The body was unbound with the magnesia " alba; in the evening a blister was applied " round the neck. The third day she was " somewhat better; but the voice the same " as before, the pulse hard, and the breathing " deep. In the evening four leeches were

" applied under the chin, just at the top of
" the windpipe; and they having left off
" sucking, the place was fomented with warm
" water, so that the blood continued to ooze
" out for some hours. The child was well the
" next morning."

CASE V.

January 1.

W. J——'s daughter, a girl four years of age, naturally delicate, and, during the greater part of last summer, troubled with diarrhœa. Her father, I observe, has scrofulous ophthalmia tarsi.

On the 29th December, the night was wet and cold, and she was out in the open air for a considerable time. Next morning she was very hoarse, and was seized with a rough croupy cough, and complained of a pain in one side, which she is subject to. The complaints are said to have increased as the night came on; yesterday she was a little easier during the morning, but her complaint again increased at night. She has not had much thirst. Her belly is bound.

Her cough, breathing, pulse, and urine, are those of the second stage of Croup; but her colour is scarce affected. She is indeed pale; but neither her lips nor her nails are livid. Her tongue is but slightly affected; pulse 180—190, and not quite regular; respiration 24. She breathes as if there were something loose

the larynx. While examining the fauces, I irritated the pharynx with the end of the spoon with which I depressed the tongue, and made the child retch; and, at the instant, I saw some puriform matter forced from the glottis. On withdrawing the spoon, I found the end of it coated with a matter, in colour and consistence perfectly resembling that which we find in the bronchial tubes, in dissections after Croup. The fauces were not inflamed. Her look is cheerful. I ordered a table spoonful of a solution of tartarised antimony, gr. j ad ℥ i, to be taken every ten minutes, till vomiting should be induced; and when the vomiting has ceased for two hours, the solution is to be repeated in the same way.

JANUARY 2.

She was sick, without intermission, from half past ten to four. She has not taken the solution since. Respiration 24; rather more wheezing; cough stridulous; she cannot speak but in a whisper; tongue loaded; belly open; pulse 180; complexion still favourable.

JANUARY 3.

The sickness and vomiting brought on by a repetition of the solution, began about two o'clock yesterday, and continued till evening, and it was again induced severely this morning.

The cough to-day is less stridulous. She has vomited a great quantity of mucus of a yellow colour, which it receives from the mixture of puriform matter. Her breathing is easier; still audible; pulse 144; tongue loaded; complexion good; belly loose.

JANUARY 4.

Respiration nearly natural; pulse 136; considerable expectoration of yellow mucus; cough again shrill; tongue cleaner. Free vomiting last night after taking the solution which purged her. Great debility.

JANUARY 7.

Before this day she has always had great languor, and such weakness, that she was scarce able to walk across the room, a loaded tongue and quick pulse. Pulse 120; breathing natural; cough loose. The mucus, which I saw yesterday, was still yellow. She has taken no medicine for these twenty-four hours.

JANUARY 10.

Convalescent.

CASE VI.

November 13.

About nine o'clock a militia soldier requested me to visit his child. The weather has been cold and frosty, and the child, who is about thirteen months old, has been affected with catarrh for two days.

This morning, between eight and nine, he was attacked with a croupy cough and suffocative respiration, and so suddenly, that his mother imagined that something which he had been attempting to swallow had stuck in his throat. In the forenoon she gave him an emetic, which, however, had not a very powerful operation.

I found his breathing dry and audible, but not very difficult while he lay quiet; but upon lifting him up, he grew fretful, his voice was shrill and discordant, his breathing became more difficult, laborious, and interrupted. The struggle flushed the whole of his face and head. His pulse, even before he was disturbed, was exceedingly quick, not under 200.

V. S. ad ℥ ij. Blister to the upper part of the sternum, g^{r}. iſs. of calomel every two hours.

November 14.

Pulse 180; chest heaving; cough stridulous; breathing hissing; eye ghastly; no livor. He has had three dark stools. Omit the calomel. Apply a leech. Use the steam of warm water and vinegar. Give the antimonial solution, as prescribed in the last case.

November 15.

The leech was small, and the subsequent bleeding inconsiderable. After the first dose of the solution he was sick, and vomited yellow bile for nearly two hours; he has since taken three spoonfuls of the solution, which kept him sick during the most part of the day; and, after several dark green fœtid stools in the night, the discharge became more natural. His breathing is high, but not hissing or laborious. His cough is somewhat looser. He is very pale, but his lips are florid; pulse, as he lies, 124. His mother attributes the relief to the solution; she thinks he was somewhat easier after the use of the steam.

Continue the solution and steam; use the bath.

November 16.

He was sick all yesterday; to-day he is relieved of the sickness. He is extremely

fretful, pale, and weak ; but the croupy symptoms are gone. His breathing and voice are natural. Stools more natural. Om. med. Give more attention to the bowels and to clothing.

CASE VII.

D. T——'s son, twenty months old, a fair child, with blue eyes. Some months since he had measles, which left him weak. It is only of late that he has been recovering strength. Ten days since he was seized with catarrhal symptoms.

Tuesday evening he was attacked with a croupy cough and difficult breathing; his countenance, his mother says, was not only flushed, but swelled. On Wednesday the complaint continued; yesterday he was pale.

Friday.

He is now distinctly in the second stage of Croup. His respiration 44. Inspiration hissing, creaking, and laborious. Diaphragm heaving; chin pulled to his breast by every inspiration. Cough stridulous, scarcely to be heard in the next room. Expiration nearly as difficult as the inspiration, but not creaking. There is an expression of great distress in his countenance, which is pale and livid, particularly under the eyes. The nails are livid. He is lethargic, and not roused by raising the eyelids. Eye full, rather dim and glazed; bowels

natural; urine high coloured and scanty; pulse irregular, about 160; tongue moist, white.

Apply a blister. Give the antimonial solution.

SATURDAY.

This boy repeatedly, both during the day and night, has vomited; he has been, almost without interval, sick since last visit. Respiration 28, pulse 120. I have not heard him cough; his breathing is still audible, but easier. There seems much loose expectoration in the windpipe. His colour is improved.

MONDAY.

His respiration is more affected than it was yesterday, more audible, 32; complexion pale, not livid. Yesterday his medicine was neglected.

TUESDAY.

The solution has been given with effect. Breathing soft and natural; cough croupy, rather stridulous; great debility.

WEDNESDAY.

Convalescent. Om. med.

CASE VIII.

" Infantis unius et dimidii anni, qui nutricis
" adhuc lacte spissiore jam alebatur, lectulum
" cum mutato loco fenestræ apposuissent, aëri
" liberiorem justo transitum concedenti, die
" 29 Novembris habitum alacrem cum tristi
" mutavit, accedente noctis præcipue tempore,
" graviori tussi: Nec insequente die etsi
" obambularet melius valuit. Cum febris
" observaretur nulla, nil nisi laxans accepit.
" Insequente media nocte cum aliqua tussi,
" spiritus ducendi apparuit difficultas, anxia
" erat et celer respiratio, quæ suffocationis
" metum induceret, præternaturale clangori
" stridenti juncta. Fortiter movebatur pectus,
" fortiterque pulsabant arteriæ. Per bihorium
" hæc continuavit ægrotæ ratio; tunc autem
" turbas istas placida excepit quies. Primi
" Decembris, tempore matutino, pulsus plenus
" erat ac celer, facies rubra, inquietudo sum-
" ma; increverat interea et respirationis diffi-
" cultas et raucedo. Cum de morbo nostro
" jam cogitaretur, vena in brachio secta quin-
" que sanguinis unciæ mittebantur; quo facto
" et pulsus minuebatur vehementia et respira-
" tionis difficultas; vesicatorium nunc colli

" anterioris lateri applicabatur, nec enemata
" omittebantur. Attamen spei eventus minus
" respondit; exacerbabantur enim versus ves-
" peram et pulsus vehementia et spiritus
" ducendi difficultas, facillimumque jam erat
" stridorem istum peculiarem distinguere at-
" que agnoscere. Diversa nunc aceti vapores
" ratione, in usum trahebantur; nam non so-
" lum spongia aceto calido immersa, ori ægrotæ
" admovebatur, sed vas etiam aceto ebulliente
" repletum, tenuique solummodo linteamento
" tectum, lecto apponebatur, et itaque aër
" quem æger ducebat aceto impregnabatur.
" Nec quidquam hoc remedio, ægrotæ majus
" afferre videbatur levamen; respirationis enim
" inde minuebatur difficultas, et placidas ple-
" rumque mox insequebatur somnus. Infu-
" sum nunc florum sambuci theiforme, copio-
" sumque oxymel simplex exhibebatur. Ves-
" pertino tempore collecta urina, a primo jam
" initio alba apparuit, frustulisque mucosis
" quam plurimis fundum neutiquam petenti-
" bus, sed ei innatantibus, commixta. Prima
" insequentis diei luce, aliquando melius va-
" luit, et sponte muci aliquid rejecit. Quæ
" omnia cum ante meridiem bene se haberent,
" imminutaque deprehenderetur morbi vis,
" emeticum exhibere muci spontanea ejectio
" jussit. Repetitis itaque vicibus oxymel pro-
" pinabatur squilliticum, usque dum vomitus

" cieretur. Accedente vomitu insignis nec
" muco remixta membranæ albæ, diversæ mag-
" nitudinis, in frustula divisæ, a muco ordi-
" nario ob majorem tenacitatem facillime dis-
" tinguendæ copia excernebatur. Felicissimus
" ille prioris emetici successus aliud exhibere
" suasit. Nec illud quoque levamine caruit;
" liberabatur enim æger a membranacea mate-
" ria æque ac muco omnium tenacissimo. Gra-
" tissima nunc in infante apparuit mutatio; pul-
" sus æque ac respiratio naturali similior evasit,
" et placido sopitus somno per totam jacebat
" vesperam, maximamque insequentis noctis
" partem, sine ulla pene febre vel aliis pathe-
" matibus transegit. Tertii Decembris diei ini-
" tio bene valuit, nec de alia re nisi de vesica-
" torio questus est. Nunc laxans propinabatur,
" cujus ope larga educebatur muci copia.

" Abundans nunc quoque ex naribus stillare
" cœpit humor. Nec minus insequente nocte
" bene se habuit, etsi tussis, nec molesta tamen,
" per intervalla rediret. Clangor specificus post
" primum jam evanuerat vomitum, et raucedo
" in dies minuebatur. Quarto Decembris mane
" aliud exhibitum fuit emeticum, quod vero
" paullulum modo muci ejiciebat. Quinto jam
" cibum appetere, et pristinam recuperare ala-
" critatem cœpit. Laxantia, quorum adhuc
" continuabatur usus, magnam semper muci
" quantitatem evacuarunt."

CASE IX.

On the 22d of February, in the same house where I saw the first case *, I found a second in a child of a similar temperament. The character of the disease, however, was quite different. The inspiration was very difficult, but not hoarse; the cough was stridulous; the child was pale rather than flushed. When his mother took him on her knee, he struggled for breath, and seemed to be easiest when lying on his back, with his head low. His eye was heavy; he was afraid to cry; but was extremely fretful and irritated when I laid hold of his arm, insomuch that it was long before I got his pulse numbered. In the five seconds it beat fourteen strokes, and was weak. His hands were chilly; he had great thirst, and swallowed easily: He had eaten nothing for two days: He had no fullness in the upper part of his neck, and it was not in my power to examine the fauces: He had three stools this morning; and his urine, which has much sediment, he voids frequently.

Ten days ago he took a diarrhœa, attended

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* This was a case published in the first edition, of a severe attack instantaneously relieved by bleeding.

with griping, which his mother imagined proceeded from dentition. This disorder continued till Wednesday the 17th, when it entirely left him, and the croupy cough came on that afternoon; but the mother was not at all alarmed before the 20th, when his breathing had become very high; still she thought his illness proceeded from his teeth. This morning he was cheerful and easy; but the respite was granted only for a short time; his disease became much more threatening, and her fears were seriously awakened.

Of her own accord she had applied a blister two days ago, and she gave the boy a vomit this morning, which brought away much viscid expectoration and bile. I ordered an emetic and two leeches to be applied to the neck.

FEBRUARY 28.

I called early this morning, and found that the child had died an hour before. The leeches were not applied.

DISSECTION.

There did now appear a fullness in the neck; but this was not an occasional fullness, but rather a thickness and natural shortness of the neck. The face, and skin of the neck, were peculiarly pale, like marble; the cellular mem-

brane and fat were white, and most delicately transparent, and free from a stain of blood; the thyroid veins on the anterior part of the trachea were turgid, as were the external and internal jugulars.

The incision was made from the chin to the sternum, and the tongue, trachea, and gullet, were cut out, and pulled from the cavity of the thorax. There was no inflammation of the fauces, nor any apparent affection of the throat; but, upon looking into the glottis, a fluid like pus was observed working up from the trachea. The œsophagus was cut away, and the trachea slit up upon the back part, where there is a deficiency of the cartilaginous rings, and then the membrane presented itself fully formed.

The trachea was cut away near its branching off; and here, upon careful examination, the membrane was found most complete and very strong; but gradually, as it stretched upwards behind the thyroid cartilages, it degenerated into a puriform matter, which loosely adhered to the rima glottidis and sacculus laryngeus. This matter was not like the natural secretion of the mucus of these parts; it was not the mucus thickened and become tough; much of it was fluid as the natural mucus is, but it had no other resemblance to it; it was like that matter which at first flowed

out of the larynx; it was of the consistence of cream, or rather the fluid part of it was thin and watery, like whey; and in this the firmer matter, curdy, and like the discharge from a scrofulous joint, floated.

Upon taking up the membrane from the lower part of the trachea, where it was firm, the inner coat was seen inflamed, the vessels red, enlarged, and distinct.

EXPLANATION

OF

PLATE I.

The Membrane shewn by cutting up the Cartilages of the Throat on the back part.

A, The Epiglottis.

B B, The Cricoid Cartilage cut and torn open.

C, The Trachea.

D D, The Cornua of the Thyroid Cartilage.

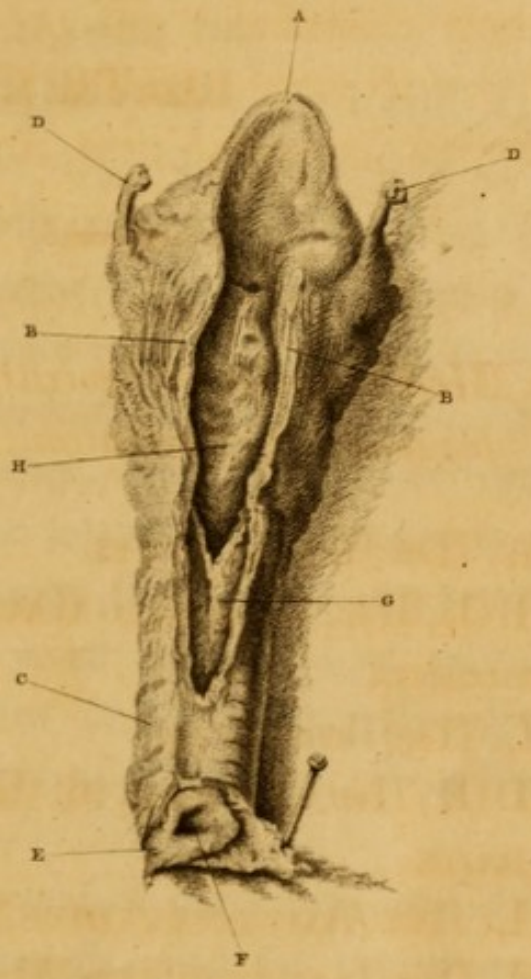
E, The Adventitious Membrane.

F, The Cavity of the Membranous Tube.

G, The Membrane, where it is weaker, torn in separating the back part of the trachea from it.

H, The Membrane more irregular and liquid, where it is attached to the larger cartilage.

Plate, 1.



Charles Bell del.t

John Stewart sculp.t

CASE X.

March 20.

G. D——'s daughter, two years and a half old.

She is extremely stifled in her breathing, which is rather frequent; the expiration is performed as if the tube were shut up by a valve, and this forced back with a flap when the air returns from the lungs. There is neither tumour nor redness in the fauces; her cough is very croupy and frequent; her neck is not swelled; her countenance is of a death-like paleness, and her extremities chilly; her pulse is very quick, but still firm and regular. She had a stool this evening.

This child, four or five days ago, was seized with the croupy cough, and for two days her breathing has been affected; but as she had some appetite for food, and drank easily, no danger was apprehended. The child was visited some hours ago for the first time. She seemed in a state of suffocation, and five ounces of blood were taken from her neck. Before the compress could be applied to the orifice, she nearly fainted; she then vomited very freely, and derived temporary ease in her

breathing from the bleeding; but soon after the dyspnœa returned. The warm bath was ordered, and a blister, which was immediately applied to the neck.

The child had an emetic in the evening.

MARCH 21.

I saw the child at eight o'clock this morning; she was writhing and twisting about, of an ashy paleness, and was just dying. The vomit brought away a quantity of mucus; but notwithstanding my injunctions, it was not preserved. The first mouthful, which seemed like the white of an egg, she threw off with great violence. The urine passed since last visit had a copious sediment. The child died at nine o'clock.

DISSECTION.

Upon making the first incision in the neck, the fat and cellular substance resembled very much, in whiteness and transparency, that of the last patient. The thyroid veins were not peculiarly distended, but the internal jugulars were very turgid. The thyroid gland was large, and the lobes of the thymus gland extended upwards to the thyroid cartilage, in two distinct slips.

Although there appeared no active inflammation, yet the effect of an increased action was

very manifest, from the quantity of a gelatinous effusion which surrounded the lobes of the thyroid gland, and passed behind them round the trachea.

Upon lifting the sternum, the thymus, of a great size, lay extended over the pericardium. The lobes of the lungs, which projected, were of a pale greyish colour *. Upon raising them from the thorax, the posterior part was of a darker red, not, however, as if inflamed, but more as if gorged by the gravitation of the blood in the supine posure of the body after death *.

Having taken out the trachea and part of the lungs, the trachea was opened upon the back part at the bifurcation; but here there was no membrane. The trachea was then slit upwards, and on approaching the back part of the great cartilages of the larynx, the membrane was found distinct, fully formed, but not so strong as in the last instance. It was of less extent, as

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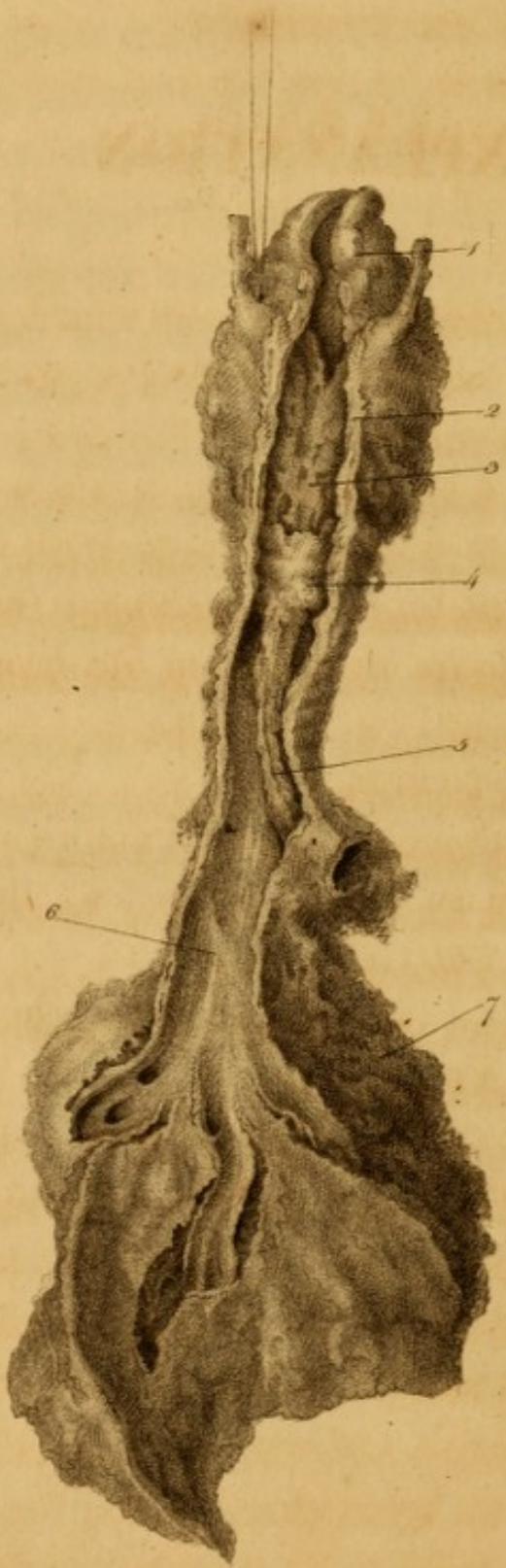
* I suspect this appearance had led to an error in the first case described by Michaelis; for he says, "Pulmonum dextro "æque ac sinistro in latere, facies inferior ac posterior colore "insignis erat livido, unde ad inflammationem harum par- "tium concludere fas est. Facies autem pulmonum anterior "ac superior, naturali gaudebat colore." P. 256.—And again, in the *Observations par M. Mahon*, "La portion des "lobes du poumon qui s'est présentée la première à la vue, "lorsqu'on a enlevé le sternum, etoit dans son état naturel. "—Il n'en a pas été de même du reste du poumon. Il etoit "rouge et engorgé," &c.

well as possessing a less degree of firmness. A streak of the membrane passed down a considerable way, attached to the fore part of the trachea. In general, it has been observed, that the membrane extended farther down, and was firmer on the back and membranous part of the trachea.

The membrane, which extended about an inch and a half downwards from the glottis, was in a manner floating in a milky-like fluid, white and opaque.

Upon tracing the branches of the bronchia, there was no membrane; but in cutting into the substance of the lungs, a frothy mucus was observed in the minute branches of the bronchia.

late, 2.



Charles Bell delt

John Stewart sculpt

EXPLANATION

OF

PLATE II.

The Trachea slit up on the back part from the Epiglottis to its division into the Lungs.

1. The EPIGLOTTIS.
2. The cut edges of the CARTILAGES.
3. The MEMBRANE adhering to the back part of the THYROID CARTILAGE.
4. The MEMBRANE gathered together, so as to plug up the TRACHEA.
5. A streak of the MEMBRANE continued into the right branch of the WINDPIPE.
6. The LEFT BRANCH of the WINDPIPE, the internal coat being very slightly inflamed.
7. The SUBSTANCE of the LUNGS cut into.

CASE XI.

MAY 14.

M. D——'s daughter, eighteen months old, was the day before yesterday seized with a croupy cough. Yesterday, with the cough, she began to have much difficulty of breathing, which towards noon increased to a great height; and this symptom has not once intermitted since. Yesterday and this morning she had her usual appetite for food. At present she labours inexpressibly in her breathing; her nostrils are inflated; and every inspiration raises her chest from the bed. If she is at all fretted, in crying her voice is very stridulous, and then the cough is raised. Her face is of a leaden paleness, her eyes are languid, and she is very lethargic. When she is lifted up, she struggles and tosses about till she again gets to lie down on her back, and then, when her head is low, she appears easier, and is inclined to dose. She has vomited several times this afternoon. Her pulse is rather full and quick, and her skin warm; her bowels have been loose; her fauces are without swelling or redness; and there is no swelling in the neck.

The treatment in this case was similar to that already mentioned, only that I used no internal

medicines but an emetic and calomel. The child died in nine or ten hours after I first saw her.

DISSECTION.

During this dissection, I was much annoyed by the jealous watchfulness of the attendants; so that the operation was hurried.

On the fore part of the neck there was nothing particular to be observed; there was neither swelling, nor any appearance of inflammation; but upon making an incision, separating the larynx from the pharynx and root of the tongue, and then folding down the trachea and œsophagus, a viscid tenacious froth was seen to fill the upper part of the pharynx and opening of the windpipe.

Upon cutting out and carefully examining the trachea in its whole length, the inner coat was observed to be considerably inflamed. The epiglottis was inflamed, and somewhat tumid. The swelling of the epiglottis was not considerable, but it was red, and its vessels were distinct and turgid; and upon its concave surface films of a membranous crust adhered: When these were removed, slight ulcerations were observed on each side of the little ligament which runs down the middle of it. The membrane covering the cornua of the os hyoides and the thyroid cartilage was swelled and red, and had that purplish

or bluish cast, with lake-coloured turgid vessels, which would incline me to say that the inflammation was of an erythematous kind.

Within the cartilages of the larynx the membrane was distinctly formed, but irregular; perhaps displaced, in some measure, in the hurry of dissection. There was little inflammation lower in the trachea; and there was none of the membranous pellicles or crusts to be observed lower down than the cricoid cartilage; but the internal membrane had the vessels distinct, and slightly turgid.

I was not allowed to open the breast.

Plate, 3.

Charles Bell del.t

Eleaz.r Stennett sculp.t

EXPLANATION

OF

PLATE III.

In this plate the parts are presented to us as seen from behind, the cartilages and membranous part of the trachea being slit up. The appearance of the whole, however, differs essentially from that of plate I. Here the membrane formed by the disease is less perfect, being more in shreds and detached pieces, whilst the upper part of the trachea is considerably tumified and inflamed. This plate is intended to shew the parts in a higly inflamed state.

CASE XII.

Sunday, June 7.

A. R——'s daughter.

She has had catarrhal complaints since Sunday last, with a rough cough. On Thursday her breathing became affected. During the night there is an aggravation of the dyspnœa. Her cough and her voice are croupy; her eye is heavy; her pulse is moderate in strength, and not much quicker than usual; she has no thirst; her appetite for food is natural; she is generally reserved, but sometimes amuses herself as if nothing were the matter; and is at no time fretful. The tonsils and velum are slightly inflamed; the submaxillary glands are full, but not painful. Her expectoration is copious; her urine is high coloured, depositing much sediment. The disease is well marked, but it has been less active in the attack than usual.

Evening.

In the morning I ordered a vomit, which

brought away a great deal of mucus; and she had afterwards leeches, and then a blister applied to her throat. After the vomit had operated, she had a grain of calomel, which has been repeated every two hours since. This medicine has procured her several stools. I think her breathing is more difficult now than it was in the morning, and indeed she has more pyrexia. I ordered the warm bath, and a continuation of the calomel every hour and half during the night.

Monday evening.

She has had ten grains of calomel, but without any abatement of the disease. This morning she got another vomit, which caused the expectoration of much mucus, mixed with puriform flakes, resembling portions of the membrane. I ordered another vomit for this evening, and a continuation of the calomel.

Tuesday.

The emetic had a powerful effect, bringing up a considerable quantity of pulmonary secretion. The child, however, died this morning.

She had taken twelve grains of calomel.

DISSECTION.

Instead of examining the trachea by dissecting it from the neck, and cutting it up upon the back part, it was determined to open it on the fore part, and to trace the diseased appearance through its whole length, and to follow its branches in the lungs.

When the integuments of the neck were dissected back, though there did not anywhere appear marks of inflammation, there was a turgidity of the great veins, as is represented in the annexed drawing. This, however, was evidently occasioned by the difficult respiration affecting the circulation of the heart, the impeded action of the heart causing a remora in the cavas and right sinus; and accordingly, upon opening the thorax, we found the right auricle and the superior cava turgid with blood.

When the trachea was slit up on the fore part, from the thyroid cartilage to the division in the lungs, the membrane appeared completely formed in all this length, and of a firmer body than in any of the cases which have been given. It was more delicate behind the great cartilages of the throat, was firmest about the middle of the neck, and again became more soft and liquid after the division of the trachea in the lungs; and gradually, as I

traced the bronchia, it lost its consistency. Although I observed a slight affection of the membrane of the bronchia, the adventitious membrane could be traced but a very little way into the lungs.

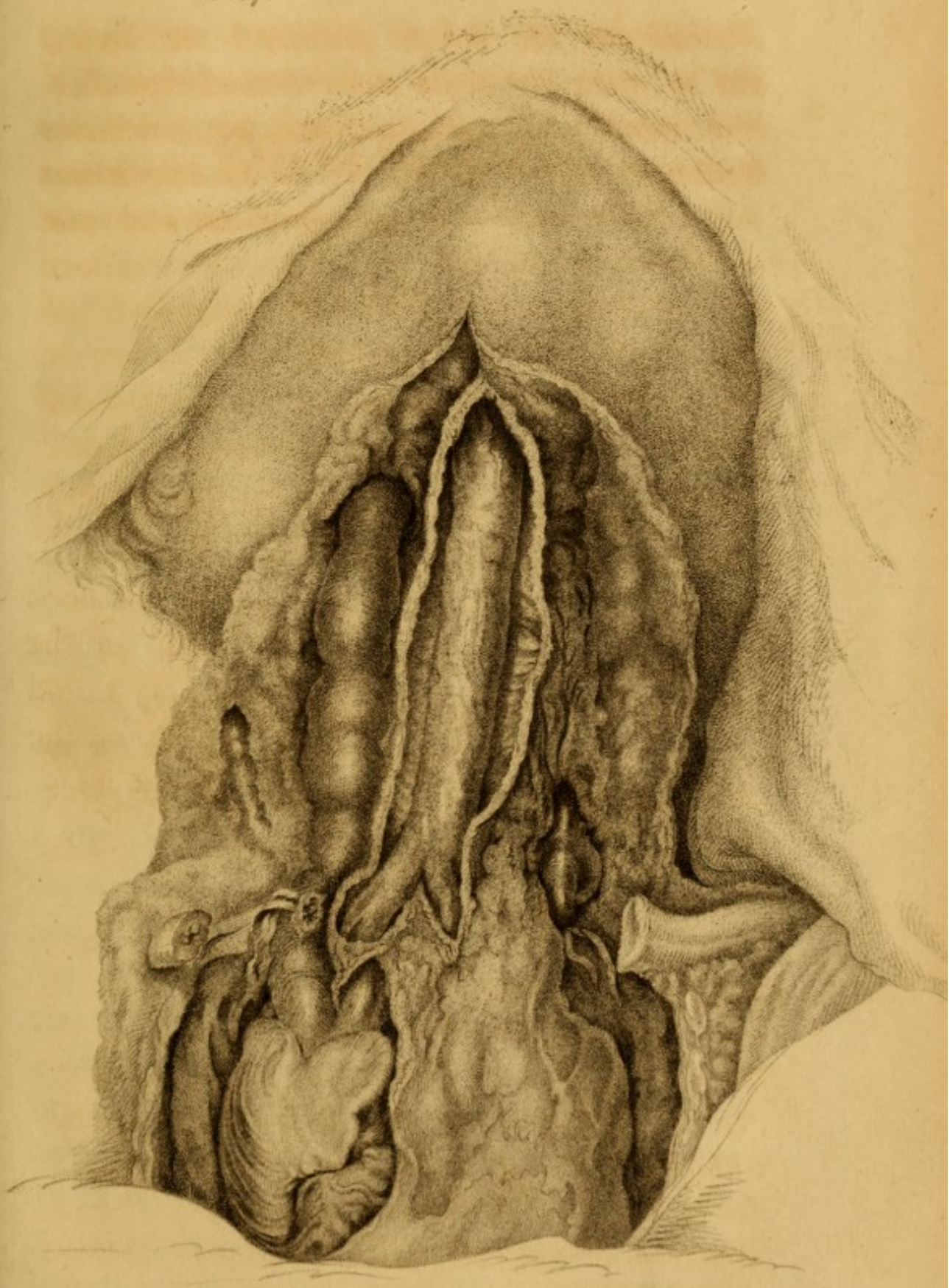
EXPLANATION

OF

PLATE IV.

To the annexed engraving of this case no letters of reference are required. The integuments are lifted from the fore part of the neck and part of the sternum. The veins of the neck and the right auricle are seen very turgid with blood. The trachea being slit up on the fore part, the perfect formation of the membrane of Croup is impressively shewn.

Plate 4.



Charles Bell del.

Chas. Stewart sculpt.

CASE XIII.

SATURDAY, NOVEMBER 12. 1808.

On Wednesday, a child, four years of age, was seized with a croupy cough. The child lives in a low house, about two hundred yards from the high-water mark, built on a level which cannot well be drained, and there is generally a small pool of putrid water before the door. Sunday, Monday, and Tuesday were damp, cold, hazy days, and the child was as much in the open air as usual. In the beginning of the week, she complained of weak eyes. She is naturally delicate.

On Thursday, her breathing was affected; since Thursday she has had no stool. She had a dose of castor oil on Thursday; yesterday she had a vomit, and was bled, and calomel was ordered.

Her breathing is but little quickened (28). It is difficult, dry, and audible at some distance from the bed. It is not so loud now as in the night-time. Her cough and voice are stridulous; her pulse is 148, weak; her countenance is much flushed, inclining to

purple; her eye is watery, pupil dilated, iris pale, albuginea vascular. She is this moment under a paroxysm of dreadful breathlessness; strangulation threatened; livor; jactitation; paleness; great exhaustion.

I ordered a table spoonful of a solution of tartarised antimony, gr. i. to the ounce, every quarter of an hour till it induce vomiting.

I called in the evening, and found her voice whispering; and although I saw her cough at the other side of the small apartment, her voice was so suppressed, that she was not heard.

November 13.

It was not before she had taken eight grains of tartarised antimony, that she began to vomit. Since yesterday she has taken fourteen, yet she has not vomited much; she has frequently retched; urine high coloured, with much sediment; stools dark and loose; she is generally asleep, yet easily disturbed; respiration 40, heaving; it sounds as if there were something loose in the windpipe; there is some expectoration of puriform mucus; she has less cough; voice whispering; pulse very quick and irregular; profuse clammy sweat; a purple patch on the cheek; complexion not so uniformly red. Cont.

NOVEMBER 14.

Pulse 170—180; glutinous discharge from her eyes; breathing suffocative, laborious, irregular, interrupted, short, about 20; expression in general languid, often fretful. She is sometimes delirious; constant licking of the lips. She evidently swallows air during inspiration, and is constantly belching it up. She lies with her head very low. In the course of last night she passed three lumbrici.

In the evening her eye was filmy; she was insensible, gasping, moribund.

DISSECTION.

When the thorax was opened, no diminution was observed in the volume of the lungs, nor were they to be depressed by a moderate force. They appeared to have been in a state of great congestion. The right middle lobe, both superficially and in its substance, had been more disordered than the others. It was firmer than the other lobes. The surface was florid and fleshy, like the liver, with several broad and slightly elevated tubercles of a lighter colour, and more dense. In cutting into this lobe, there appeared to have been no blood extravasated; but there was a general exudation of viscid homogeneous fluid, of a light greyish and brown colour. On pressing

the lungs, there also came from the bronchia a frothy fluid like pus, but of more tenuity. The same yellow fluid appeared upon cutting into the lobes. There were no unnatural adhesions, but the pleura was crowded with vessels both venous and arterial. The pericardium contained five or six tea-spoonfuls of a clear yellow serum. The trachea was completely lined with a tubular membrane, yellow, dense, and viscid. The branches of the membrane were traced to the extremity of the second subdivision of the bronchial tubes. In some of the remote ramifications of the bronchia were smaller masses of tenacious yellow matter; these, however, were not abundant. Between the bronchia and adventitious membrane, there was a dew of colourless fluid. On the inner surface of the trachea, and likewise in the bronchia, was a great accumulation of little vessels. These vessels, in some places, were, however, so considerable, that, with a magnifier of very moderate powers, the branching from one of the small trunks might be distinguished to the fifth subdivision. The increased vascularity was to be discerned as far as the bronchia were traced.

CASE XIV.

JANUARY 17, 1808.

Eight days ago this boy began to recover from fever. He had been out but once or twice, but the weather was unfavourable. On the night of the 15th he had a very rough cough. Last night, along with the cough, his breathing was much affected.

He is flushed, but I think without livor; his cough is frequent and stridulous; his breathing is difficult, sometimes suffocative and laborious (36); he is unable to raise his voice; his pulse is quick; belly supposed regular; tongue clean; thirst considerable. Six ounces of blood were drawn, after which he became pale, and his cough was certainly louder.

This boy died on the 20th; being confined to my room I had no opportunity of seeing him after the 17th. On the 19th he coughed up a tubular portion of the membrane, which was brought to me. It was large enough to have lined the trachea. The expectoration of this substance was not productive of any

sensible benefit; for my brother, on the evening of that day, found all the symptoms aggravated, and for the first time observed a very unfavourable change in his complexion.

DISSECTION.

January 22.

On raising the sternum, we found the lungs filling the cavity of the thorax. They could not be compressed into smaller compass. Upon pressure, vesicles of air rose between the lungs and their investing pleura. The surface of the lungs was of a pale rose colour, marbled with small blue spots. There was a quantity of clear yellow serum between the pleura costalis and pulmonalis, on one side about two ounces. On cutting into the lungs, a red frothy fluid was effused, consisting of blood, air, and the effusion from increased action. On slitting up the trachea, it was seen that the inside had been completely lined with the adventitious membrane, about one-sixteenth of an inch in thickness, of considerable tenacity, and in general appearance like coagulated lymph. The membrane was coated internally with a yellow fluid, apparently consisting of pus, and the common mucous secretion. The membrane was ragged, particularly at the upper part. It did not

adhere to the trachea firmly, for it was easily pulled out entire. On wiping clean the internal surface of the trachea, it was observed finely streaked with lines of extravasated arterial blood, and little inflamed vessels. The adventitious membrane lining the trachea extended over the thyroid cartilage, and was traced into the first divisions of the bronchial tubes, and there it was still tubular; but in the smaller divisions, there was no regular coating, merely, here and there, considerable portions of coagulated lymph of a yellow colour. The surfaces of the small bronchial tubes, in as far as they could be followed, had the same inflamed appearance which was observed in the trachea. On cutting into several parts of the lungs, we saw pus mixed with the effusion already mentioned.

CASE XV.

" Puer novem annorum, habitus corporis
" tenuis delicatuli, adfectionibus catarrhalibus
" sæpe obnoxius, cæteroquin sanus, tempore
" vernali anni 1775, febricula cum levi tussi et
" tonsillarum tumore correptus est. Hunc
" morbum ab aëre frigido vespertino, in quo
" obambulaverat puer, ortum duxisse ratus,
" potum theiformem calidum, pulveresque
" camphoratos, et linctum pectoralem, præ-
" scripsi. Satis bene inde se habuit ægrotus,
" febris disparuit, tussis metuit, tumor faucium
" fere evanuit. Cum vero nulla adesset ex-
" pectoratio, hanc ut promoverem, oxymel
" squilliticum addidi linctui pectorali. Verum
" in eodem statu per binas septimanas reman-
" sit tussis, ita tamen ut ægrotus genio puerili
" late indulgeret, cibos appeteret, nocturna
" quieta frueretur.

" Neque febris sub eo tempore recruduit,
" neque respirationis difficultas, aliudve in-
" commodum supervenit. Quindecimo autem
" die accersitus, res inveni quam maxime
" mutatas. Quippe puer, moribundi instar
" facie pallida, oculis labiisque diductis im-
" mobilibus, cute frigido sudore perfusa, an-

" helitu difficillimo, stridulo, lento, respirabat.
" Pulsus parvus erat et celerrimus. Verbo
" quovis momento misellum animam efflaturam
" esse putabant adstantes. Unde vix obtinui
" a parentibus ut venam secari sinerent.
" Quatuor sanguinis unciis absque levamine
" eductis, periculo magis magisque increscente,
" emeticum præscripsi ; tartari nempe stibiati
" aliquot grana in aqua simplice soluta, re-
" fracta dosi porrigenda, donec inverteretur
" stomachus. Secundus remedii haustus, vo-
" mitum excitavit tussimque. Quorum unita
" vi, non sine summo suffocationis periculo ex
" faucibus protrusum forasque demum rejec-
" tum est concrementum membranaceum, fir-
" mum, ramosum, totoque tractu cavum arte-
" riæ asperæ bronchiorumque conformationem
" satis apte referens. Post singularem hanc
" excretionem, pauculas sanguinis guttas se-
" cum vehentem, cessarunt omnia, quæ infanti
" mortem minata erant symptomata, spiri-
" tum liberrime traxit puer, calorem natura-
" lem ciborum adpetitum, mentis hilaritatem
" recuperavit, lætusque cum parentibus lætis,
" ceu a morte ad vitam revocatus prandium
" cepit. Neque tamen restitutum sivi relin-
" quere linctus camphoraceorumque usum;
" suasi etiam vaporis lenientis inhalationem.
" At breves atque deceptrices fuerunt illæ in-
" duciæ. Quippe tertio a dicta mutatione die,

" respiratio denuo fit anhelosa, stridula gal-
" linæ gracillantis sono similis; pulsu tamen
" non adeo depresso et languido, quam in
" priori mali accessu. Hinc venam iterum
" secui, sed absque sensibili levamine. Circa
" vesperam, aucto suffocationis periculo, tinc-
" turam ipecacuanhæ aceto scillitico mistam
" ad excitandum vomitum propinavi, et qui-
" dem cum successu. Alterum enim concre-
" mentum priori plane simile ejecit æger mox-
" que sublata est spirandi difficultas.

" Remanebat autem febris lenta, versus ves-
" peram exacerbans, sputum hactenus muco-
" sum mutatum est in purulentum, accessit
" dysphagia, nec obstitit corticis Peruviani et
" aquarum selteranarum lacti additarum usus,
" quo minus sudores et diarrhœa superveni-
" rent, viresque ægroti penitus exhaurirent.
" Sic decimo tertio post alteram rejectionem
" die animam efflavit. Valde desideranti non
" concessum est cadaver secare, tracheæque
" cavum inspicere."

the portions of the Membrane which were in the branches of the Trachea

E.Mitchell fecit

EXPLANATION

OF

PLATE V.

The case which this engraving illustrates, was kindly communicated to me by Dr. Rollo, surgeon-general of the royal artillery. The patient was a gunner, and had, previous to the attack of Croup, of which he died, suffered severely from a catarrh. In his youth he had been more than once ill with Croup. The surgeon who had him in charge had attempted to relieve him by the operation of bronchotomy; but as he was absent on duty when I was last at Woolwich, I was not able to procure an account of the operation. For the drawing I am indebted to my ingenious friend Dr. Macculloh, physician, Blackheath.

EXTRACT FROM THE NOTE OF THE DISSECTION.

The thoracic and abdominal viscera, *in situ*, appeared natural; there was rather more fluid in the cavity of the chest than usual, and of a brownish colour; the posterior and inferior portions of both lobes of the lungs had evident marks of inflammation, but more particularly the latter; the fluid found in the cavity of the thorax coagulated when exposed to heat; the tonsils were enlarged, more particularly the left; and both tonsils were covered with a thick membrane of coagulable lymph. About three inches of the trachea from the larynx was taken off; it was covered with the same kind of membrane, and had the same appearance as in cases of Croup. Upon a farther examination of the remaining portion of the trachea, we found a continuation of this membrane, but of a firmer texture than that in the superior part, accompanied with an appearance of inflammation of the natural membrane of the trachea and its divisions; and this membrane, as well as the inflammation, pervaded the smallest ramifications of the bronchia, which, upon pressure, were found plugged up with a bloody frothy kind of matter. Upon opening the heart, polypi and coagulable lymph were found in the right auricle and ventricle.

Observations on the Cases.

In this series of cases, there is an attempt made to display Croup in every form and stage; to determine its causes, and describe the appearances produced in the organ in which it is seated; to shew how simple the remedies for this disease are, and how well their operation is to be explained by the known laws of the economy; lastly, how completely these remedies, when prescribed early in the disease, fulfil the indication, and how dreadful to lose the opportunity. In no disease is the superiority of modern over ancient practice more satisfactorily established; nor can a better proof be offered of the preference which prognostics, founded upon a knowledge of sound principles of pathology, are entitled to over those which were the result of mere unassisted observation.

The 1st case is an example of the mode of attack, entitled by Dr. Ferriar Spurious Croup; an affection, the importance of which, I believe, has often been overrated.

The 2d, 3d, and 4th are examples of the first stage of Croup, relieved apparently by bleeding.

Cases 5th, 6th, 7th, and 8th, are examples of the second stage of Croup, relieved apparently by emetics. In case 5th, the affection of the membrane of the bronchia appears to have been inconsiderable. In case 8th, upon the rejection of the adventitious membrane, the disease abated.

Cases 9th, 10th, 11th, 12th, 13th, 14th, and 15th, with some variety in the symptoms, shew the full effects of the disease upon the organ and the whole system. I had not, in the dissections published in the first edition, examined the surface of the bronchial membrane so minutely as I have done since. I am now convinced, by comparing this part of the pulmonary system after Croup, and after peripneumony, that it is inflamed in nineteen cases out of twenty of the former disease, when fatal; and that, were the affection limited to the larynx, the most formidable symptoms of Croup would never appear. Case 11th shews that the most violent disease does not always produce the most perfect membrane; and cases 14th and 15th shew that the removal of the membrane is by no means to be considered as an intimation that the disease will end favourably.

Of late years have I scarce ever ordered bleeding in the second stage. Death, in cases 9th, 10th, 11th, and 12th, was probably hastened by the bleedings.

OF

SPASMODIC CROUP.

I HAVE frequently found children, after hoarseness and cough during the day, disturbed in the early part of the night with an incessant hard barking croupy cough. Several of the inspirations which succeeded each fit of coughing, were crowing, and highly difficult and croupy; and the countenance was much flushed. But when there was any interval between the fits of coughing, the breathing became nearly natural, and the flushing was less manifest. The pyrexia was not great. The complaint has generally abated some time after midnight. When at the greatest violence, an emetic has a remarkable effect upon this affection, and the return is prevented by the free use of calomel.

This affection appears to be the same with the spurious Croup of Dr. Ferriar, which is described as a disorder which goes off entirely without any other remedies than common demulcents, and which often cures itself.

This affection occurs in those families which are subject to genuine Croup. It arises, as I have had an opportunity of ascertaining, from the same exciting cause; it prevails during the prevalence of the same weather, and it attacks those children who have previously laboured under the genuine inflammatory Croup. It rages at the time of night when Croup is seen in its most exquisite form, and it has, if I am to trust the description of those who have had the care of the patients, degenerated into genuine Croup. For I have been repeatedly assured, that for nights before the breathing became permanently affected, the cough had been hoarse, barking, and croupy, and the breathing crowing; but that the patients became easy after the middle of the night, and, with the exception of the cough, had no complaint during the day, and ran about amusing themselves. I conclude, from these marks of identity, that the affection which I have just described, is but a variety in the attack of Croup.

The relief of Croup, then, is often sponta-

neous, or it may be accomplished by the use of calomel and emetics. But I fear we shall not be able in all cases to point out, with sufficient accuracy, the attack in which the milder treatment may be relied on. A physician* who has successfully applied himself to the investigation of this disease, declares that he has repeatedly sat by the child's bedside watching for the moment of danger, while the cough was increasing in violence, and adds, that his fears were removed only by finding, that towards midnight the restlessness abated, and sleep became more composed.

I have thought that I have been able to distinguish, by the sound of the cough, when the disease would yield to measures of less severity than are often necessary. Certainly I augur more favourably of a hoarse barking cough than of a shrill ringing one; yet when we read* that the sound of the cough in spurious and genuine Croup, is so similar as to inspire even the most experienced with doubt, I am unwilling to rely on this symptom.

I would have the chief attention directed to the state of the respiration. When there exists a croupy cough, I leave directions to be called

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* Ferriar.

whenever the breathing becomes permanently affected; and if medical assistance were always procured at this stage, I believe Croup would scarce ever be a fatal disease. I have never omitted to recommend those mothers, whose children are liable to Croup, to procure assistance when the audible breathing does not seem merely the effect of the last fit of coughing. All the unsuccessful cases of Croup which I have witnessed during the last three or four years, have been in the lower rank, where sufficient attention is seldom paid to the first attack of any acute disease.

I have not been able to see any just grounds for considering that there are two kinds of Croup. Mr. Field (Memoirs of the Medical Society) asserts, indeed, that there are sufficient marks of distinction between spasmodic and inflammatory Croup: "The spasmodic "Croup attacks suddenly, and usually in the "night. It often intermits; and in these in- "tervals both the respiration and the cough, "if any exists, are free from the usual cha- "racteristic sound. The concomitant pyrexia "is less, and spasmodic Croup is a disease of "less danger." But surely I shall be excused when I say, that this is a hasty and imperfect sketch. Mr. Field afterwards admits, that the attack of inflammatory Croup is sometimes

equally sudden with the attack of the spasmodic. The cough during the paroxysm he has not described; yet during the remission, he says that it wants the usual characteristic sound. The concomitant fever varies exceedingly in degree in many cases, which would be considered as equally fair specimens of inflammatory Croup.

Mr. Rumsey, after alluding to the morbid appearances produced by inflammatory Croup, adds, "If similar marks of internal disease "occasionally arise when there are none of "these internal morbid appearances, may we "not conclude that these two diseases are "in their nature totally distinct from each "other, rather than two species or modifica-"tions of one disease."

Dissection is the very test which I would apply; but I have in vain looked for dissections of spasmodic Croup in the writings of those who, with the greatest zeal, maintain the existence of spasmodic Croup as a distinct disease.

Until the advocates for the separate existence of spasmodic Croup, more fully assign and establish their grounds of belief, I am convinced that it will be for the benefit of the patient that we should act as if there were but one kind of Croup, and of every mode of this disease, previous to the unequivocal formation of the second stage, that we allow the treat-

ment to be regulated by the state of the respiration.

In consequence of a conversation with my friend Dr. Kellie, on the nature of Croup, I inclosed the following queries, which I begged him to answer, and which he has obligingly done. His observations are well worthy of the reader's attention. At the head of these queries I placed Case I.

1*st*, Does this appear to you to have been a case of spasmodic Croup?

2*d*, Have you known spasmodic Croup brought on by cold?

3*d*, Have you known the same child at different times affected with spasmodic and inflammatory or genuine Croup?

4*th*, Have you observed spasmodic and genuine Croup in the same family?

5*th*, Do you recollect to have seen any case, which you considered as spasmodic Croup, pass into genuine Croup?

6*th*, Did you ever, in spasmodic Croup, observe difficult breathing continue after the immediate effect of the fit of croupy coughing was over?

7*th*, Were the difficult breathing to continue, do you think it would be safe, in the cure, to trust to calomel alone?

8*th*, Did you ever attend a case of spasmodic Croup which terminated fatally?

Leith, February 1809.

Dear Sir,

I have now, that a little leisure is afforded me, to acknowledge the receipt of your letter of the 9th ultimo, with a case, and some important queries, to which you have invoked my attention. But before replying to these questions in a more special way, I must beg your indulgence, while I premise a few more general observations on the subject to which they refer.

And, first, though I am perfectly assured that genuine Croup (Cynanche Trachealis) strictly belongs to the order Phelgmasiæ, and demands, under its more violent forms, as liberal a use of the lancet as pneumonia itself; I am very much inclined to refer some of the more remarkable symptoms of the croupy paroxysms to a consequent spasm of the muscles of the glottis and larynx; a spasm consequent to, and depending upon the inflamed state of these parts, and of the investing membrane of the tracheal canal. I am led to this opinion from a consideration of the following circumstances: The peculiar mode of respiration in Croup, so different from the ordinary dyspnœa of other inflammatory diseases of the same organ; the resemblance which, on the other hand, it has to some cases of asthma;

the sudden attack of the croupy orthopnœa, and its as sudden remission and recurrence in many examples; the instantaneous relief sometimes obtained after the administration of an emetic, or even of the pediluvia; and the pretty accurate imitation of the croupy respiration which we can make by a voluntary exertion of our own muscles.

According to this view, I would say, that even in genuine Croup the inflammation is complicated with spasm; that there is, as you have shewn beyond all possibility of doubt, and as I have, on several occasions, satisfied myself, inflammation extending from the larynx downwards throughout the whole investing membrane of the trachea; and (as there seems to me some reason to apprehend) a consequent spasm of the muscles of the glottis and of the larynx. For a hard barking ringing cough alone, or such a cough accompanied by a wheezing sibilous respiration, or even with laborious dyspnœa, with the ribs and diaphragm moving like a pair of bellows, and drawing the præcordia almost into contact with the spine, giving rise to that remarkable hollow in the epigastrium of infants, which has so often alarmed me for the fate of my little patients, does not complete the character of Croup; the pathognomic of which I take to be that very peculiar mode of respiration

which appears to me spasmodic, which we have attempted to describe by the words crowing, sibilous, sonorous, croaking, and the like, but of which all words convey so inadequate an idea, though once heard, it can never, I think, be mistaken. The ribs, I think, are not so much employed in the croupy asthma as in ordinary dyspnœa; the glottis seems contracted, and the larynx drawn forcibly upwards; and indeed, to maintain it as high as possible, the head is often thrown backwards by the little sufferer; so that very early in the disease, and before we can believe that any permanent mechanical obstruction has taken place, he appears to struggle for breath and life. The sonorous inspirations are, however, often full and long, resembling a good deal the drawback, as it is called, of hooping cough.

The distinctions you have made, and the definitions you have given of the different modes of injured respiration, are excellent, and cannot but be useful; for I well know how great confusion has crept into this department. I have insisted, indeed, in this place, the more particularly on what I consider to be the true characteristic of Croup, because I find many cases recorded in periodical works as examples of this disease, which the absence of this symptom leaves me no doubt about rejecting

altogether as such. All such are cases of catarrh, or peripneumony, not of Croup.

2dly, I have certainly met with cases, in which the spasmodic affection of the muscles of the glottis and larynx appeared to form the principal part of the disease; cases in which the croupy paroxysm, though complete and unequivocal, was of sudden accession, of short duration, and again repeated after some intermission. I have known, for example, such paroxyms occur for two or three successive nights; and in one case, twice on alternate nights, though, during the day, no one would have said the child had suffered, or was to suffer, a fit of Croup. Such patients, I have commonly, indeed I may say always, found to labour in the intervals under cough and some quickness of the pulse, though playing about the room, and otherwise complaining but little. This, and every other observation which I have been able to make on the subject, has convinced me, that even in these cases, which are examples of what is called spasmodic or spurious Croup, there is some degree of inflammatory action of the pulmonary organs: and I am the more persuaded of this, because, in one case, the cough was peculiarly severe and hard, and gave acknowledged pain to the boy, and the pulse was so

frequent and so hard in the interval, that I deemed it necessary to take blood from his arm; and because I have known such another case pass into genuine and continued Croup, in a fine boy, whose life I am convinced I saved by bleeding, to the very terror of his parents, till his flushed and feverish face was paler than Sangrado himself could have desired: but the disease was completely, and I may say almost instantly, subdued. In one short half hour afterwards at least, it was evident that all danger was over,—that from the disease, and that dreaded from the remedy.

The case you have sent for my consideration, is evidently one of that kind of which I am now speaking. But I am not sure if we speak very correctly when we call such cases distinctively spasmodic Croup, in opposition to true continued inflammatory Croup. In your case, as in those which have come under my own observation, some of them still more remarkable, there can be no doubt of the inflamed state of the tracheal or bronchial membrane, although the difficult and peculiar respiration of Croup was not constant and continued; and if I am correct, these very cases afford additional ground for believing that spasm forms a part of all cases of Croup. I am not better pleased with the name of spurious Croup, because, even in these cases,

I have known the Croup real and genuine while the paroxysm of difficult respiration continued. Dr. Ferriar's cases of spurious Croup deserve indeed this name, for the dyspnœa which distinguishes them is quite different from Croup; a disease to which, I am persuaded, neither you nor I would at all refer them.

If we must mark these cases as different from genuine Croup, perhaps we might more conveniently, and more accurately, speak of intermittent and continued Croup, than of spurious, spasmodic, and inflammatory Croup. I venture this opinion, because, excepting in the circumstances of intermission and continuance, and of more or less violence of disease, I have not satisfied myself that there is any other real or essential difference in these cases. I know of no other diagnostic between them, which can assist the clinical physician to distinguish them; and all others that I have yet read of, appear to me hypothetical and insufficient.

Those intermittent cases, and cases of cough with a wheezing dyspnœa, I have of late very successfully treated by calomel, in doses repeated at short stated intervals. The cases of genuine continued Croup, which you and I are accustomed to see in this neighbourhood, demand more speedy and energetic treatment. I have never repented of one drop of blood,

though sometimes I have wished the prejudices and fears of others had allowed me to take more. Many of our cases are so acute, that there is no safety in delay, and no time for waiting the effects of the alterative operation of calomel. In one word, the degree of pyrexia, the hardness of the cough, and the state of respiration, determine me in the choice of my remedies, not any hypothetical distinction.

I have, in these desultory remarks, anticipated, in a great measure, the answers requested of me to your questions, and to your first fully.

With regard to the second question, I have no hesitation in replying, that I consider cold, or cold and moisture, as by far the most common occasional cause of those cases of spasmodic Croup, in the acceptation in which I have understood this term. I remember but one case, and that a very remarkable one, of an infant at the breast, in which any other cause could consistently be assigned. This child had suffered for a fortnight, at least half a dozen paroxysms of well marked croupy asthma every twenty-four hours. I witnessed two distinct fits of this kind in one hour. The little patient had been previously leeched, and vomited, and blistered, without benefit; and was, when I first saw her, using asafœtida and

laudanum with no better success. Two or three smart doses of jalap and calomel, brought off great quantities of black adhesive pitchy stools, and the asthma or Croup disappeared.

In all other cases, I believe the occasional cause to have been cold, and the disease to be referable to an inflammatory or catarrhal affection of the organs affected.

3d Question. Unquestionably I have; and one instance fresh in my recollection. This is perfectly natural. Some children are strongly predisposed to this disease, or, in other words, it is very common, and indeed always highly probable, that a child who has recovered from Croup, shall again be attacked with the disease. I have attended the same child five times in the Croup; and the patient whom I have already said to have saved from a severe continued Croup, I had twice before cured of a milder and intermittent disease by calomel alone.

4th Question. I do not recollect any cases in point, farther than what is comprised in my answer to the third question.

5th Question. In the month of December last, I was called to a boy between three and four years old, in the last stage of Croup, and who died before I could again see him on the following morning. The report given me of this case was, that the boy, for five or six days, went about the house with a hard cough, and

had twice, on different evenings, paroxysms of Croup, from which he recovered; the third and fatal paroxysm had continued two days before I was called in. I have not myself witnessed any such case from beginning to end, unless it be the one I have already twice spoken of, and who was reported to have had a paroxysm of difficult breathing the night before that on which I had blooded him so largely.

6th Question. I have seen, in the interval of spasmodic or intermittent Croup, a degree of dyspnœa, a short wheezing respiration. If any thing more is intended by the question, it must be negatived.

7th Question. I have already answered this question generally. I have never trusted to calomel alone, in cases where the real croupy paroxysm continued above six hours without intermission, accompanied with heat and febrile action.

8th Question. In my answer to the fifth question, I have already observed of one fatal case, that from the report made me, it appeared for some days referable to spasmodic Croup; but I considered it then, as I do now, as an example of the one form of disease degenerating into the other; otherwise, I never knew a case of what I could call spasmodic Croup terminating fatally.

To conclude. After embarrassing myself a long while about spasmodic and inflammatory Croup, and using my opportunities of observation to the best advantage of which I was capable, with the view of establishing the diagnosis of these two diseases, I came at last to persuade myself, that there was truly no essential difference between them, other than what arises from degrees of violence, and the obvious circumstance of intermission and continuance

I know not how far my observations and opinions may coincide with yours. But if these in any way answer your expectation, they are at your disposal. I am, dear Sir, yours, &c.

GEO. KELLIE.

LITERARY HISTORY OF CROUP.

It may be convenient to those who are desirous of investigating this subject, to have at hand the Literary History of Croup given by Michaelis, which, however, is not perfectly accurate. The dissertations of Doctors Millar and Rush do not relate to this disease. The acute asthma, as described by Millar, is a different disease. Rush, in his dissertation on the spasmodic asthma of children, Lond. 1770, confounds Croup with acute asthma, and does not seem to have understood the true nature of either disease. The case described by Tulpius was not Croup. It may be doubted if there is a single case of Croup in Wilcke's Essay. I have never seen Ghisi's work.

" Varias iste, quem describendum suscepi-
" mus, morbus, variis a gentibus, variisque ab
" autoribus, accepit denominationes. Peculiare

" illi nomen Scotos Suecosque tribuisse, miran-
" dum non est, cum iis in regionibus frequen-
" tius, quam aliis in terris occurrat. In Scotiæ
" orientali ora *the Croup*, in occidentali *Chock*
" vel *Stuffing*, in quibusdam vero Angliæ locis,
" voce vetulis familiari, *the Rising of the Lights*,
" inter Suecos autem *Strypsiucka*, (i. e. *morbus*
" *strangulatorius*), vocatur.

" Quod ad autores attinet, qui peculiaribus
" istum morbum nominibus insigniverunt, Cl.
" Engstroem *, *anginam suffocatoriam*, Cl.
" Wahlbom † autem, *Cynanchen stridulam*, ap-
" pellavit. Sunt etiam qui *Anginam strangula-*
" *toriam*, vel tantum *morbum strangulatorium*,
" dicant. Hæ autem voces nimis generales
" mihi videntur, cum eodem jure, non omni-
" bus solum anginæ speciebus, sed etiam aliis
" morbis, magis adhuc a nostro diversis, tribui
" possint. Qui omnium optime mali istius na-
" turam depinxit, Ill. Home ‡, depromto a
" præcipuis ejus symptomatibus, respirationis
" nempe difficultate, voceque peculiariter stri-
" dula nomine, *Suffocationem stridulam* appel-

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* " Berattelser till Riksens Stander, rorande Medicinal
" Werkets Tillstand i Riket, anni 1767."

† " Berattelser till Riksens Stander anni 1765."

‡ " Vid. ejus egregia commentatio: *An Inquiry into the*
" *Croup, by* Francis Home. *Edinburgh* 1765."

" lavit. Ill. Murray autem, quem præcep-
" torem ac fautorem pia mente veneror, ver-
" naculam nostram hujus morbi nomine locu-
" pletavit, illumque *die häutige Bräune* appel-
" lavit, quæ quidem vox, etsi ab evidenti quo-
" dam signo non desumta, eam tamen ob
" caussam mihi multo melius placet, quam
" aliæ, quas jam adduxi, quia rei veluti defi-
" nitionem comprehendat, cum reliquæ, vel a
" characteribus minus constantibus, vel certe
" huic morbo minime peculiaribus, desumtæ
" sint. Forsan tamen *anginæ polyposæ* nomen,
" magis distinctam adhuc redderet morbi ima-
" ginem, cum vox membranæ, falsam organici
" corporis suggerere videatur ideam, et con-
" cretio ista verus sit asperæ arteriæ polypus.
" Servandum tamen pristinum censui nomen;
" ingratum enim esse lectoribus solet, eorum
" studium, qui mutandis rerum nominibus de-
" lectantur.

" Sed mittam minus gravem de morbi nostri
" denominationibus disquisitionem, et ad au-
" torum, qui ei describendo operam impende-
" runt, vel apud quos vestigia certe hujus labis
" reperiuntur, enumerationem me convertam.

" Primam morbi notitiam apud Tulpium
" inveniri arbitror. Narrat enim ille *medicarum*
" *Observationum L. V.* casum, qui observatoris
" ipsius verbis relatus, huic commentationi an-

" nexus legitur, et qui verum nostri morbi ex-
" emplum esse mihi videtur. Nec tamen in
" arctis lectionis meæ limitibus, priorem Tulpio
" neminem fuisse, apud quem vestigium nostri
" morbi inveniatur, affirmaverim.

" Post Tulpium, qui, licet rem vidisset, cla-
" ram tamen de ejus natura ideam minime
" habuit, altum de hoc morbo diu fuit apud
" autores silentium. Reperio quidem apud Jac.
" Bontium, Balloniumque unam alteramque
" morbi singularis, nostro simillimi, historiam;
" nolo tamen, ob summam narrationis brevi-
" tatem, judicium ferre, num istæ observationes
" ad anginam nostram pertineant, necne.

" Anno 1735 Medicus Augustæ Vindeli-
" corum degens, Struve, morbum nostrum
" una vice observavit, et in *Actis N. C.*
" *Vol. I.* descripsit; nec tamen melius Tul-
" pio veram morbi indolem perspexit.—Et
" ita quidem res ad annum usque 1749 se ha-
" buit, quo tempore medicus Italus Cl. Ghisi,
" morbi nostri, *quem epidemicum observave-*
" *rat*, naturam accurate exposuit*. Fateor,
" me quam maxime mirari, quod illud scrip-
" tum, eximiam nostri morbi descriptionem
" exhibens, omnes illos plane latuisse videatur,
" qui huic tractando argumento operam im-

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* " Martino Ghisi Lettere mediche. In Cremona 1749."

" penderunt. Anno 1764 Upsaliæ scriptum " academicum prodiit, Præside Aurivillio, " respondente Wilcke, ubi unum alterumve " anginæ nostræ exemplum enarratur*. Do- " leo autem, quod autor hujus commentationis " nostram anginam cum gangrænosa ita con- " fuderit, ut non nisi accuratiore perquisitione, " quid cuique morbi speciei tribuendum sit, " enucleare possis.

" Eodem etiam tempore in *Novis Actis N.* " *C.* † Cl. A-Bergen morbum epidemicum " descripsit, qui nuper Francofurti ad Mœnum " grassatus fuerat, et quem pro nostro habere " nullus dubito.

" Ill. Homii eximium, cujus jam antea " mentionem feci scriptum, sequenti anno pro- " diit; ille non solum symptomata morbi bel- " lissime depinxit, medendique rationem fu- " sius meliusque quam cæteri scriptores expo- " suit, sed et largam commentationi suæ ad- " ju xit observationum copiam. Ignorasse " autem videtur Vir Celeberrimus, et alios ante " eum eundem morbum jam descripsisse. " Quam plurimum egregio huic scripto debeo,

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* " De Angina infantum in patria recentoribus annis ob- " servata dissertatio inauguralis, Præside Samuele Aurivillio, " respond. Wilcke. Upsaliæ 1764."

† " N. A. N. C. t. II. p. 157."

" etsi aliquando ab ejus opinionibus recedere,
" veritatis studio cogar.

" Eodem etiam anno medici Sueci, in rela-
" tionibus, quibus singulis annis summum
" regni senatum, de rei medicæ per totum
" regnum constitutione atque ratione, certio-
" rem reddunt (institutum, cui permultum
" debet ars nostra), hujus morbi mentionem
" facere cœperunt, ita ut ab hoc inde tem-
" pore, plures de angina nostra observationes,
" egregiis istis in annalibus medicis occur-
" rant *.

" Anno 1770 Londini scriptum prodiit †,
" cujus autor Cl. Rush, nostrum eundem esse
" cum asthmate convulsivo morbum, probare
" studet. Annexæ sunt litteræ medici urbis
" Chester nomine *Haygarth*, ad autorem mis-
" sæ, ubi quædam morbi nostri exempla, etsi
" brevissime, enarrantur. Insequenti anno
" Edinburgi Cl. Crauford Dissertationem de
" nostro argumento conscripsit, quæ utilia
" multa continet, attamen et erroribus non
" immunis est ‡. Tunc etiam in lucem pro-

---

* " V. Berattelser Riksens Stander anni 1765 sqq."

† " B. Rush Dissertation on the Spasmodic Asthma. Lond. " 1770."

‡ " Crauford D. de Cynanche Stridula. Edinburgi 1771."

" diit nova eximii libri b. Rosenii de infan-
" tum morbis editio *, peculiari de angina
" nostra commentatione aucta; nil autem
" hæc commentatio novi continet, nisi tria
" morbi exempla a medico Sueco Cl. Schult-
" zio relata, et aliquas ex Dissertatione Cl.
" Wilckii decerptas observationes, quarum
" autem una alterave ad gangrænosam potius,
" quam ad nostram anginam pertinere vide-
" tur, uti alio loco fusius probabo. Reliqua
" omnia ex Homio desumta sunt. Quamvis
" autem proprium nil contineat Rosenii il-
" lud scriptum, tamen debita sua laude nullo
" modo defraudandum est; intentos enim red-
" didit medicorum, tam Suecorum, quam alia-
" rum gentium animos, in morbum, cujus
" antea minus innotuerat fama sedulo inqui-
" rendi.

" Recentissimis, quæ de angina membra-
" nacea in lucem prodiere observationibus,
" annumerandæ sunt eæ, quas Cl. Bæck ac
" Salomon, in *Actis Societatis Scientiarum*
" *Suecicæ* anni 1772, nec non Cl. Callisen
" *primo Volumine Actorum Hafniensium*, pub-

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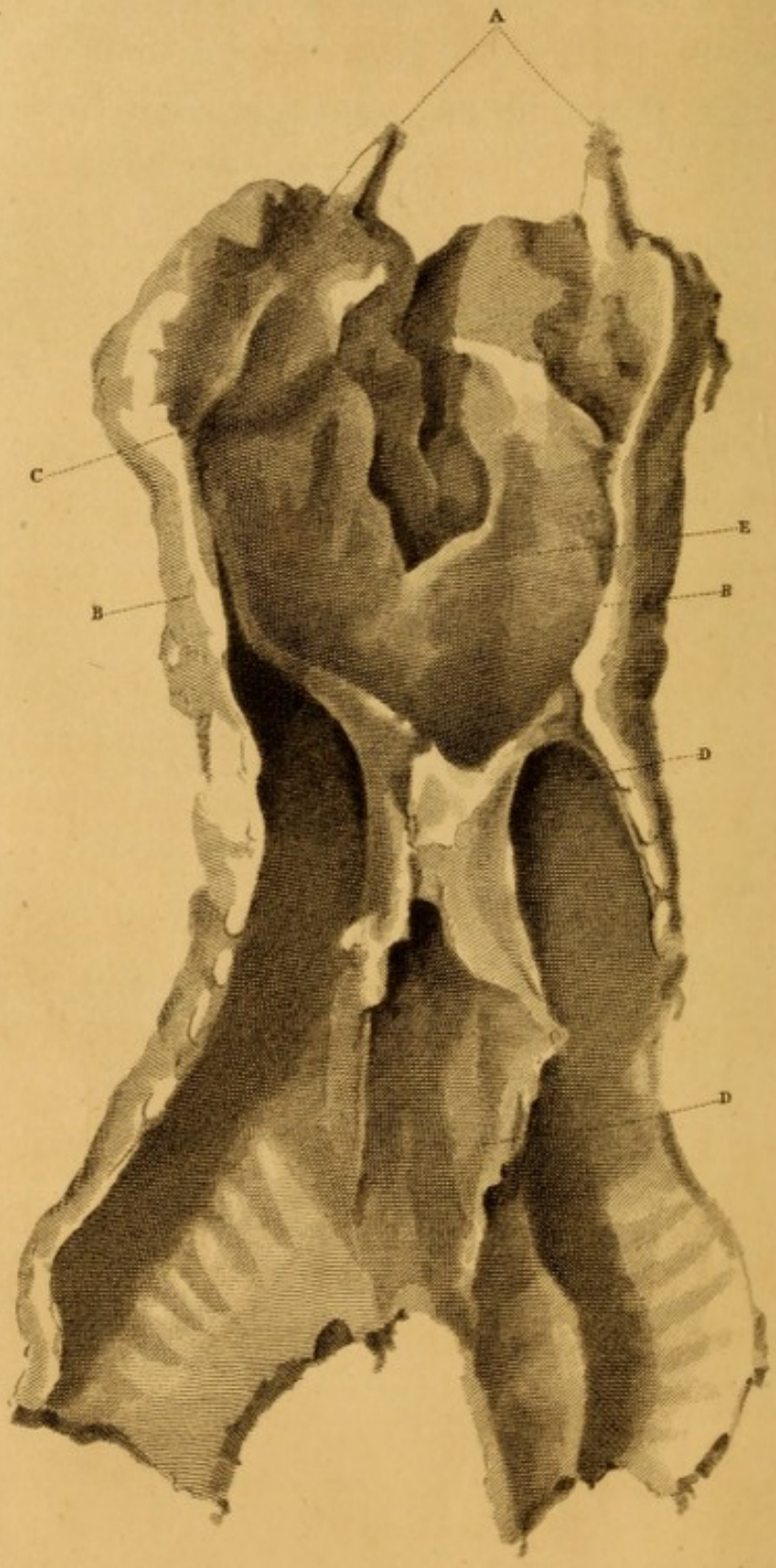
* " Rosen von Rosensteins *Anweisung zur Kenntniss*
" *und Cur der Kinderkrankheiten; aus dem Schwedischen*
" *übersetzt von J. A. Murray. dritte Ausgabe. Goettin-*
" *gen* 1771."

" lici juris fecerunt. Brevissime denique Cl.
" Buchan in opere de Medicina Domestica *,
" morbum nostrum descripsit; nil autem ibi
" inveni, quod non ab aliis jam dictum com-
" memoratumque fuerit."

---

† " Domestic Medicine, or a Treatise on the Prevention
" and Cure of Diseases, by W. Buchan. Lond. 1776


A
C
E
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EXPLANATION

OF

PLATE VI.

This engraving represents the preparation referred to, p. 37.

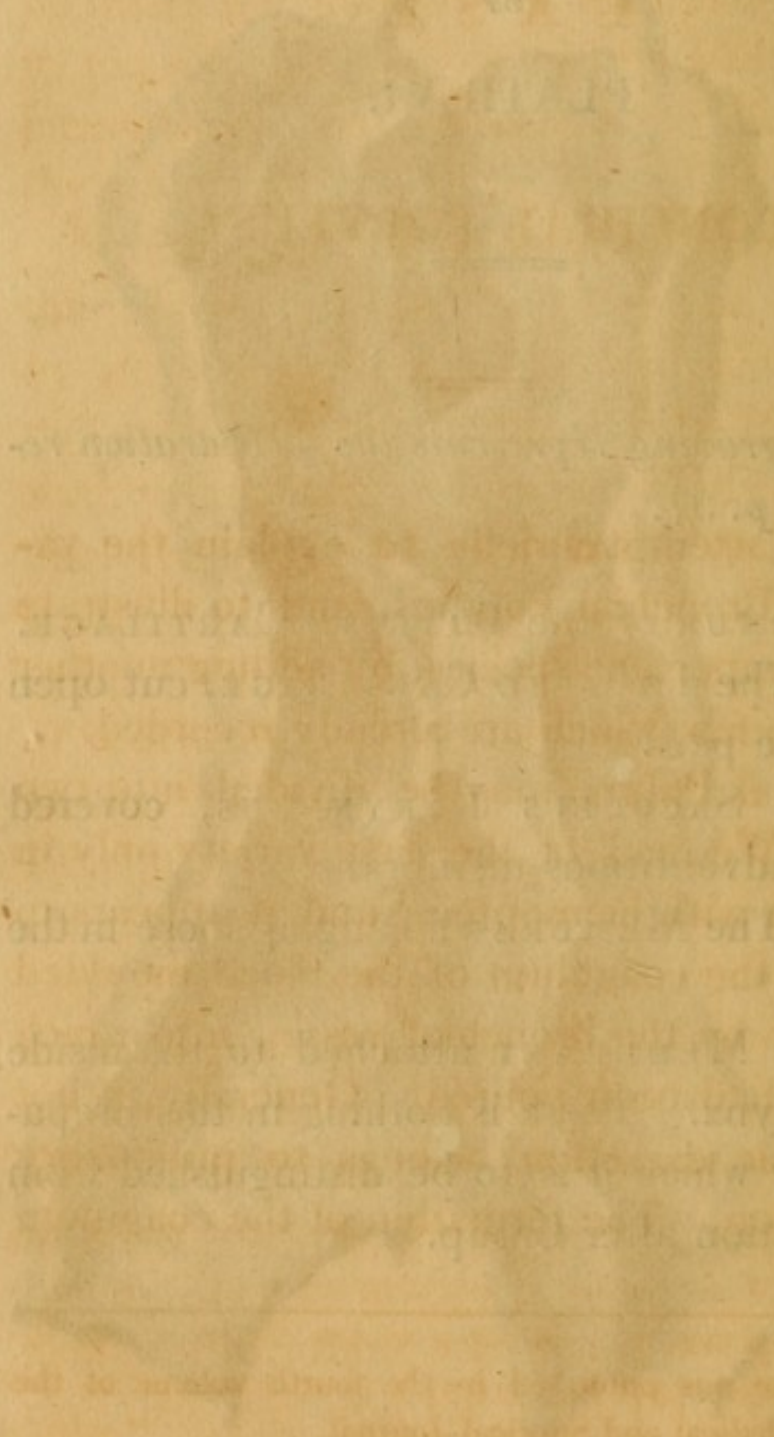
A, Cornua of the Thyroid Cartilage.

B, B, The Thyroid Cartilage, cut open on the fore part.

C, The Sacculus Laryngeus, covered with the adventitious membrane.

D, D, The Membrane hanging loose in the trachea.

E, The Membrane attached to the inside of the larynx. There is nothing in this preparation, by which it is to be distinguished from a preparation after Croup.



CASE

OF

BRONCHIAL POLYPUS*.

I SHALL attempt briefly to explain the varieties of Bronchial Polypus, and to illustrate the most important species, by adding another case to the few which are already recorded.

Bronchial Polypi may be divided into two species. We read of the first variety only in connection with hæmoptoë; and it appears to be simply the coagulum of the blood moulded into shape by the bronchial vessel, into which the blood had been poured. Generally, if not always, this excretion belongs to pulmonary consumption. The formation of the coagulum

* This case was published in the fourth volume of the Edinburgh Medical and Surgical Journal.

checks the flow of the blood; but from this suspension, we can scarcely say that the patient derives any benefit; for so large a substance in the bronchial vessels, as this generally is, greatly increases the difficulty of breathing, and then its expectoration is followed by a return of the hæmorrhage, and sometimes by the death of the patient.

Several cases of hæmoptysis, attended with this species of Bronchial Polypus, are related by medical writers. The last which I have met with, and the fullest, is to be found in the sixth volume of the London Medical Journal, ann. 1785. The following is the outline of that case.

Mr. Pearse, a surgeon of Penzance, a man of a delicate constitution, and close in his attention to business, was seized in 1772 with hæmoptysis, which was followed by ill health. He had various attacks of hectic. In December 1776, the cough had become very troublesome; it was attended with violent straining, and on the 9th a large blood vessel was ruptured (this is the reporter's expression), which in a few minutes poured out a quart of florid blood. The hæmorrhage abated, but the difficulty of breathing was greatly increased. During that day and the next, his expectoration consisted chiefly of coagulated blood. On the morning of the 11th, he brought up, with great

difficulty, a large polypous concretion. Its surface was covered with coagulated blood. It was fibrous, solid, ramified, white, and so tender, that when thrown into water, its finer ramifications were destroyed. The difficulty of breathing was relieved by the removal of this concretion. But on the night of the 12th, Mr. Pearse was awakened by a tickling cough, which forced up a large coagulum of blood. This was immediately followed by an effusion of blood, so profuse as to destroy him in a few minutes.

Similar cases are given by various authors. Bontius, Tulpius, and Bartholin, suppose these concretions to be branches of the pulmonary artery; and they were equally astonished that the patient survived, as that the concretion should have been expectorated without any previous discharge of purulent matter. "*At vero "mirabantur medici tantam parenchymatis dis-"solutionem sine prævio pure.*" But by Grætz, the correspondent of Ruysch (Ruyschii opera), it was explained, that these were concretions formed in the branches of the bronchia *.

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* Thes. Anat. Asser. Quintus. An anatomical preparation is thus described: "Tunicæ, per asperam arteriam tussi re-"jectæ, quæ si non sint portiones tunicæ intimæ asperæ ar-"teriæ, analogiam saltem habeat cum ea, utpote innumeris "foraminibus pertusæ, et satis quoque tenaces. Puer octo "annos circiter natus in tussim molestam incidens, cum febri

In the Philosophical Transactions, No. 398., p. 262., Dr. Samber relates, that he was sent for, on the 15th December 1726, to an officer of the excise at Salisbury, who was taken with so violent an hæmoptysis, that in a short time he lost nearly three pounds of blood. When Dr. Samber arrived, it appeared that the patient, when he coughed, had something loose in his windpipe. Next morning he was shewn, on a sheet of paper, a substance which the patient had expectorated about half an hour after the bleeding ceased. Upon putting this substance into water, he found it was a polypus, which, by his blow-pipe, he discovered to be hollow; but there were so many holes in it, that it could not be blown up. The patient, who had had pulmonary complaints upwards of six months, died of consumption on the 16th January 1727.

This case resembles that of Mr. Pearse in every thing but the form of the excretion, which is said to have been tubular. This structure is not easily understood; but it is probable that it was confined to that part

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" continua, rejecit per vices varias particulas membranaceas " porosas, satis tenaces, et paucis post diebus supremum diem " obiit."

I am inclined to think that this has been a specimen of the membrane of Croup.

of the polypus of which the diameter was large.

Bronchial Polypi of the second species, differ materially from those which I have described. They are of a purer white, generally ramified; lamellated; sometimes solid, sometimes tubular; in consistence much more dense. Such as I have had an opportunity of examining, appeared like condensed cellular substance.

De Haen (Rat. Medend.) relates, that a man, during a pleuritic attack, of which he died on the fourth day, expectorated a substance dense, white, oblong, branching like an artery. In dissecting the lungs of this man, some of the ramifications of the bronchia, in the left side of the thorax, were filled with a substance similar to that which had been expectorated, and purulent matter was formed in the lungs. In Dr. Monro's museum, there is a substance of the same form, which was expectorated during a peripneumonic attack.

But, generally, these concretions are symptomatic of a more chronic disease. They are preceded by catarrhal complaints, and attended with cough, wheezing, and dyspnœa. The fit of coughing which displaces them, is sometimes alarmingly violent. After the expectoration of these Bronchial Polypi, the lungs feel lightened, as if something which had

impeded their play were removed. Those who are affected with this disorder, suffer much from cold, and particularly from the east wind; for thus the catarrhal symptoms are aggravated, and the increase of the catarrhal symptoms generally increases the quantity of the polypous expectoration. Previous to the expectoration of this substance, the cough is not only more troublesome, but sometimes more sonorous. The disease has been known to trouble the patient seven or eight years; but during that time he has enjoyed many intervals of good health. Sometimes the concretion appears to have been secreted from only a small part of the trachea; at other times, as in M. Bussiere's case, Philosophical Transactions, No. 263. p. 545., it lines the mucous membrane, from the larynx to the very extremity of the bronchia. It is not peculiar to mature age, although it has occurred oftenest in that period of life. Whenever it is necessary to take blood, a buffy coat will be found.

Bronchial Polypi of the second kind, differ materially from those first described, which were said to be mere coagula, separated from the blood which had been poured into the lungs. Those of the second species are produced by a secreting surface in a state of inflammation. They are justly held as analogous to the membrane of Croup; yet the action

which produces Bronchial Polypus, is by much less violent than that of Croup.

In the case which is subjoined, the polypous membrane gave me comparatively little concern; but in a patient whose constitution was broken, the concomitant symptoms were alarming. The active measures pursued removed these, and prevented any return of the polypous expectoration, which otherwise might have become a chronic affection, as in the cases which are related by Dr. Dixon, in Duncan's Medical Commentaries, and by Dr. Nicol, in the Philosophical Transactions; cases which, in other respects, resembled this.

Dr. Baillie, when treating of Bronchial Polypi, has not shewn his usual caution. He says that this disease is not attended with inflammation. In the case which follows, in Dr. Dixon's case, and in Dr. Warren's (Transactions of the College of Physicians of London), and in the case given in vol. viii. of the London Medical and Physical Journal, 1802; not to mention De Haen's case, where the Polypus was a symptom of pleurisy; and M. Bussiere's, where purulent matter was found in the lungs, the presence of inflammation is indisputable. Dr. Baillie leads us to doubt whether these Polypi are ever solid, when he observes, "That the trachea has been *said* to

" be sometimes filled with a solid substance of " the same kind with that which we have " described." The Bronchial Polypi in Dr. Baillie's museum may be all tubular; but in the majority of cases which are upon record, of this morbid appearance, the concretion undoubtedly was solid. As far as can be judged, without taking them out of the spirits, the specimens in Dr. Monro's museum are all solid.

CASE.

Mr. L——, between fifty and sixty years of age, has for some months been declining in his health. He has had stomach complaints, and a diarrhœa, which has become habitual; and I am led to think that he has contracted a diseased liver, from drinking diluted spirits; a custom which, unconscious of its ruinous tendency, he has long indulged in, although never to intoxication. From having been a corpulent and muscular man, his limbs are wasted, and the flesh of his whole body has become soft. In his cheeks there is all the venous plethora of those who are addicted to the daily use of spirits.

Some days ago I was desired to visit him. In addition to his other complaints, he felt an unusual degree of weakness and languor. His friends observed that there was a change in his aspect, and he had become apprehensive and anxious.

I found him with a cough and dyspnœa. He had thirst, a hot and dry hand, and a pulse full and rather quick. His tongue was loaded, and his breath of a heavy and disagreeable

smell. I desired him to take P. Ipec. gr. xxv, and I begged him to live more temperately.

I saw him again yesterday. He still complained much. The emetic, he thought, had increased the diarrhœa. The breathlessness was increasing. I ordered him a blister for his breast; and as he complained of want of sleep, and of the restlessness of the two preceding nights, I allowed him to have thirty drops of laudanum and antimonial wine. I wished to restore the healthy condition of the skin, which was exceedingly parched.

MAY 9.

I found that he had had a better night; his skin was softer, and he imagined himself much better. He is still very feverish, his pulse 100, his urine high-coloured, and his breathing troublesome and wheezing, and aggravated by the cough.

Last night he casually mentioned, that for some time he had been in the habit of spitting up, as he imagined, from his stomach, a substance which appeared to him to be a part of his food not digested. I desired him to preserve it. He presented me this morning with a considerable quantity of this substance, which I find to be portions of a Bronchial Polypus. These portions are segments of a large circle, and appear to have lined the trachea before

its bifurcation. The expectoration takes place after coughing some time with great violence. Many of the pieces are an inch long, streaked on the convex surface here and there with blood. These excretions are of a much greater density than the membrane of Croup, and of a finer white. They consist of a succession of layers, are tough on the side which has adhered to the trachea, and are about half a line in thickness.

A pound of blood was taken from the arm, and a low diet enjoined.

May 10.

There is a thick coat of size on the blood; his pulse 90, and very strong; he has feverish heat, with dyspnœa, hoarseness, and a troublesome cough; he was again blooded.

Upon calling in the evening, I find that the second as well as the first bleeding has given great relief; he is cooler; his cough is easier; and he expectorates freely. The mucus expectorated is puriform. Since the first bleeding he has expectorated only one piece of the membrane, about an inch long, and nearly as broad; and on the surface, which seems to have adhered to the trachea, it is of a dark bloody colour, as if the membrane of the trachea had been eroded, and the concretion torn off with violence. I understand that for

several weeks he has been in the habit of daily expectorating even a larger quantity of this consistent substance than he did yesterday; generally it is quite colourless. The surface of the blood drawn this morning is contracted to less than a half of the diameter of the cup which contains it. His tongue is moist; he has less thirst, and feels easier; pulse 94, and full; bowels still very loose.

MAY 11.

He has had a good night; his cough has been troublesome since morning; pulse 88, and calmer, and his skin is moist. He has no thirst. The hoarseness, dyspnœa, cough, and puriform expectoration continue; but there has been no more of the concretion expectorated. He is so weak that he cannot walk across the room.

MAY 13.

Mr. L—— having had an increase of fever yesterday, the bleeding was repeated in the forenoon, and it was followed with the same relief; the fever abated, and he breathed with more ease. After the bleeding he had a good day and night; for his cough, he took five drops of laudanum every fourth hour.

This morning his pulse is 80, and fuller; the blood is still sizy; his breathing is more op-

pressed; belly regular. He was bled for the fourth time. In the course of this day, he has expectorated only one bit of the concretion, surrounded with mucus. The mucous expectoration is less, and evidently from a surface less inflamed.

MAY 15.

The diarrhœa has so completely subsided, that he has not had a stool since the 13th. His breast feels lightened of an oppression which has never been absent since the pectoral complaints seized him. Last night he took, at bed-time, thirty-five drops of laudanum, and during the night he had no cough; his pulse is 76; his skin moist, and his tongue clean. He lives in an ill aired street, and it is resolved that he shall go to country lodgings to-morrow.

MAY 20.

He removed on the 16th to the country; he continues to recover; his respiration is regular and free; he has scarce any cough; his pulse is 76; his tongue clean, and his skin cool and soft; his bowels are regular; for four or five days he has had only one stool daily; he lives on milk and vegetables; he sleeps well; he has regained his appetite, and wishes for permission to walk out; his voice is clear, and his com-

plexion more healthy; he has once or twice expectorated a small portion of the concretion, not larger than a silver penny, filmy, but as hard as cartilage, and resembling it in the purity of its colour.

CASES

OF

THICKENING AND ULCERATION

OF THE

MEMBRANE OF THE LARYNX.

UNDER this title, I have endeavoured to describe some of the most distressing affections to which the human body is subject, not in the form of a regular treatise, but merely by interposing some clinical observations to connect or contrast the cases which are related. If I have succeeded in my attempt to render these disorders more familiar to the generality of my readers, I should hope that my time has not been thrown away.

The symptoms induced by thickening of the membrane of the larynx, are pain in the larynx, not very acute, unless on pressure; some degree of fullness externally; a change in the

sound of the voice; difficult, and even crowing inspiration, but slow rather than quick; an altered, sometimes stridulous voice; fits of suffocative coughing, and all those general symptoms which arise from obstructed circulation in the lungs.

CASE I.

JULY 20, 1806.

Mr. A——, æt. 43, muscular and corpulent, with a full chest, large head, and short neck, about a year ago, submitted to a mercurial course of three months duration, which removed a copper coloured eruption from his arms, and nearly reduced, to the natural size, one of the testes which had been enlarged to the size of a man's fist, and was firm and heavy. He left off taking mercury before I thought his cure completed. He had a fever in the spring, which left him weak and complaining of pains in his limbs, for the removal of which, by the advice of some of his friends, he went a few weeks ago to a watering place.

As the weather was sultry, he had laid aside his flannel shirt, and he thought he had caught a slight cold in consequence. On the night of Wednesday the 10th, he was seized with a severe fit of coughing. He does not recollect to have had rigors. He coughed all night; next day the cough was less urgent; but on Thursday night the cough returned, and his breathing was affected. He continued with very troublesome nights, but without medical assistance, until Sunday. He was then visited by

a surgeon, who told him that his complaint was inflammation of the lungs. This gentleman took a pound of blood from his arm, blistered him; and on the succeeding days gave him tartar emetic vomits, preparations of squills, and pretty large opiates, but without the slightest relief. His wife became anxious to place him under my care. Yesterday and to-day, he came in a close carriage fifty miles, and he was but little fatigued with his journey. He had, indeed, some most violent fits of coughing; but last night he slept better without his opiate than he had done since the beginning of his illness.

I do not see much change in his appearance; he says that his appetite has not left him, and that he should feel quite well, were it not for the uneasiness in his breathing. His respiration is not increased in quickness, but is difficult, with a feeling of constriction in the larynx, as if some thin and sharp mucus were lodged in it which he cannot remove. After violent and long continued fits of coughing, he sometimes succeeds in forcing up a very small quantity of salt mucus, which is not puriform. He has no pain in any part of his breast; his tongue is white and swelled, as when affected with mercury; he has but little thirst; pulse 120. When I called for him he was reading, and he affected to make very light of his complaints.

I wished to have a consultation before any plan of treatment was fixed on, and Dr. Monro senior was requested to meet me. The case was more narrowly investigated. The cough is sharp and stridulous, as if the passage at the glottis were nearly obstructed. The inspiration, although never free, can be drawn as long as ever, and the lungs completely inflated without raising a cough. Upon pressure, some tenderness is discovered at the left side of the larynx. It was concluded that there was inflammation and thickening of the membrane of the trachea; but judging from the appearance of the mucus expectorated, no ulceration.

Twelve leeches were ordered to the left side of the trachea, and a blister along the right. In the morning he is to take P. Jal. Comp. gr. xxx. Submur. Hydrarg. gr. v.

July 22.

We again met. The leeches were applied, and were followed by a considerable discharge of blood. There was one extensive vesication from the blister. The purge operated freely. Last night he slept ill, not many minutes at a time; the cough disturbed him greatly, often threatening suffocation. The inspiration is hissing; pulse 112; tongue furred and swelled; his breathing is difficult. There is evidently a

fullness on the left side of the thyroid cartilage, and he feels a degree of tenderness both there and in the anterior part of the cartilage; this amounts to pain when he turns his head to a side. When in bed, he lies on his back, with his head low and thrown to the left side. When sitting, his chin is projected. There is considerable anxiety in his countenance; he expectorates a clear and ropy mucus; bowels free. As it is probable that the disease is confined to the upper part of the windpipe, it was resolved, should the danger of suffocation be imminent, to perforate the larynx between the thyroid and cricoid cartilage.

The leeches are to be repeated, and the blister; and he is to inhale steams of warm water and vinegar.

July 24.

The blood, after the leeches were applied, flowed freely. The steam irritates the larynx, and raises the cough. He has passed two miserable nights. The night before last, he said he was twenty times on the point of being suffocated. Last night he had two hours sleep from an opiate; but towards morning he was more than usually harassed with the cough and dyspnœa. He complains of pain in every part of the trachea to which we can apply pressure; pulse 128; his tongue is more

evidently swelled. It appeared probable that the disease was extending along the membrane. It was thought right to try the effect of a general bleeding.

July 27.

In the course of the last three days, he has been three times bled; at each time a pound of blood was taken. The first time, the blood was sizy and contracted. He has, however, experienced no abatement of the symptoms. The paroxysms are longer. Moderate doses of laudanum were tried, and these procured some sleep; but when he awoke, he always, for some minutes, was gasping. The dyspnœa is also more severe. He starts from his chair, and staggers, his limbs scarce supporting him from one room to another; and at these times his face is quite livid. The effect of one of the violent paroxysms is felt an hour after; for his pulse remains at 136. His tongue is swelled and indented, from the impression of the teeth; his expectoration still of a little clear mucus.

As he yesterday appeared to breathe better while under some degree of sickness, we agreed to give him an ounce of ipecacuan wine; but the effect was terrible. When he began to vomit, I thought he would have expired. He crowed violently; his inspiration was interrupted; his face became pale, and his lips livid. I was about

to prepare his friends for his death, which I imagined was at hand, when he gradually recovered, the sweat pouring from his skin in streams. There was no other effect from the vomit.

As, notwithstanding all the evacuation, his breathing is more difficult, and the fits of aggravated dyspnœa more frequent, we are inclined to view the suffocation as arising from a swelling of a syphilitic nature, and to hope for relief from mercury. He was accordingly ordered two grains of calomel three times a-day, and ʒ i of Unct. Hyd. Fort. to be rubbed into his thighs.

August 2.

Since last report, there has been little variety in the symptoms. The same sufferings are still prolonged. Yesterday, his bowels being very loose, and his gums evidently affected by the mercury, it was agreed to lay aside the mercurial medicines, and a draught, with twelve drops of laudanum and five grains of musk, was ordered him every four hours. He is dosing, from the draughts; his bowels are not so loose; he had two severe fits of difficult breathing during the night; and I found him in one this morning. I think in the paroxysm there is more of an asthmatic heaving of the chest. He had not made the slightest exer-

tion to induce the paroxysm. The pulse felt small and irregular; the fits now force him to void both urine and stools; during the fit he salivates considerably.

This evening Dr. Rutherford was called into consultation. It was agreed to make some change in the plan of treatment. With a view of increasing the expectoration, he is to have ten drops of antimonial wine and laudanum every four hours, and again to try the effect of steam.

August 4.

With the exception of some sickness, the medicine has produced little obvious effect. Upon taking his evening dose last night, he became very sick. The sickness continued all night, and along with it an increased dyspnœa. In short, he had no intermission during the night. I was sent for about seven this morning, and found him still breathing with great difficulty, and much exhausted. He appeared to be worn out with the constant exertion; his pulse was small and irregular. I gave him a little warm negus, and a draught with musk and laudanum. He still complained of the sickness. I had him taken out of bed, and seated him on the sofa, that he might breathe more easily. Bottles with warm water were

applied to his feet, which were cold. I had him well supported with cushions and pillows, and was waiting in expectation that the spasm would abate, as heretofore. He had just requested me, with some eagerness, to sit by him until he became a little easier, when his head fell upon his breast, and he ceased to respire. I ran behind the sofa, and held up his head, and the respiration went on again; but it was stertorous, and extremely laborious. His complexion had changed from the purple of imperfect circulation to the paleness of death.

It appeared that he was dying; and as it was the result of a consultation held at the beginning of his illness, that the larynx should be perforated, if death were threatened from impeded respiration, it was conceived right to proceed to the operation. A trocar was introduced between the thyroid and cricoid cartilages, and the canula left. For some time he breathed entirely through the canula. His pulse was distinct; but the intervals became longer between each inspiration. We observed a clammy sweat all over his body. He had never moved, or shewn the least sign of sensibility, not even during the time of making the incision. His joints were quite flexible; his pupils were contracted, and were not af-

fected by different degrees of light. About an hour after the operation, his pulse was still tolerably regular at the wrist. He now breathed little through the tube. The inspirations, which were at long and irregular intervals, were chiefly through the natural passage. Still the respiratory organs were capable of a great effort; but there were not above seven or eight inspirations in the minute. His extremities were quite cold. He died about two hours after the operation.

I am inclined to think that this gentleman died from the circulation within the head having become oppressed. I admit that I did not entertain this view until the patient was dead, and I had time to consider his case more deliberately. The change which took place was instantaneous, from a distinct feeling of his situation to an insensibility, from which he never emerged. He breathed freely, both through the canula, the mouth, and the aperture in the windpipe, after the canula was withdrawn. The diaphragm was capable of great exertion, and the lungs of being filled with air; yet his complexion never altered from the paleness of death.

Upon reviewing this case, I scarce think that any means of relief were neglected. I rather regret that the larynx was perforated. All the patient's friends were averse to this measure; and I am persuaded, in such a case, that the operation affords no additional chance of recovery. The extent of the affection of the trachea cannot be determined before death; nor have we any means of ascertaining, even with probability, its duration.

If there be no symptoms of apoplexy, and the patient is threatened with death solely from the constriction of the larynx, it is evident that this must be owing greatly to a spasmodic affection of the parts; and therefore the proposal of Dessault, to introduce a hollow bougie into the windpipe, deserves consideration. I have not heard that this has been tried in Britain. I should have thought that the irritation would have excited a convulsive cough; but Dessault recommends the practice, as if it produced little inconvenience to the patient.

If, however, bronchotomy is resolved upon, I think the point which we chose is to be preferred; and in a similar case to that which I have described, I should think the best plan were carefully to introduce the trocar and canula, without any previous incision. By this

means, the hæmorrhage, which is productive of such dreadful embarrassment and danger, will be avoided, the operation will be more expeditiously done, and part of the horror of the scene will be avoided.

This gentleman's case may receive some illustration from the following case, dissection, and engraving.

CASE II.

J—— R——, æt. 36.

This woman, who is in the lowest rank of life, and lives in a house shewing poverty and wretchedness in the extreme, had not applied for medical assistance before I saw her. I found her with the leaden and œdematous cheeks, purple lips, and full glassy eye, which arise from imperfect oxygenation of the blood. She had a frequent croupy cough, and her breathing, particularly the first inspiration after a fit of coughing, was crowing; her voice was stridulous; her tongue was foul. I omitted to note her pulse. She was of a full habit, and was not reduced.

These complaints were of four months duration, and began with cough and pain in the breast. After the pectoral complaints had continued about six weeks, she began to expectorate what, by description, I suppose was puriform mucus mixed with blood. This expectoration had never altogether left her. Before this expectoration appeared, there was pain, and, she thinks, more swelling round the larynx. The pectoral complaints came on after exposure to fatigue and

cold. She was seven months gone with child, and for some days had felt unusual motion.

I ordered her to take three mercurial pills daily, and a mixture with Vin. Ant. and Tinct. Opii. She told her friends that she was easier after she had taken the second dose of this medicine than she had felt for many days. She went to bed as usual. When her husband, who had been asleep, asked, between eleven and twelve, if she wanted any thing, she made no answer; and when he brought the lamp to her bedside, he found that she was quite dead.

DISSECTION.

Upon cutting out the trachea, the epiglottis was found thickened, round, and hard. There appeared an unnatural band of adhesion between the epiglottis and tongue. The membrane lining the glottis and aretynoid cartilage was so much thickened as to take away the usual shape of these parts. The membrane was like a thin layer of flexible cartilage. This appearance was extended to the membrane of the upper part of the pharynx. The passage of the glottis was choked up with very viscid phlegm, dark-coloured, and mixed with pus; on washing it, there appeared marks of ulceration on the sacculus laryngeus and

around it. The lungs we were not allowed to examine.

In the engraving (plate VIII.) the ulcerations, which were very superficial, are hid. The engraving is intended to shew the thickening and rigidity of the membrane lining the epiglottis and aretynoid cartilages.

This patient, probably, did not die from an apoplectic stroke. With her the obstruction to the respiration from the spasmodic stricture, occasioned by the general swelling and increased irritability of the parts, appears to have been the cause of death. In short, she died from strangulation. Had the stricture been removed while there was any remains of muscular power, she might have recovered; whereas, in case first, the obstruction was removed by the perforation of the larynx, without the slightest benefit to the patient. There is a third way in which I have seen the disease terminate: the patient is gradually exhausted by the concomitant hectic.

I am persuaded that similar cases are not

E. Mitchell sculp.

so rare as one might suppose, from meeting them so seldom in the transactions of learned bodies, and in medical journals. In my own practice, I have seen nine or ten cases of thickened or ulcerated larynx (not in consumptive patients), all of which terminated fatally. I have the testimony of Morgagni, to prove that before his time sufficient attention was not paid to diseases of the larynx. For, in the instance of a woman of Bologna, who died suddenly during a fit of difficult breathing, to which she had been subject for some time; Valsalva and he dissected both thorax and abdomen, and the head, to discover the cause of her death, and found every thing sound; yet they never thought of examining the larynx, although their attention might have been directed to this organ by the peculiar sound of the woman's voice; but it was no regular part of the demonstration to open the larynx. However, it afterwards struck Morgagni that the state of the larynx might explain the alteration of the voice, and the larynx was found among those parts which were not yet buried. When the posterior part of the larynx was laid open, pus of a white, degenerating into a cineritious colour, of the consistence of a poultice, and formed into a plug, entirely shut up the cavity of the larynx under

the glottis, and at this place the membrane of the larynx was ulcerated, as it also was, although more slightly, where it lined the nearest annular cartilage of the trachea.

The symptoms of ulceration of the larynx, resemble those already described as characterising thickening of the membrane, from which it is sometimes not easily distinguished. Indeed, it may be supposed, that the former is often the follower of the latter affection.

In ulceration of the larynx, there does not exist much swelling externally; but there is tenderness, particularly when the head is turned round, and upon pressure with the finger. There is a change in the sound of the voice; it is no longer deep and full, it becomes small and whispering, sometimes peculiarly harsh, and it cannot be extended. There is a corresponding change in the sound of the cough, which is dry and stridulous. The cough often rises to an alarming height. When brought on by swallowing any thing, particularly fluids, incautiously, it sometimes becomes convulsive, threatening instant suffocation. The breathing is as if the air were violently drawn through a dry and narrow tube. The expectoration is generally scanty, and consists of mucus mixed with purulent matter. To the appearance of the expectoration we must chiefly trust in dis-

tinguishing ulceration from mere thickening of the membrane. There is hectic fever and emaciation; and I believe this affection, in a great proportion of cases, terminates only with the death of the patient.

Thickening and ulcerations of the membrane of the larynx, are oftener symptomatic of some constitutional disorder than primary affections.

In collections of anatomical preparations, I have seen various specimens of ulceration of the larynx, which, I was informed, were syphilitic; and I think it not unlikely, that the first case which I have related (in which I suppose there was thickening of the membrane of the larynx) had a similar origin.

In the greatest number of cases, ulceration of the larynx is probably of a scrofulous nature. In pulmonary consumption, I have several times detected this symptom by the sound of the voice, cough, and respiration, when, by an observer who had less interest in diseases of the larynx, it would have passed unnoticed, as concurring with more important symptoms. Although imitating phthisis, this affection is sometimes uncombined with any general disease of the lungs. According to Portal, "Phthisies laryn-" geés et tracheales ne sont pas si dangereuses " que la veritable phthisie pulmonaire." But I

believe that the consumption which, in the first instance, is laryngeal, generally becomes pulmonic also, at last. There is a melancholy proof of this in one of the volumes of the London Medical Journal. Mr. Blackall, lecturer in anatomy, died at Bristol Hot Wells of consumption. While this gentleman was pursuing his professional pursuits with great industry, and the fairest prospect of success, he is said to have been attacked with a disease of the larynx, which brought on a consumption. He continued his lectures till within a month of his death, and till his voice became too feeble to be heard by his pupils. Upon dissection, the principal seat of his disease was found in the larynx, the whole anterior surface of which, as well as the epiglottis and glottis, was uniformly ulcerated. The ulceration extended into the trachea, below the cricoid cartilage, but the erosion was most considerable upwards. The lungs, which adhered to the pleura, were greatly diseased, and the bronchia filled with purulent matter.

In a few days after the recession of the rash in measles, the catarrhal symptoms sometimes appear to be renewed, with fever of a hectic kind; and soon after, there is a loss of voice, with suffocative, stridulous cough, and difficult respiration. In some cases, there are aphthous

erosions of the tongue. This is a most dangerous complaint. But several children who were my patients, had died before I knew with certainty the state of the organ affected. The following case and dissection will explain the nature of the disease.

CASE III.

Mr. R——'s son.

The measles were fatal in the family to which this boy belonged. One child had died after bequeathing the complaint to the remaining three. This child, who was one of them, was a fine boy three years of age. After four days of catarrhal symptoms the eruption appeared; the rash on the second, third, and fourth days, was florid and general. From the 20th March, the day on which the eruption appeared, to the 27th, the child was oppressed, but more in the sensorium than in the breast; there were, indeed, pectoral complaints from the very first. On the 27th the child was less lethargic. About this time his mouth was very tender, the gums tumid, red, and somewhat sordid, and small superficial ulcerations were to be seen on the tongue and fauces. On the 1st of April the mouth was cleaner, but there was a large irregular ulceration on the point of the tongue. The catarrhal symptoms had not entirely subsided, although they were never alarming; but they now increased, and he had feverish nights; his breathing became affected, it was audible and dry. On the 4th he died; his respiration

at the last was quick and feeble; before death he was pale and livid.

DISSECTION.

The trachea was cut out, and slit up from behind. There appeared all over its internal surface red streaks of inflamed vessels. It was moistened with an attenuated mucous secretion.

The investing membrane of the epiglottis appeared considerably thickened, particularly at the edges of the epiglottis. The whole membrane of the glottis seemed to have suffered in the same way. The sacculus laryngeus was nearly obliterated, from the thickening of the investing membrane; there was a band of the membrane loose, except at its extremities, extending from the left side of the larynx, below the sacculus, to the left aretynoid cartilage, separated from its other connections by ulceration.

The investing membrane of the trachea below the larynx, did not appear to be thickened. There the only mark of increased action was the frequent branching of little red blood-vessels. This was observed through the whole course of the trachea. It was also seen in its ramifications.

The lungs, upon opening the thorax, receded

a little; they were then retained in their situation by serous effusion in their substance. There were a few adhesions between the pleura costalis and pulmonalis. There were some ounces of a bloody serous fluid in the cavity of the thorax.

In the treatment of ulceration of the membrane of the larynx after measles, I have been very unfortunate. I have tried bleeding, blisters, and purges. Perhaps these remedies, which appeared to have little influence over the disease, were not early enough employed. If the affection of the membrane have proceeded to ulceration, I fear we cannot assist the patient. If ulceration be only threatened, after topical evacuation, great benefit may result from giving a quantity of calomel quickly. This affection I have seen fatal to those who had been bled during the eruption, as well as to those who had escaped bleeding.

I by no means affirm that this affection of the larynx after measles arises from scrofula. It is almost too soon for a scrofulous affection to appear; yet all the children who died of this complaint belonged to families extremely subject to scrofulous disorders.

A diseased state of the membrane of the larynx in a patient advanced in life, has been

supposed by one physician, I think Dr. C. Smyth, to be of a scirrhous nature; but I do not recollect that he has assigned any conclusive reasons for this opinion.

In treating of the cure of ulcerated larynx, I have rather to relate what has failed, than what has been successful. We must endeavour, in the first place, to ascertain whether this disorder is connected with any constitutional taint. If there is reason to think the affection syphilitic, we are chiefly to trust to mercury. In some instances mercury has been administered with success; in many it has completely failed. From the swelling which may be induced in the mouth and fauces, it is probably not safe to carry the mercurial irritation far. In the case of one of my patients, whose character and previous health left no room to suppose a venereal cause, relief was obtained during the use of mercury. This patient also declared, that she expectorated with more ease while she was using a solution of gum-ammoniac and squills. But in using any expectorant, we must be careful that it do not induce vomiting. This operation is dreadful. I would enjoin the strictest antiphlogistic diet and regimen. Every kind of fatigue is to be avoided. If possible, I would not allow the patient even to sit up in bed. The patient is to attend

both to the nature and temperature of every thing to be swallowed, avoiding whatever raises the cough. If there appear symptoms only of thickening of the membrane, moderate bleeding, both general and local, is to be had recourse to, as a preparation for the mercury, and then perhaps blistering. In one case, an ingenious friend suggested the introduction of a seton over the thyroid cartilage; but there was too much reason to think that the disease had already reached ulceration. In ulceration of the larynx, I have prescribed various narcotics, without any advantage. This order of medicines rather appeared injurious. I have tried opium in large and small doses, hyosciamus, and cicuta. I have never seen any benefit derived from the use of the inhaler. It is evident that we can only recommend those vapours which are not more irritating than atmospheric air.

OF THE

EPIDEMIC PERIPNEUMONY OF CHILDREN.

EVERY winter this complaint has appeared among the children of this neighbourhood, beginning sometimes early in November, sometimes later, and prevailing for two or three months. I think I have not seen so much of any disease during the last nine years. In the winters of 1802, 1803, 1804, I had seldom less than twenty or thirty cases under my care. In the two following winters there was less of the disease. In the winter of 1807, the severest recollected, it was rarely seen. In November and December 1808, I had generally to visit daily from fifteen to twenty cases.

Although this complaint cannot always be traced to mismanagement, I have very often,

indeed, seen it arise after the child had been exposed to the night air, or had been much out of doors during a cold damp day. In children more advanced, it has often arisen after a long fatiguing walk in a cold day. I have sometimes seen three or four children in one house suffering under different degrees of this complaint, all of whom were taken ill about the same time, perhaps on the same day.

Most of the children have been previously healthy, but the complaint sometimes seizes those who have been ailing, often, as was supposed, from difficult dentition; and all the symptoms have been attributed to this fruitful source of all the illnesses of children. Certain it is, that I have often seen children who were soft, pale, with relaxed bowels and unnatural stools, attacked with this epidemic.

The same child has been three or four times affected with this complaint in successive winters, and with equal violence afterwards as at first. In infants at the breast, the temperament is not always well marked. I have not paid much attention to the complexion of the children in the cases of this complaint which I have preserved: I can recollect many fair and florid children who have had the disease after weaning, but I do not know in what proportion.

In the winter of 1802, several children had general convulsions at the beginning of the disease.

The complaint has often begun with rigors, want of appetite, and dullness for two or three days, generally with slight symptoms of catarrh, such as precede some of the eruptive diseases, coughing, sneezing, running at the nose, a heavy and watery eye, some slight degree of fever, particularly towards evening. These symptoms are more or less prolonged; they generally last for several days, and gradually increase.

Then the fever is more continued; indeed there is no perfect remission. It is least violent in the morning, increases as the day advances, and towards night the pulse and respiration are quick, the child is hot, extremely fretful, frequently starts from sleep, and is very thirsty. The cough is exceedingly frequent and troublesome. Towards morning the symptoms abate, and the child sleeps more calmly.

The principal and distinguishing symptom of this disorder is the painful cough. The child never coughs without crying, and invariably he cries upon being moved or lifted from his cradle. There is a catch at the end of the inspirations, which often raises the cough, interrupts the breathing, and renders it irregular. The complexion is pale; indeed the whole of the skin is pale, sometimes sallow, with very great heat,

In an infant three or four months old, there are eighty or ninety respirations in the minute. The pulse is 200, firm, and regular; if the child's hand is grasped, the pulsations may be felt even in the fingers; the tongue is white, sometimes loaded; at first it is often grey, with a florid edge; the child's mouth is often very disagreeably warm at the nipple; the smell of the breath is generally sickly; the urine is high-coloured, hot, and of a pungent smell; the stools are often unconcocted, pasty, of a bright green colour; sometimes the belly is bound; but I have known the complaint attended with severe griping, looseness, and slimy stools; such irritation, that it was not easy to say whether the disorder of the breast or of the belly was most urgent. The child sucks greedily, and the fits of coughing often end in retching and vomiting. The vomiting is frequently followed by a temporary abatement of the symptoms. The child is generally, in this state of the complaint, lethargic; yet he is constantly disturbed by startings, often occasioned by the least noise, and by the pain in his chest. Sometimes he is only quiet while his nurse walks through the room, which she is obliged to do constantly. When on her knee, or in bed, he expresses very great impatience, tossing about, moaning, and crying.

After a slight cough continuing for two or

three days, I have known the symptoms in a child at the breast suddenly arise to an alarming height. The breathing has become oppressed; the pulse and breathing remarkably quick, with little or no cough. Then the infant becomes pale, moans faintly, frequently starts, and is cut off in ten or twelve hours. This variety of the complaint considerably resembles the affection which sometimes takes place upon the retrocession of measles.

Usually, when the disease terminates fatally, the breathing, after some days of severe illness, becomes still quicker and more laborious; the breath is cold; the pulse is rapid, irregular, and weak; the thirst is insatiable; and the extremities are cold and swelled; the eye is filmy; there is a livid colour round the eyelids; the nails are livid; the whole countenance is œdematous and ghastly; the cough is suspended, and great insensibility prevails. I have seen many children dying with all the symptoms of Peripneumonia Notha.

In those more advanced, the same symptoms occur. The catarrhal symptoms, in the same manner, increase in violence. There is the same fever, with remissions in the early part of the day, with restless and very feverish nights. There is greater flushing in all stages of the complaint. After a certain time, the expectoration is puriform. The expectoration

of an infant we have scarce ever an opportunity of examining.

I have reason to think that this disease has sometimes been superseded by Croup.

I have preferred describing the disease as it occurs in early infancy, as this is the period in which it is less likely to be generally attended to and understood, and in which also it is most fatal. The disease is most severe in those children who are very young, in children in the third, fourth, and fifth month. I have seen it fatal to a girl nine years of age.

After the fever and the quick and interrupted respiration is subdued, the cough continues for a considerable time, and resembles hooping-cough so much, that, for some time, the complaint has been thought an attack of hooping-cough. The cough comes on in fits, with confined inspiration. The fit of coughing is repeated, and the cough is always most troublesome in the night; yet in a week or two, the cough subsides. If children have lately recovered from hooping-cough, the cough, from the beginning of this peripneumonic complaint, occurs in suffocative fits.

In many children the disease did not advance to an alarming height, disappearing after four or five days of languor, want of appetite, occasional febrile heat, and coughing. Yet I conceived that this was the same disease which

was prevalent, as the catarrhal symptoms were exactly the same in these patients, and others in the family, who afforded the most perfect examples of the epidemic.

In dissection we scarcely find the effects of the disease corresponding with what we should expect from the severity of the symptoms. The only very distinct morbid appearance is increased vascular action of the bronchial membrane. The secondary effects of the disease are effusions into the cavities of the thorax and pericardium, and cellular substance of the lungs.

The remedies for this disease are those which are used in other inflammatory affections of the lungs; vomiting, purging, bleeding, blisters, the tepid bath, and diluents, small doses of opium after the evacuations.

In the beginning of this complaint vomits are sometimes of great service, apparently arresting the attack. When the fever does not run high, I have trusted the cure to repeated doses of calomel. In this complaint, as in Croup, calomel appears to me beneficial, not from any specific quality, but by acting as a vomit or a drastic purge. When calomel did not sufficiently move the bowels, other active purges were given. The benefit of bleeding in this disease is often as striking as in the most ardent pleurisy; yet large bleeding I

do not find necessary: but I have scarcely seen the application of one, two, or four leeches fail, in the first days of this complaint, to relieve a child of six months, eighteen months, or three or four years. The relief is often observed immediately, or soon after the leeches have dropt off, and the febrile symptoms have not returned with any violence. Bleeding is not contra-indicated by paleness of the complexion while there is not great livor. The irritation of the bowels also is generally removed by the bleeding. The leeches, however, are often required several times. I was once obliged to order a second leech to a child seventeen days old, but I did not allow the subsequent bleeding to continue more than a quarter of an hour after either of the leeches; the child recovered. Blisters, applied after the leeches, have been thought serviceable.

With respect to regimen, I have little to offer to those who understand the treatment of pneumonic inflammations. Children at the breast, perhaps from the heat of the mouth, are inclined to suck more while labouring under this disease, than when in health; but I generally order the nurse to withhold the breast, and give instead, water or thin gruel sweetened or mixed with a small quantity of the breast-milk; and I direct the nurse to go

to bed, and to take the child with her, when he can be made to lie quietly.

I do not know that this complaint subsides on any particular day. I am inclined to believe that, like some other pulmonary fevers, it has a tendency, from the commencement of the febrile symptoms, to run a seven days course. But when the pyrexia is great, it is extremely hazardous to wait for a natural crisis, and it is inexcusable when we possess the means of resolving the complaint with so much certainty.

Nor do I know that the removal of this complaint is connected with any critical evacuation. In many cases, when the child was relieved, the nurse did not observe any unusual discharge from the bowels, or increased flow of urine. In children more advanced, the expectoration is generally considerable when the disease is subsiding.

The mere history of this disease, in the present state of medical knowledge, is perhaps all that is required. When any disease peculiar to infancy has been described, it is in general easy to explain the phenomena upon the established principles of pathology, and to apply the appropriate remedies.

PERIPNEUMONIA NOTHA?

In consultation on the case of a gentleman who was confined to bed with an inflammatory attack of the bronchial membrane, I ventured to observe, that I feared we could not, with safety, order a large bleeding, as the patient appeared to me to have many of the symptoms of Peripneumonia Notha. Upon this observation, the physician who took the lead in the consultation remarked, that the bleeding might with propriety be delayed; but that he doubted if an attack of Peripneumonia Notha was to be distinguished from the common peripneumonic attack; and added, that from his own practice he had never been able to verify the existence of Peripneumonia Notha. I listened to this remark with some surprise, particularly as proceeding from the physician, who is justly considered of the greatest eminence in Scotland, and who has long enjoyed the first practice. I have fre-

quently reflected on it since, and I have endeavoured to explain it in the following statement.

I. In the beginning of the winter of 1803, a fever prevailed, attended with catarrhal symptoms, of which two of my patients died on the tenth day. The symptoms in both cases were much alike: viz. rigors; oppression and pain in the chest, not pungent; anxiety and incoherence; a quick soft pulse, afterwards small and irregular; tongue white, inclining to grey; some headach; watching, hurried and wheezing respiration; pale and bloated countenance; profuse clammy sweats; insensibility. A small quantity of blood, which was dark and without size or consistence, was drawn from one of these patients on the seventh day. Many other persons had the same disease favourably. One person had chilly fits for a month, another for a fortnight, with slight catarrhal symptoms, before they submitted to confinement. These patients were both bled, with apparent relief, in a day or two after their confinement to bed; not more than four or five ounces of blood were drawn, which resembled the blood which Huxham describes, as it appeared in some cases of the epidemic Peripneumony which occurred in the latter part of the year 1745 and the beginning of 1746: "The coat of the

" blood was of a pale red colour, resembling " the cornelian stone, or dilute jelly of red " currants." The blood had a thin coat of size, or only some streaks, the coagulum was tolerably consistent, but the surface was not contracted. In two cases the stools were dark and fœtid. The urine was high-coloured and turbid.

The patients who died appeared to have suffered under an affection resembling the Peripneumonia Notha of Sydenham. The patients were of the age and constitution which Sydenham points out as liable to this disease. He describes Peripneumonia Notha as attacking middle-aged persons of a gross habit, as being a fever, epidemic in winter, attended with peripneumonic symptoms, beginning with rigors, followed by giddiness, intense headach, vomiting, turbid red urine, sizy blood, quick, difficult, and wheezing respiration, and pain of the breast. Perhaps the affection which I have described, still more resembles the Peripneumonia Notha of Huxham than the disease described by Sydenham, the headach in none of my patients having been remarkably revere.

II. A chronic catarrh, in persons of a gross habit of body, advanced in life, and accustomed to live luxuriously and intemperately, often ends in what is considered as Peripneu-

monia Notha. A case which I attended last winter is still fresh in my recollection, and will exemplify the complaint to which I would direct the attention. A gentleman, phlegmatic, and extremely corpulent, of very convivial habits, had for two or three years suffered from wheezing and laborious respiration, which forced him to stop two or three times in ascending an easy stair. At length he was attacked with fever, a white and furred tongue, straitness at the præcordia, red and turbid urine, the secretion scanty. When I was called, his pulse was soft and full, but not much quickened; he could not lie in bed for many minutes at a time; his eyes were prominent and heavy; his countenance purple and mixed. He fell asleep on his chair during the most interesting conversation; in the night he was often incoherent; his bowels were much disordered; he had convulsive fits of coughing; his respiration was laborious and wheezing, yet he could always draw a lengthened inspiration; the mucus expectorated was puriform; he had a disrelish for all food. He recovered beyond the expectation of his physicians, the pneumonic symptoms gradually abating, and the discharge of urine increasing. In the course of ten days, he was three times bled from the arm, and had twelve leeches applied to his temples. The medicines used were,

an emetic, about an ounce of the vinegar of squills, in divided doses daily, and every second day a strong mercurial purge. The blood drawn was extremely dark; but it had a thick coat of size. It ought to be recorded, that this person, in three or four months after this alarming attack, while abstaining from fermented liquors of all kinds, although corpulent, and advanced in life, so far recovered his health and strength, as to walk every morning four miles before breakfast, and return to dinner; and that the ensuing winter, and the use of wine, although in a quantity not exceeding two or three glasses daily, reproduced the catarrhal complaint, with impaired respiration. He now cannot walk a mile upon a level without difficulty and fatigue.

This complaint corresponds with the Peripneumonia Notha of Boerhaave, which is described as prevailing in winter and spring, affecting those of a phlegmatic habit, advanced in life, who have been subject to catarrh; as induced by stimulating ingesta, general fatigue, or unusual exertion of the lungs, and is indicated by oppression of the breast, weariness, prostration, mental debility, and quickened respiration (the circulation not being much quickened), rigors, slight fever, sudden increase of weakness, and difficulty of breathing.

III. The case of Vallisneri, as related by Morgagni, presents an example of an affection similar to what was often observed during the epidemic catarrh of 1803. This epidemic was most fatal to elderly delicate people, who had been subject to affections of the lungs. In these patients the febrile symptoms often were not very acute, and great danger was not at first apprehended; but two or three days before death, with a soft and not very quick pulse, there arose a corded feeling across the breast, with hurried and somewhat laborious and wheezing respiration, and performed only in the erect posture; a pale, livid, and anxious countenance; then extreme depression of strength, lethargy, and insensibility. Vallisneri suffered under a similar disease, which prevailed universally in the beginning of the year 1730. On the fourth day of his illness, he had no symptom which indicated danger; but on the sixth day his countenance was discoloured, melancholy, and dejected; his respiration laborious, and his strength failing. In the evening, his countenance was cadaverous, his respiration more laborious, and all expectoration was suppressed. During the night, his respiration was stertorous; and towards morning, a few hours before death, his pulse became low and quick.

All these affections, which I have just described, are admitted by authors, and constantly referred to as specimens of Peripneumonia Notha.

In these varieties, Peripneumonia Notha appears to have been a secondary affection. It is not the natural termination of Epidemic Peripneumony, Chronic Catarrh, or Influenza, but occasionally arises as the advanced stage of all these diseases.

No disorder, with which I am acquainted, proceeds regularly to this conclusion. For example, very few cases even of Epidemic Peripneumony end in Peripneumonia Notha. It is only a part of the disease, as occurring in combination with a peculiar diathesis. All the diseases which end in Peripneumonia Notha, are attended with increased action of the mucous membrane of the bronchia. Peripneumonia Notha is generally a combination of this action with the effects of a relaxed habit and weakened organ. In such a state of the system and lungs, any affection of the bronchial membrane, with general fever, may terminate in the same symptoms. It follows the Peripneumony of measles and hooping cough, and perhaps many other affections. According to Huxham, the symptoms which point out Peripneumonia Notha "are perpe-

" tual laborious wheezing, great anxiety, and " constant oppression in the præcordia, coma- " tose symptoms, cold extremities, and dark " lead-coloured nails and visage." I much doubt if I could more accurately describe the state which preceded death in most of the cases of measles, as occurring in the beginning of 1808, than Huxham has done in the words which I have quoted *.

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* If the reader wishes for information relative to the cure of Peripneumonia Notha, I beg to refer him to Huxham's chapter on this disease in his book on Fevers. This excellent essay on the disease has not been enough attended to. Additional information is given in Dr. Badham's work on the Diseases of the Membrane of the Bronchia.

THE END.

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