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1839 Philson

On Croup.

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Perley Jr. Hamilton.

The disease, commonly called Croup has, most probably, existed from the earliest ages of antiquity; nor does there appear any just reason to believe, that it eluded the searching observation of the Fathers of Medicine. In particular, some authors of modern times, among whom the name of Valentin may be mentioned, have conceived, that the affection, described by Hippocrates in the following words, is no other, than modern croup. "Angina gravissima quidem est, et celerrime interimit, quæ neque in faucibus, neque in cervice, quicquam conspicuum facit, plurimum vero dolorem exhibet, et difficultatem spirandi, quæ exorta cervice obitur, inducit. Hæc enim eodem die etiam, et secundo, et tertio et quarto strangulat." Numerous passages from the writings of Aretæus, Galen, Celius Aurelianus, Aetius &c. have been adduced in support of the same opinion.

However this may be we may rest satisfied that the knowledge possessed by the ancients of the phenomena and nature of Croup, was extremely vague and incorrect, and that to the modern

physicians is due the honour of bring-
ing to the full light of day, a disease
which for ages had been most singu-
larly overlooked and confounded
with others. The first regular descrip-
tion of Croup was given by Martin
Ghisi an Italian physician who
flourished about the middle of the
last century. It is, however to Dr
Francis Home of Edinburgh who in
the year 1765 published an octavo essay
on the nature cause and cure of Croup
that we are indebted for the first full,
distinct, and correct account of this
very severe disease in the English
Languages. As Dr Home states at that
period Croup was a disease which
had certainly escaped all regular
examination and concerning which
little was to be learnt from inquiry, and
still less from books. No author has
done greater justice to the merits
of Dr Home than M. Royer Collard
in his eloquent essay on croup in
the Dict. des Sciences Medicales are
the following words. "Properly so
to speak Home is the first who has
traced a complete history of Croup
and who has positively determined
its nature and its characters. His work
printed in 1765 was in fact a Revelation
to the Medical world, and appraized

us of the existence of a malady, which had been hitherto, shrouded from our view." Those authors, who it appears had noticed Croup previous to Dr Home, but with whose observations he was unacquainted were Baillou in the year 1576. Blair 1718 and Martin Ghisi in 1749. Since 1765 a host of treatises has appeared on Croup, and at the present, our knowledge on all subjects, connected with it, may be regarded, as almost complete. Among the most celebrated we may enumerate the essays of Michaelis, Cheyne, Double, Hosack, Royer Collard, Valentin, Golis, Vieusieux, Jurine, Albers, Guersent, Porter, Bretonneau, Copland & Dugés. Of the foregoing, the names of Jurine and Albers are worthy of especial fame as having gained the Prize of 12000 francs offered by Napoleon for the best essay on Croup.

The origin of the term Croup is still rather obscure. It has been long in use among the common people in Scotland, and is said to have been first nosologically employed by Dr Patrick Blair in his observations on the Practice of Physic published in 1718. It is supposed to be derived from the word "roup" or "pip" a disease occurring in the domestic fowl, which is accom=

panied by a modification of voice, supposed to be analogous to that of a person affected with Croup. Authors have not been unanimous in bestowing Synonyms on croup, some of which indicate the more characteristic symptoms, others the particular seat of the affection. Il y a Affectio orthopnoica of Bouillon, Angina stenitosa of Ghisi. Suffocatio stridula of Home, Anoina polyposa of Michaelis, Angina membranacea and Cynanche Tracheali of Cullen. It has also been styled Tracheitis, morbus strangulatorius. A great variety of appellations might be enumerated, the above will perhaps be considered sufficient. Thus having premised a brief and imperfect account of the literary history, meaning and derivation of the term Croup, and having mentioned a few of the synonyms by which this disease is known we shall proceed to state in the same brief manner what has appeared a fair account of the Definition, Symptoms, Causes, Diagnosis, Prognosis, Pathology and Treatment.

The nosological definition of Croup is generally stated as follows, Accelerated, difficult, wheezing,

or shrill respiration. Short, dry, constant
clangous barking cough, hoarse, al-
tered voice, pain with constriction
about sternum, and symptoms of
inflammatory fever frequently
towards the close of the disease, ex-
pectoration of albuminous, mem-
branous or glutinous substance, oc-
curring in children.

The definition deducible from the
pathological state of the part or parts
affected is. Inflammation of Trachea
sometimes also of larynx, frequently
extending throughout the bronchial
ramifications, occasioning album-
inous, and membranous exudation
more or less spasm of the parts, ter-
minating either in suffocation, or in
extinction of vital power generally
in a few days.

In concordance with the arrange-
ment mentioned above the history
of the symptoms falls next under
Consideration and in pursuance of
this we shall divide the disease into
3 distinct periods or stages, a plan
which has been adopted by almost
all authors, and which will be found
not merely a matter of convenience
in description, but also of practical
importance. These periods or stages

accordingly are 1 Invasion 2 Complete formation and 3. Collapse The first is also called the Precursory period or stage of Irritation the second is synonymous with Dr Cheyne's stage of Inflammation in which the adventitious membrane is thrown out and the third is the same authors stage of suppuration

First Stage. The precursory or premonitory symptoms of Croup are liable to great variety in some cases being conspicuous and severe while in others they are but little obvious and of a mild character. Most commonly however it commences with catarrhal and febrile symptoms in every respect analogous to those which usher in an attack of acute pulmonary Catarrh.

+ The patient who is in by far the greater number of cases a child under 12 years may be observed to have become dull restless and uneasy, his skin is hot and dry pulse quick and febrile respiration anxious, accelerated countenance slightly flushed, there is headach, anorexia the tongue is coated white and loaded at its base. Very young children are said to become peevish and fretful, and refuse to leave the

the nurse's arms for a moment. If the patient be more advanced in age, the symptoms are more clearly developed and shivering, nausea, and other symptoms of general pyrexia more readily observed. A singular capriciousness of temper has also become remarked, the child inclining to cry and laugh by turns. At this period Coryza is very often present, together with hoarseness and short dry cough. The fever which is slight during the day exacerbates towards evening. The eyes are watery and red, and the eyelids become darker than usual. The duration of this stage is very various, ranging from a few hours to two or three days, and in very young children the symptoms may be so slight, as to escape detection.

The importance of attending carefully to Catarrhal affections in young children is very great, more especially to hoarseness, and dry, rough cough, which as Dr Cheyne remarks when observed in a child inhabiting a croupy district, are very suspicious symptoms.

It is commonly during the night that the peculiar symptoms of Croup

manifest themselves for the first time, and the full establishment of these constitutes the second stage. The patient has gone to bed, as on the preceding evenings, with slight catarrh and fever, and is enjoying quiet repose, when suddenly the respiration becomes difficult, sibilant, sonorous, and an unusual, dry, loud clanging cough, which rings as though it were transmitted thro' a brazen trumpet, is heard. This is the true croup clangosa and is generally the first circumstance which gives the alarm to the anxious Mother. The child is roused from sleep, and his voice is observed to assume a peculiar shrill or what has been called "piping" sound. The cough is single, solitary, unattended by expectoration and occurs every minute or two, perhaps oftener, and is succeeded by a deep, hissing, sonorous inspiration, a crowing noise resembling the kink of a backdraught in Pottery or the sound produced by a piston forced through a dried pump.

Along with these there are restlessness, flushing of the face, heat and dryness of surface generally, the pulse is hard quick and incompressible, the thirst is intense, the urine high-coloured. The eyes are watery, red, and prominent, the head is thrown backwards, and a dreadful sense of suffocation is experienced, as if a foreign body were lodged in the throat, to which the hand is over and over

raised by the little sufferer.

The above symptoms which indicate the complete formation of the disease usually subside about midnight, or early on the following morning, and returns by little and little the respiration becomes more free, the sound of the cough more natural and the patient sinks into a profound sleep. During the remission which sometimes continues during the greater part of the following day the pulse attains its frequency, the cough continues croupal and noisy, and the respiration is in many cases still marked by the peculiar crowing character. At night the symptoms return with redoubled violence, respiration becomes suddenly sonorous and sibilant and a dreadful sense of suffocation and oppression supervenes. The little patient now incessantly raises his hand to his throat (which at this time and sometimes earlier, is slightly tumefied) as if to remove the substance which he says is choking him. In order to breathe with greater freedom, he throws his head as far back as possible, thus putting the windpipe on the stretch. His eyes are prominent and bloodshot, his features are swollen and livid, pulse frequent, hard and small, voice raucous, cough convulsive, noisy, fol-

lowed by crowing or hissing inspiration
— At the commencement the cough is dry, or attended with a scanty mucous expectoration, sometimes tinged with blood, subsequently it becomes hoarse and suffocative, accompanied with fruitless attempts to excrete something felt in the Trachea —
— The patient is restless, and the dyspnœa great, at each inspiration the tumid larynx descends rapidly towards the sternum whilst the Epigastricum is drawn upwards and inwards, during expiration the former is carried upwards towards the maxilla, and the latter becomes plane —
— At this period remission seldom occurs, when the disease is unarrested by treatment, or if it do occur, it is of short duration —
— All the symptoms become greatly aggravated, the cough becomes difficult, suppressed or strangulating followed occasionally by vomiting and excretion of glairy mucus along with flocculent or membranous shreds. The pulse is now very frequent, sharp, small & contracted

the respiration is laborious and the sense of suffocation imminent; during the paroxysms of coughing the cheeks and lips are livid or very pale and tumid, great nervous irritability and somnolence are also not unfrequently observed but no delirium. The hissing, sonorous, or croupy character of the respiration increases and the voice which before had been shrill and hoarse, now becomes broken and whispering; in some cases suppression of voice or complete aphonia takes place. If the cough is followed by vomiting above described of glairy, albuminous, or membranous matter, momentary relief is obtained which is sometimes followed by progressive diminution of all the urgent symptoms. Deglutition which commonly is very little affected in croup, is sometimes at this period attended with difficulty. In this case the attempt to swallow liquids is attended with coughing, and sense of suffocation.

The symptoms are seldom equally intense during the whole of this stage, and in some of the violent cases present slight remission.

In this stage the bowels are generally costive, and are often so throughout the whole disease. The urine is small in quantity high coloured, and generally albuminous.

The Stethoscope usually furnishes no further information in this stage, than a louder sound, than that already heard, unless when the disease extends to the larger bronchi, when a dry tubular or bronchial sound of respiration, unaccompanied with crepitous dilatation of the air-cells, but attended with perfect resonance of the thorax, may be detected.

When the inflammatory stage above described has not subsided spontaneously, or has not been arrested by appropriate treatment, a new order of symptoms indicating the commencement of the third stage or period of collapse is established. This period may commence from the first to the seventh day from the invasion according to the intensity of the disease and the constitution of the patient —

The characters of this stage are, rapid depression of the powers of life, indicated by the state of the pulse which from being hard and incompressible now becomes small, feeble, irregular and even intermittent the cough from having been loud and sonorous, becomes hurried, suffocative,

and almost inaudible, the patient speaks only in whispers, the respiration is wheezing, the countenance pale, lips livid, skin motley, eyes languid, nails the colour of the Iris Jades, the chest heaves convulsively, and the play of the Alae nasi is incessant: the tongue is dark and loaded, its edges pimple, the surface generally is cold, and the stools are discharged

D^r Cheyne observes that in this stage the breathing may often be perceived most free in positions which are generally least favourable to healthy respiration, viz when the head is low and thrown back

In the state now described, I recover, but sometimes temporary much more rarely permanent relief is obtained from the expectoration of the albuminous, membranous, and mucopurulent matter obstructing the air passages -

Unhappily however in most cases the power of excretion is entirely lost, in this case the circulation rapidly sinks, the surface is bedewed with a

Cold, viscid, and clammy sweat, respiration becomes more and more laboured, interrupted, drowsiness supervenes and the child dies, sometimes in a calm and tranquil manner.

This extreme state of disease seldom lasts longer than 24 hours; when about to prove fatal the duration of Croup may be averaged at 4 days.

In more favourable cases the 3 stage may be protracted for 2 or 3 weeks, and after expectoration the patient with sometimes slowly emerge from a condition which had previously appeared hopeless. Along with the purulent fluid of which the sputa chiefly consist, is sometimes expectorated a whitish, soft, tubular matter compared to Macaroni stewed in milk.

Having now completed the account of the symptoms and phenomena of croup in its simple and uncomplicated form we shall in the next place prefix the Etiology of Croup by a brief statement of the opinions held by the best authors on the subject of the Varieties and different species of Croup.

On this subject there exists not a little diversity of opinion, among authors some contending for the existence of several distinct species and varieties of Croup, while others maintain with equal confidence that there is but a single species, thus M. Guersent lays down distinctions between what he styles Inflammatory, Mucous, Adynamic and Spasmodic Croup. —

— Of these the first occurs in children of a sanguine temperament, who have just passed through the period of their first dentition. Its characters are, Strength of pulse, livid colour of face, and lips, augmentation of heat of surface and difficulty of respiration. —

— On inspection after death we almost always find a pseudomembranous concretion of considerable extent and the mucous membrane of the trachea presents manifest traces of redness. —

Mucous Croup is more generally diffused, occurring especially in children of a lymphatic temperament with a blanched & delicate skin. —

It is commonly preceded by Coryza, there is very little fever in first period, effusion of mucus into the Larynx & Bronchia

In this variety the chance of recovery is greatest ——

Spasmodic croup is seen most commonly in children of a very irritable habit of body, of a choleric, and of an eminently nervous temperament. It is marked by a small, frequent, sometimes irregular pulse, changeability of complexion, extreme agitation, and violent suffocative paroxysms in the 2nd period.

In post-mortem examinations we find sometimes extensive concretions, but more frequently very small isolated patches

The Adynamic attacks particularly infants at the breast, or subjects somewhat more advanced, and is characterized by great prostration of strength, rapid sinking of the pulse &c "

M. Royer Collard admits but a single, simple and primitive species of croup, and has assigned two very important phenomena as specific characters The first consists in the croupal inflammation tending necessarily to produce concretions or membranous forms in the interior of the Larynx & Trachea. When (says he) this concretion

instead of extending itself in a membraniform manner, collects into irregular masses, accompanied by ligneous necrosities, this constitutes varieties dependent on the mode and degree of irritation, or inflammation, or other accidental circumstances, but still the nature of the disease remains the same.

The second of the 2 specific characters of spasmodic irritation, to which croup is always accompanied —

This irritation is in truth only of a secondary nature since it is inflammation which determines it, but in its turn it gives rise to a succession of symptoms so severe, and which exercise such an influence on the progress and termination of the disease, that it becomes in some measure integrant, essential. Of this single species he recognizes several varieties as the Sthenic and the Asthenic &c. Dr Copland describes 1st the acutely inflammatory croup, (of which he makes 2 species viz 1 Laryngeal and 2 Tracheal) 2nd Croup with predominance of bronchial symptoms (Mucous C.) Guersent and 3. Croup with predominance of nervous or spasmodic symptoms

Dr Cheyne observes that no fixed line of demarcation can be drawn between what have been described by authors as Inflammatory Spasmodic &c &c — He believes that in all cases the spasm depends on Inflammation, for which no antispasmodic is so effectual as Venesection —

The experience of Dr Kellie of Leith led him also the same conclusion

The divisions of Croup are into Simple and Complicated &c &c By simple Croup is understood that form of the disease where the inflammation is confined to the mucous membrane of the air passages. By complicated, we mean those cases in which there is superadded to the croupal inflammation some other disease as Cynanche maligna, Cy. Pharyngea, Measles &c

It will be readily observed that the above description of symptoms applies only the simple, uncomplicated Croup.

Having thus mentioned all that appears essential as to the Varieties the Etiology fall next to be considered The Causes are Remote and Proximate The remote causes are divided into — Predisposing and Exciting —

Under the head of Predisposing causes, may be arranged the influence of age, sex, temperament, previous disease &c Although well marked cases of croup have been observed in the adult subject and recorded by various authors as by Valentin. & still it may be affirmed that croup is extremely rare in such persons, and that the doctrine maintained by Home and still held by Cheyne that croup is a disease peculiarly belonging to children is at the present time completely established —

"The younger children are, after they are weaned, says Dr Home the more liable they seem to it. I never saw or heard of one above 12 years of age affected"

Dr Cheyne states that in many hundred cases attended by his father in Leith & its vicinity, he had not seen one instance of croup occurring after puberty

When croup has once occurred, it is very liable to recur in consequence of a return to the exciting causes.

According to the observation and experience of almost all authors, both sexes are equally liable to croup.

In infants of a sanguine temperament croup is apt to assume the more acutely inflammatory character, while in

those of an opposite habit the rheumatic character is often manifested.

Previous disease, mutual irritability of constitution, violent exercise, light clothing, improper diet have all considerable influence in predisposing to croup.

With regard to the exciting causes of croup, all authors agree that the most common is cold, especially when conjoined with moisture, and conveyed through the medium of Northerly, Easterly, or North-easterly winds. On this point Dr Cheyne observes, "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, hence it is, more especially the disease of sea port towns."

Croup has been observed in the valleys of Switzerland in Savoy, in the north west of Europe and in N. America it is rare in middle and southern Europe, and it is said that it is more rare everywhere now than about 20 or 30 years ago.

It is most prevalent in cold, changeable weather, often appearing after a cloudy, hazy day.

All the cases recorded by Dr Home in his essay, occured from October to March with the exception of one, which happened in August.

With regard to the locality of croup, Dr Home states that it is seldom at any great distance from the sea shore, it appears much less for example in Edinburgh, than in Leith and Musselburgh. It is often seen along the coast of Fife and it is very common also along the coast of Ayr-shire and Galloway, and it is probably common on the English coast. Very wet and marshy situations are favourable to its production.

Dr Cheyne states from experience that it is prevalent in the latter end of winter and spring along the whole of the eastern and northern coasts of Ireland where it is found to prevail as in other places in the neighbourhood of large bodies of water, whether containing a stagnant, fresh, or salt.

Other exciting causes are.

Previous disease as Bronchitis, Pertussis, various Cynanches, Measles, Small Pox, Erysipelas, Scarlatina &c.

It is also liable to occur during convalescence from acute disease, and has been said to be occasioned likewise by attempts at swallowing acid substances or substances of a high temperature, or by the retro-version of eruptions, or by the suppression of accustomed evacuations.

But of all the exciting causes, the most common, and the most effective is, Cold. as above mentioned. applied in any way.

With respect to the question, does Croup prevail Epidemically, it may be observed that there is a difference of opinion. Dr Copland says, Although croup is generally a sporadic disease occurring occasionally at all seasons, yet it sometimes assumes epidemic features, both in respect of its simple state, and its complication with other species of Angina, particularly at periods, when they, or catarrhal affections prevail, the seasons most favourable to the production of these diseases, most frequently occasioning this malady also". Croup cannot be strictly said to be an endemic disease, as it is often met with in situations diametrically opposed in circumstances to others, in which it usually occurs.

There is also much difference of opinion among authors as to the question of the contagious nature of Croup. The most probable opinion is, that when occurring epidemically it is contagious, when sporadically, not so.

The next subject for consideration is the Diagnosis of Croup.

A disease so well marked as true croup can hardly be mistaken for any other, nevertheless it must be remembered, that there are several affections which, in at least some stage

or another of their progeny, present sufficiently striking traits of similitude, to wit, Bronchitis, several species of Cynanche, as C. Pharyngea C. Maligna, that species of sore throat attending the eruptive fever of Measles, C. Tonsillaris, Laryngitis, Phthisis Laryngea, Pertussis, foreign bodies lodging in the air-passages. Hysteria &c.

As Croup commonly commences with catarrhal symptoms, it is impossible to distinguish accurately between Bronchitis, or acute Pulmonary Catarrh, and Croup— at an early period— but as soon as Croup has fairly set in, the diagnosis is easy. The peculiar sound of the voice, and of the cough, the difficult, and crowing inspiration, and the extreme dyspnoea, together with the great anxiety and sense of suffocation, all these form a combination of symptoms, which needs only to be witnessed once, in order to enable us, to recognize it with facility ever after.

Moreover, the attack of Croup is sudden, and severe, it occurs in the evening, or at night, and remits towards morning. Expectoration is absent in the early stage of Croup, and the urgent sensations are referred by the patient, to the throat, and low part of the neck, whereas, in Bronchitis they are referred to the Sternum and Chest.

In the different species of Quinsy, the

inflammation is limited to the Amygdalæ, Velum pendulum palati, Fauces and upper and back part of the Pharynx. and the accep of the air to the lungs, is generally, not impeded in these affections. there is no cough, no alteration of voice, & the difficulty of breathing is not extreme, moreover in these affections. there is great Dysphagia. while in almost every case of croup, the patient can swallow with ease.

On looking into the fauces, we at once perceive considerable edemp, and swelling, and there is much complaint of pain and heat.

Such is the resemblance of the symptoms, attending the eruptive fever of Measles, to the prominent symptoms of croup, that even Dr Rhyne admits, that no one, need be ashamed of confounding them. A diligent enquiry into the nature of the case as to exposure to contagion, to the circumstance of any epidemic being in the vicinity &c. will materially assist us, in our diagnosis.

A croupy affection, sometimes attends the eruptive fever of Variola, and Dr Rhyne has recorded a case of common continued fever. attended at the commencement with the

most violent croupy symptoms.
as bynanche Malignea. Scarlatina.
when it extends to the glottis and
upper part of the larynx, produces
oppression, hoarseness, and cough.
which in some measure simu-
late croup, but the following pe-
culiar symptoms of Ulcerated sore
throat, will convince us, of the real
nature of the complaint. viz. Livid
redness at the back part of the
throat, succeeded by foul Ulcers.
delirium, and great prostration
of strength. An instance is on
record of croup, with false membran
es, occurring in the course of Scar-
latina,

As croup is very frequently attended
with laryngeal inflammation it
might be thought difficult to dis-
tinguish it from croup-
The true Laryngitis, occurs most
frequently in adults, croup, on the
contrary with extreme rarity-
Laryngitis, is attended frequently.
with Ulceration and Suppuration
and never gives rise to the forma-
tion of false membrane, however,
we meet with no remission of symp-
toms in Laryngitis. and it is more
amenable to treatment than croup-

In the Phthisis laryngea, and tracheal, we have the raucous voice, hard dry cough, and difficulty of breathing, as characteristic of croup. but the course and progress of these affections are slow and chronic, the symptoms are up slowly. they occur seldom or never in infants, and do not attack by paroxysms. on examination after death, we observe ulceration on the upper part of the air-passages, great and progressive emaciation and debility attend them

Pertussis is distinguished by the prolonged whoop, or kink, or back-draught, wiry sounding voice and the occurrence of the cough in convulsive paroxysms often terminating in vomiting, and copious excretion of a clear and glairy fluid.

In Chin-cough also. the vomiting is followed by complete intermission, speech. voice and respiration are unaffected. there is no fever, & finally it continues for a much longer time than Croup.

Diagnosis from Hysteria,

The age of the patient, the local and general symptoms, and above all, the history of the case, will indicate the true nature of the affection, we should bear in mind however, that Hysteria, sometimes simulates Croup to the life.

The symptoms produced by foreign ~~bod~~ bodies intruded into the air-passages, in some degree resemble those produced by the inflammatory exudations of Croup, however the sudden occurrence of pain and suffocation, the change of the seat of this pain, as the extraneous substance changes its position, the dryness of the cough the irregularity, completeness, & sometimes long duration, of the intermission of symptoms, will in most cases, enable the practitioner to ~~arrive~~ form an accurate diagnosis—

A few other diseases still remain which authors tell us, have been, and might be, compounded with Croup. this however, will suffice—

The next subject is the Prognosis

The Prognosis varies, and is not the same under any two combinations of circumstances, it is said, by those who have written on the subject, to be influenced by the particular species, variety, and modification of the disease, by the natural constitutions of the patients, by the severity of the symptoms, and by the duration of the disease.

A mild form of the disease, quiet respiration, absence of cough, excitement and fever, moderate frequency of pulse, a more natural state of the voice, followed by expectoration of viscid mucosities, and membranous fragments, by a copious and general perspiration, on the third day, by epistaxis, on the third, fourth, or fifth days, by the absence or subsidence of violent attacks of spasm of the glottis, and suffocation, by the absence of exhaustion, and absence of irregularity of pulse — all these, says Dr Copland, are favourable signs, and authorize us

to prognosticate a return to health.

— — On the other hand, the symptoms indicating a severe form of disease, such as, a high degree of fever, occurring early in the disease, respiration being permanently audible, and laborious, the cough being hard and ringing, followed by crowing inspiration, and other evidences of great excitement, the non-occurrence of the characteristic expectoration, the countenance being of a livid or leaden hue, the eyes sunk, the lips and tongue dark, the pulse very frequent, small, weak, and irregular or intermitting, all these, may be considered as the harbingers of death

With regard to the influence of constitution, on the progress, it may be observed, that a soft leucophlegmatic habit, especially when enfeebled by previous disease &c. disposes to a severe and adynamic form of disease, and con-

sequently renders our prognosis unfavourable. A more vigorous constitution provided the temperament be not nervous or irritable is a favourable circumstance, and may enable us to form a favourable prognosis as to the general event.

With respect to the influence exerted on the prognosis, by the period or stage of the disease, at which medical aid is obtained, we may remark, that if active treatment be used early, the patient has a very fair chance of recovery, and due attention is imperiously demanded, in watching diligently the progress of the disease, so that by a prompt and judicious application of the proper means, it may be in our power to subdue it, while still in its infancy. Even the second period, or the stage of inflammation, is by no means beyond the reach of medicine, but sometimes, in spite of all our exertions, the disease will advance to a fatal termination apparently unmitigated by any

mode of treatment.

In the third stage, or stage of collapse, remedies are of very little avail, and here the prognosis must be regarded as desperate. Finally, by attending to the state of the respiration, we will in general be able to form a pretty accurate prognosis, so long as it is little impeded, we need not apprehend danger, and if after having been difficult, laborious, and suffocative, during any part of the disease, it subsequently should return to its natural healthy standard, we may confidently predicate recovery

In concluding this account of the prognosis. I cannot refrain from quoting the following words of Dr Cheyne. "In prognosticating the issue of any disease of childhood the prudent physician ought not to deliver himself, without reservation. We ought ever to be ready for any contingency, favourable or unfavourable. His prognostica-

tion ought to be declined, (to use the words of a late eminent physician) to be subject to the uncertainty of all medical opinions.

We shall now give an account of the morbid appearances observed in croup.

The peculiar pathological conditions of croup remained undiscovered, till long after the disease itself, (at least its symptomatology) had been noticed by authors. The evidence of Baillou being acquainted with this subject, is extremely imperfect, nor was the false membrane of croup distinctly described by any writer, till the year 1765, when its existence was completely ascertained by the dissections and investigations of Dr Francis Home, whose description of its situation, physical properties &c. continues till this day, the basis, of all that is known on the subject.

On inspecting externally the bodies of those, who have died of croup the appearances presented, are very similar to those observed, in persons

who have died Asphyxiated, the face is pale, sometimes livid. the eyes are prominent, and the veins of the neck appear swollen and turgid. More or less tumefaction, and livor of the trunk and extremities, are also not unfrequently remarked, it should be mentioned however, that in the bodies of those, who die of mere exhaustion of the vital powers, none of the above phaenomena may be presented.

It is to the mucous membrane of the air-passages, that we must look for an explanation of the peculiar, and eminently distressing symptoms of this disease.

Croup consists essentially, in an inflammation of this membrane, attended with exudation of coagulable lymph, which becoming concrete, lines the inner surface of the membrane to a greater or less extent;

This inflammatory exudation is best developed in the Trachea, next

in the Larynx, in which situations it often takes the form of a complete membranous tube, as it descends into the Bronchi, it generally becomes less perfect, and is distributed only in patches.

The consistence and density of the false membrane vary, according to its situation. Thus it is densest and of firmest texture in the Trachea, next in the Larynx whilst in the Bronchial ramifications, it gradually loses the coriaceous appearance, and degenerates into a viscous, gelatiniform, pulpy-like matter.

The intensity of the inflammation and the duration of the disease exert a remarkable influence over the texture of the membrane.

It varies in thickness from half a line to two lines, its colour is whitish or greyish white, sometimes passing into a greyish yellow, it does not always present a homogeneous appear-

=ance being sometimes composed of little rounded, opaque agglomerated flocculi, disseminated through a network of a clear and more transparent character

It sometimes appears to be intimately adherent to the lining membrane, underneath, but it is often detached from it, by a puriform mucus, of a greenish white colour, thrown out by the glandular follicles of the trachea — A somewhat similar mucosity is frequently found engorging the bronchial tubes, and trachea, and it is remarked by Guersent that these matters are most abundant in those cases, in which Calomel has been employed

On removing the albuminous concretions we disclose the lining membrane of the trachea red, swollen and inflamed, this however is liable to vary with the intensity of the inflammation duration of the disease, &c &c.

The membranous concretion according to the opinion of the best

pathologists appears to consist of the fibrin of the blood, along with a little albumen and perhaps mucus—

Its spontaneous coagulation and solidification in a membraniform manner, are further favoured by the constant passage of the air over its surface, and the increased temperature of the part. Unlike the plastic exudation from serous surfaces, the adventitious membrane of croup never becomes organized—

The matter expectorated in the course of the disease, compared by Dr Cheyne to stewed macaroni, consists of portions of the false membrane detached by the violence of coughing, and by the spasmodic contraction of the muscular fibres of the larynx and trachea

The matter found in the air passages must in most cases be considered sufficient to explain the symptoms during life, and finally the fatal event, but in some cases, death ensues from mere exhaustion of vital power—

When death has taken place in a few hours, and in subjects of a debilitated habit, we do not always meet with a false membrane, the air-tubes are then found to be filled with the viscous muco-puriform matters above alluded to

The other appearances are, redness and swelling of the Epiglottis and borders of the Glottis, sheets of lymph adherent to these, sometimes great engorgement of the lungs and even hepatizations have been observed

The last subject which we shall consider is the Treatment, and as this is indisputably the most important, branch, we shall enter into it at length.

The treatment of croup may be divided into the Curative or Remedial, and into the Prophylactic or Preventive In discussing the first of these divisions we shall, in the first place, attempt an outline of the mode of treatment, best adapted for a case of common inflammatory croup, and then go on to enumerate the different classes of remedies-

In the early stages, the chief indication to be kept in view by the practitioner, is to diminish and subdue inflammatory and febrile action, and to prevent the formation of a false membrane within the Larynx and Trachea, or the accumulation of albuminous matters in the bronchial tubes.

The remedies best calculated to fulfil the above intentions are, Nauseants and Emetics, Abstraction of blood, general and local, Diaphoretics and Sudorifics, Bathing, Calomel and Opium, pushed rapidly to salivation.

If the child be hoarse, a have a rough cough, and if only slight febrile and catarrhal symptoms be present, we must not wait for the development of more urgent ones, such as difficult breathing &c. but forthwith administer an Emetic mix-

ture in divided doses, so as to produce copious and repeated evacuations by vomiting.

The best emetic for this purpose is Ipecacuanha, with a small proportion of Tartar Emetic.

Every kind of stimulant food ought to be withdrawn, the patient should be put to bed, and confined to a duly regulated temperature.

If the respiration become impeded, and symptoms of inflammatory fever supervene, after full vomiting, Blood should be drawn, from the external jugular vein in young subjects, and from the arm, in patients more advanced. In some cases, cupping between the shoulders, or in the nape of the neck, or the application of leeches to the upper part of the sternum, will suffice

The quantity of blood to be abstracted, must be regulated, by the severity of the symptoms, age of the patient. habit &c.

If, as recommended by Dr Bayne the blood be abstracted before the operation of the emetic, a great saving of blood will accrue, and a much greater impression be made upon the disease, sickness, vomiting, and great prostration rapidly ensue - utterly incompatible with the existence of inflammation.

The quantity of blood to be drawn from an infant, under two years of age ought not to exceed four ounces, in a child of seven or eight, it may amount to eight ounces; but in a severe case of croup, one venesection, will seldom be sufficient, it will very often be requisite to repeat the operation, in two or three hours, as often as the pulse rises in

force and frequency.

Immediately after vomiting and depletion, a powder should be given, consisting of two, three, or four grains of Calomel, and two or three grains of James' powder and this should be repeated every two, three, or four hours, until several doses have been taken. After the first dose, we are recommended to immerse the patient in the warm bath, on coming out of which, diluents ought to be administered, as much as the stomach will bear—

If, after the above, the bowels be not affected, Castor oil, or some other purgative should immediately be given—

The above method of treatment duly enforced, during the early stage of Croup, will seldom fail

to cut short the disease, and indeed, no disease is more easily cut short, provided it be taken in time; hence, the absolute necessity of being well acquainted with the precursory signs, in order that, we may be able to detect the disease in its infancy

In the treatment of the second stage, the indications are, to promote the discharge or evacuation of the matters effused into the vesicles, when we cannot prevent their formation, and to remove distressing and spasmodic symptoms. It is very common for the disease to run on to this stage, and it frequently happens that the practitioner is not called, till the complete establishment of the disease.

Our practice, in this case, should

consist in the administration of an active antimonial emetic, exhibited so as to produce full vomiting, and bloodletting, general and topical must be resorted to, in this stage however, local depletion is in general preferred, the Calomel and James' powder may also be repeated. Calomel and opium have also been highly recommended in this stage, administered so as to produce moderate ptyalism.

If any obvious improvement have not followed the employment of the above means — and if it be considered unsafe to abstract more blood from the patient, a large blister ought to be applied between the shoulders, on the nape of the neck, or to the epigastrium, but never to the throat, as this would cause great additional irritation, and uneasiness — also

a solution of Tartarized Antimony, containing in each dose from one eighth to a quarter of a grain of the salt, should be administered every two, three, or four hours, according to the urgency of the symptoms.

The first doses generally produce vomiting, which however soon ceases, and a continued state of nausea is kept up, which is most powerful in subduing inflammatory action.

If great prostration of strength supervene, the use of the Tartar Emetic must be suspended.

In order to promote the expectoration of the albuminous effusions, now present in the air tubes, no remedy is more efficacious than that above indicated. the Tartar Emetic given so as to produce full vomiting.

The sulphates of Zinc and of

Copper have been also recommended, for the same purpose, Liquor. Liquid. Ammoniacum, Carbonate of Ammonia Camphor &c.

The inhalation of Medicated watery vapour, is of considerable service, softening and relaxing the inflamed and spasmodically contracted parts, Emollient cataplasms may be applied to the fore part of the neck.

In many cases, the decided employment of the above mentioned antiphlogistic remedies, (always paying due regard to the modifying circumstances of age, sex, temperament habit) during the first and second stages of croup, will completely overcome the disease, and this favourable event doubt-

times takes place, even although treatment be not adopted, till the second stage has already commenced.

In the words of a well known author, we may say. "The means above indicated may appear violent and severe, but, be it remembered, that in a vast number of cases, the fate of the patient will be decided within twelve hours, nay, there are cases, in which the inflammatory symptoms will be over, within six hours from the commencement of the disease"

In the treatment of the third, or stage of collapse. the suppuration, of Dr Cheyne, we may premise, that the chance of success is very trifling — it

is however, the duty of the Physician never to abandon his patient, even in the last extremity.—

The principal indication here is, to support the almost exhausted powers of life, and attempt to carry the patient safely through the disease.—

In this stage, D^r Rhayne still adheres to the use of Antimonials given so as to excite nausea and vomiting. Expectoration is thus obtained, for Emetics are the most powerful expectorants—

When symptoms of exhaustion set in, the use of Antimonials, is no longer to be persevered in.—

In this case our chief reliance is to be placed in Stimulants and Cordials, and in the external application of Rubefacients.

Antispasmodics are, have been much employed—

The principal remedies are Ammonia, Wine, Ardent Spirits Ether, Camphor, Musk, Castor, Valerian, Stimulant tinctures, Blisters to the Sternum, & between the shoulders, Sinapisms to the arms and legs may likewise be tried.

Inhalation of the vapours of Ammonia, Ether, Warm water and Vinegar, and the frequent use of the Tepid and Warm baths are often very serviceable as palliatives—