statine epiphora. The results of these experiments show, that the performance of such a formidable operation for that purpose would, in all probability, prove of little value; and, therefore, I take the liberty of suggesting the propriety of making further investigations on this point before adopting such a procedure.

SOME POINTS IN THE PATHOLOGY AND TREATMENT OF ACUTE CAPILLARY BRONCHITIS.*

By J. K. SPENDER, M.B., Bath.

ACUTE Capillary Bronchitis is a disease always serious and often fatal. It is common at different seasons, and among many classes of people; it may occur in the course of other chronic diseases. Its sudden ingress and rapid development entitle it to a careful clinical study.

Acute capillary bronchitis has had several synonyms. It is the *paripneumonia notha* of the older authors; the *acute suffocative catarrh* of Laennec; the *asthenic bronchitis* of Dr. Copland. The nomenclature which I use now is that adopted by the most recent writers; it seems to convey accurately what is meant, to wit, an inflammation of the terminal bronchial tubes—tubes nearest to the air-cells in size and function—followed by an exudation which more or less obstructs them.

I have been surprised by the comparatively little prominence given to this appalling disorder in the best professional text-books. Either it is scarcely noticed at all, or it is discussed as a variety of common acute bronchitis. The disease is certainly not very common, but it is by no means rare; and I now venture to plead the substantive entity of acute capillary bronchitis, and its claims to a distinct nosological position. Dr. Addison employed the term "capillary bronchitis" to signify the irritative action set up in the lung by tubercle; but it is obviously unwise to apply the same term to two diseases so etiologically different.

An adult person suffering from general capillary bronchitis of the acutest kind presents very well-marked symptoms: and, as might be expected, those that are most urgent belong to the respiratory system.

(a) He breathes with extreme quickness; the pulse and breath ratio deviates from the norm sometimes so much as to be 2 to 1; ratios of 2½ to 1, and 3 to 1, belong to the ordinary characteristics of the disease. (b) He coughs very often, and expectorates a light foamy sputum. (c) His skin has a dusky-purple tint, the intensity of which is commensurate with the blood-stasis in the lungs.

(a) Concerning the first of these symptoms;—the *rapidity of the respiratory act* is governed by the law so clearly laid down by Dr. Hyde Salter, that the urgency of dyspnoea is in direct proportion to the soundness of the lung-substance, free access of air being cut off to the functioning portion of the lung by obstruction of the air passages. And this formula applies with precision to the case of acute capillary bronchitis; for, according to the conditions of the problem, the physiological area of the lung is everywhere free and capable of fulfilling its duty. The dyspnoea is severe enough even in partial capillary bronchitis; but when the disease is more or less universal, we have every condition present for producing a difficulty of the most extreme degree.

(b) Concerning the second point specified—the *frothy sputa* with which the finer air-tubes are choked; I remark, firstly, that this exudation does not afford so complete an obstacle to the inspiratory and expiratory currents of air as spasm of the air-tubes. Narrowing of these tubes by spasm makes the breath-currents narrow, and therefore slow. The muscular element is prolonged to the terminal bronchia; but notwithstanding this, the respiratory movements go on at a tremendous pace, and produce the well known auscultatory phenomenon of coarse bubbling crepitation—like "squeezing a sponge half saturated with water." Next, I have to indicate the probable double origin of the sputum. It is, of course, partly a true exudation from an inflamed surface, and in the ultimate stage it contains pus-cells. But there is a transudation of serum into the bronchial tubes, arising, as Dr. G. Johnson has sagaciously pointed out, from engorgement of the bronchial veins; this engorgement being a sign and a consequence of a blockade in the pulmonary circulation. And there must be a very great disturbance of the pulmonary circulation when there is such terrible apnoea. If the pulmonary oedema, which so often occurs in the course of uræmia, is a true dropsy of the connective tissue of the lung—of the *inter-tubular* structure, in fact—then the transudation of serum from congestion of the bronchial veins is an *intra-tubular* dropsy, a dropsy of the true "parenchymatous" sort; and often not less fatal.

(c) The *dusky hue of the skin* is sometimes loosely called cyanotic. I

submit, however, that the term "cyanosis" ought to be restricted to regurgitation of imperfectly aerated blood from heart-distress, and not to mere stasis caused by difficulty in the lung. Not quite two years ago, I had under my care a case of typical cyanosis in the person of an otherwise healthy young woman, the daughter of a farmer living near Bristol. The whole stress of the matter seemed to arise from a slight narrowing of the pulmonary artery (without lesion of its valves), which a dilated and weakened right heart had not power to overcome. The entire face looked as if smeared with black currant juice of the deepest dye, the lips being fearfully crimson. The dyspnoea was most intense. Now this was a true cyanosis; and the absence of any irretrievable cardiac malformation was proved by the perfect success of a ferruginous treatment, which imparted tone to the right heart, and restored the natural tint to the complexion in a few months. Compare this with the mere dull purple colour developed by capillary bronchitis and other analogous affections of the lungs, and the difference is sufficiently conspicuous to be diagnostic.

The compound condition known as "collapse" is very marked in acute capillary bronchitis. The skin is cold and sweating; the bowels are confined; the urine is turbid and very scanty. The likeness of this condition to what happens in cholera, and during a paroxysm of asthma, is evident enough.

A few words on *diagnosis*. It might be summarily asked—Is there any disease which can be possibly confounded with acute capillary bronchitis? Listen to this short story. One day last winter, there was brought to me at the Eastern Dispensary, Bath, a young girl who was wheezing, panting, and purple. Before asking the mother (who accompanied her) a single question, I said to myself—Is this child suffering from capillary bronchitis, acute tubercle, or mitral regurgitation of heart with secondary lung-disease? I ordered her home, and examined her in bed the same evening. A glance at the thermometer decided the matter; the temperature was above 103 deg., and the child was dead within three days. But I was almost amazed at the similitude of many of her objective signs to those of capillary bronchitis: the main points of unlikeness being the very scanty sputa (mixed with a little blood), and the decided heat of skin. And the history of the case was very distinct in its indications of tuberculosis.

A person who has suffered severely from capillary bronchitis is often long in recovering the usual bright florid hue of skin. You may see him all the next summer carrying about a sure legend of the peril he has undergone; he looks metallic and dull, and is chary of any swift exertion. He has been smartly hit in a vital point, and he dreads what the next winter may bring forth. Influenza is perhaps one of the most serious epidemic maladies which he has to fear. There is usually some emaciation. Capillary bronchitis in children is always a most dangerous disease.

TREATMENT.—We start from the postulate, that capillary bronchitis is often amenable to skilful and decisive treatment, if it be begun early enough. The pathological picture which has been drawn is rather dark, but by no means discouraging. Certain landmarks stand boldly out, which we may follow without hesitation.

On Sunday morning, April 14, 1867, I was asked to see a labouring man, a patient of the Eastern Dispensary, Bath, who was in the collapsed stage of this disease. Every feature was well marked, and he seemed in great danger. My internal remedies were—a table-spoonful of brandy every two hours; five grains of sesquicarbonate of ammonia every two hours, alternately with the brandy; and a small quantity of fresh cold milk whenever it could be taken. My external remedies were—a warm atmosphere rendered moist by steam; and a hot linseed-meal poultice over the whole of the back of the chest. In the evening he was better; the skin was warm, the dyspnoea less urgent, and the urine less scanty. The same means were continued with the same success. He improved day by day; he gradually took strong broths and less and less alcohol, and within a week was rapidly convalescent.

In some excellent clinical remarks on Capillary Bronchitis written some years ago by my friend Dr. Hyde Salter, he objected to using alcohol in this disease, on the ground of its giving the lung more eliminatory work to do during an emergency when physiologically it ought to be kept quiet. My apology on the other side must rest on the facts so clearly substantiated by Drs. Anstie and Inman, that (a) alcohol affords a positive dynamic support to the nervous system; and (b) it is a temporary food which sustains vital function until more complex compounds can be appropriated. And all *a priori* objections vanish before the favourable test furnished by actual experience.

Concerning sesquicarbonate of ammonia, I am amused by the divergent opinions which prevail among my medical friends about this drug. I know two physicians, one of whom literally prescribes it for almost everything; and the other as unqualifiedly declares that he has no faith in it for any curative purpose whatever. Adopting a kind of middle

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view, I incline to the doctrine that this salt is a valuable therapeutic auxiliary to other measures when we have to contend with certain forms of bronchial distress. I am sure of its capability to do good service in the proper asthenic bronchitis of old people. I claim for it no higher virtue, because I know our proneness to call any drug a *specific* which we know particularly well how to work with.

I would beg special attention to the absolute mortality of the smallest quantity of opium, and to the still more destructive effects of morphia.

If a patient be teased by residual catarrhal sputa, a short mercurial course will clear it away; and after that (or even at the same time) an iron tonic will help to restore the general health.

Great care must be taken at all seasons of the year that the skin is properly protected.

To recapitulate: I would specify the following points as deserving notice in the clinical history and management of Acute Capillary Bronchitis:—

1. The extraordinary pulse and breath-ratio, and the intense dyspnoea.
2. The pathological origin and character of the sputum.
3. The quasi-cyanosis of the skin, together with the so-called "collapse."
4. The occasional indistinctness of the diagnosis from acute tubercle.
5. The necessity of a supporting and alcoholic treatment.

ON DIVISION OF THE STRICTURE IN STRANGULATED HERNIA.

By THOMAS DARBY, F.R.C.S.I., Bray, Ireland.

THE mode of dividing the stricture when performing the operation for the reduction of strangulated hernia has been much dwelt upon, and we are cautioned not to divide it too freely; but I am not aware that it has ever been suggested to not divide it at all. Having succeeded in reducing the hernia without dividing the stricture in six cases after the sac had been opened, I beg leave to submit a short account of three of those cases so treated by me.

CASE I.—Stephen Manly, aged 80, was admitted to the Rathdown Union Hospital, on August 22nd, 1862, suffering from a strangulated hernia in the right groin. I operated; when the sac was opened a considerable quantity (probably not less than from ten to fifteen ounces) of brownish serum gushed out, and a knuckle of small intestine was exposed to view in the bottom of the sac; I introduced a director into the stricture, and as I passed it round the neck of the hernia, the bowel returned into the abdomen without further manipulation. It is here necessary to state that, for forty-eight hours after admission to hospital, Manly refused to submit to the operation, and that during this interval he had been placed under the influence of chloroform, had the tobacco enema administered, and the taxis carefully applied without avail. He recovered.

CASE II.—Jane Barrett, aged 70, the subject of old reducible femoral hernia on both sides, was admitted to Hospital June 10th, 1863, with the hernia in the right groin strangulated. Taxis having failed, I laid open the sac, and exposed a portion of omentum and a considerable coil of small intestine in a state of strangulation. I carried the director completely round the neck within the stricture (a practice recommended by the late Dr. Hutton of Dublin), and by careful manipulation, succeeded in returning the entire mass to the abdominal cavity. This woman recovered.

CASE III.—Anne M'Loughlin, aged 30, was admitted to hospital on October 4th, 1865, with a strangulated hernia in the right groin. I opened the sac, and reduced a coil of small intestine without dividing the stricture, although it was so tight that considerable difficulty was experienced before I could pass the director round the constricted part. This woman also recovered.

It is not merely on account of these cases having recovered after operation that I have selected them for this paper, but rather because each case differed from the other in some feature of practical interest; for example, in Manly's case, it is not easy to understand why symptoms of strangulation presented, or why the elaborate attempts at reduction should have failed in a case where the bowel, after the sac was opened, may be said to have returned of its own accord; in Barrett's case, the contents of the sac were large, solid, and complex, yet no great difficulty was experienced in returning them; and, in M'Loughlin's case, where the constriction was very severe, it was found possible to return the bowel without dividing the stricture.

That instances will occur where old adhesions, gangrene, or some other circumstance may render the division of the tendons necessary, there can be no doubt; and in such cases it will be also necessary to open the sac. If, therefore, we take into account that the sac *must* be opened in the worst cases; that peritonitis is not the cause of death in the majority

of those cases which terminate fatally after operation; that the fear of peritonitis does not deter surgeons from opening the abdominal cavity in the treatment of other diseases; and, on the other hand, if it be borne in mind that all danger of wounding an artery is avoided; that the tendons are left uninjured by the surgeon; that the operation is much simplified; and that in cases of recovery the patient is in all respects as well and as little liable to inconvenience from the rupture as he was before strangulation took place, the advantages of reducing hernia without dividing the stricture—the practicability of which is sufficiently proved by the foregoing cases—will be made manifest.

THE CURABILITY OF LATERAL CURVATURE OF THE SPINE.*

By WILLIAM ADAMS, F.R.C.S.,
Surgeon to the Orthopædic Hospital.

THE curability of lateral curvature of the spine is, at the present time, one of those unsettled questions which urgently demand the attention of the profession; and I now venture to submit some conclusions at which, from observation and experience, I have arrived, in reference to the curability of this affection.

In order to bring this subject forward in a definite manner, I propose the two following questions; viz., 1. In what cases is lateral curvature of the spine curable? and 2. What are the directly curative means?

As a starting point, I would particularly insist upon the fact, that no confirmed or persistent curvature of the spine, however slight, can exist merely as a functional affection; but that in every instance a spinal curvature is necessarily associated with, and dependent upon, certain structural changes, proportionate to the degree of curvature and its duration. It is of the utmost importance to recognise this fact, because lateral curvature is generally described as being, at least in the early stage, a functional affection depending upon muscular debility, or the undue action of certain muscles which have been called into play by some occupation, or some acquired habit. There can be no doubt that, in such cases as these, there is often some appearance of curvature, such as may be produced by any person in certain attitudes; but a careful examination will show that no persistent deviation of the spine exists. There can be as little doubt, however, that such cases have often been treated as cases of lateral curvature, and of course with great success under various methods of treatment.

A broad and distinct line must be drawn between any such functional conditions—or, as they may be called, functional or physiological curvatures—and the confirmed or persistent curvature of the spine, which, however slight, is necessarily associated with structural changes. A ready and certain means of diagnosis is of the utmost practical importance, in reference both to the treatment and the prognosis of the case.

The ordinary method of examination for forming a diagnosis is by passing the finger down the spinal column, and tracing the apices of the spinous processes; but this is fallacious, as the spinous processes may deviate laterally in a case of simple debility, without actual curvature; and on the other hand may remain in a straight line, whilst the bodies of the vertebræ have deviated to a considerable extent, so as to form a large internal curvature, associated with considerable alteration in the relations of the ribs in the dorsal region, and of the transverse processes of the vertebræ in the lumbar region.

In all cases of the so-called lateral curvature of the spine, the primary and essential deviation takes place in the bodies of the vertebræ, which are found to move laterally in the direction of horizontal rotation, so as to give a spiral twist to the portion of the spinal column involved. The result of this is to cause a projection backwards of the angles of the ribs in the dorsal region, or bulging on the side of the convexity of the curve, and a corresponding depression or receding of the ribs on the concavity of the curve. In the lumbar region we have also a projection backwards of the transverse processes of the vertebræ which render prominent the lumbar muscles on the same side; and on the opposite side the transverse processes are depressed, so as to leave a hollow in the lumbar region, and allow a prominence of the crest of the ilium, and an apparent enlargement of the hip.

Upon these conditions I rely as a positive test of the existence of those deviations and structural changes which essentially exist in all cases of persistent or confirmed lateral curvature, however slight. In slight cases, these deviations will be made more apparent by placing the patient in a stooping position, and in practice I always adopt this mode of examination.

* Read before the Harveian Society of London.