Those students who have passed a winter at von Graefe's *clinique* at Berlin cannot but have witnessed, as I have done, numerous and brilliant results from iridectomy. The same may be observed at Professor Arlt's ophthalmic *clinique*, in Vienna; at Professor Donder's, in Utrecht; at Professor Sperino's, in Turin; at Dr. Desmarre's, in Paris; and last, though not least, at Moorfields Hospital, in London, to the medical officers of which institution—Messrs. Bowman, Critchett, and Dixon—the operation owes its introduction into Great Britain. "Humanity," says Professor Donders, of Utrecht, "demands that prejudice and ignorance should cease to oppose the introduction of iridectomy for the cure of glaucoma," and so, it appears to me, must every impartial examiner say also, who, for himself, has carefully studied the subject.

ART. XV.—*Cases of Pleuritic Effusion.* By SAMUEL GORDON, M.B., F.R.C.S.I., Physician to the Richmond, Whitworth, and Hardwicke Hospitals.

THE following cases I believe to be possessed of some practical interest, chiefly as bearing, more or less, upon the subject of *paracentesis thoracis*; but also from various incidental occurrences:—

CASE I.—*General Anasarca, Pleuritic Effusion, Thoracentesis; Hematemesis; Inflammation of the Epiglottis; Death from Over-exertion.*

May 13, 1862.—I was requested to see a gentleman who had been for some time suffering from general dropsy. He was universally anasarcaous, and to a great depth, the lower extremities being excessively swollen and oedematous, so much so as to render him quite powerless. He lay on his left side, and the right upper extremity alone had escaped extreme tension; the scrotum and penis were greatly infiltrated; his breathing was short and rapid; his lips blue; he could not speak even a short sentence without drawing his breath repeatedly. The heart's sounds and impulse were feeble, but there was no abnormal murmur. The jugular veins were permanently distended and pulsating; the pulse very small and frequent. The respiratory murmur was audible over the entire of both lungs; the liver was enlarged towards the epigastrium, and

hard. The urine was scanty, very high coloured, depositing copious brick-coloured sediment; bowels acting freely. His mouth was sore from mercury, and his breath had a strong mercurial fetor.

14th.—Weaker; breathing shorter; the anasarca rather increased in the upper extremities.

15th.—Slept badly from dyspnea, which increased rather suddenly in the middle of the night. He several times complained of choking and difficulty of swallowing, and became very restless, tossing about and throwing off the bed-clothes, and calling for air. A medical gentleman who sat up with him, attributing all these symptoms to weakness, supplied him largely with stimulants; he took, every 20 minutes, either brandy, or sal volatile, or compound spirit of lavender. I saw him very early on the following morning; he had not slept; his skin was cold; the anasarca had greatly increased; his breathing had become excessively laboured and difficult, so that he could not breathe in the recumbent position, and yet the anasarca was so great that he could not be placed erect in a sitting posture. He was completely unable to turn himself in bed, or even to give any assistance in moving himself. The kidneys had almost ceased to secrete any urine, and he was suffering from a constant intestinal tenesmus, without being able to pass any feculent matter. Even through the great depth of anasarcaous swelling I was able to satisfy myself of the great difference between the physical signs existing in opposite sides of the chest. The left side was almost perfectly dull, and there was no respiratory murmur audible over any part of it. The heart was slightly displaced downwards and inwards; its impulse was scarcely perceptible. An enema with castor oil and tincture of jalap relieved the bowels and caused some urine to flow, which was loaded with lithates; but it was clear that no relief to the dyspnea was to be expected except from operation. During the day he became more distressed; his breathing shorter and more laboured; his lips becoming blue, and his pulse failing; his skin becoming more cold. At 3 o'clock Dr. Mayne saw him with me, and it was determined to afford him the chance of relief by thoracentesis. Accordingly, having made a small but deep incision in the left lateral region, I introduced the ordinary small-sized hydrocele trocar into the pleura, between the fifth and sixth ribs, and a stream of serous fluid escaped through it. The depth of anasarca was so great that I was obliged to make a very painful amount of pressure to retain the canula in the pleura, and at length its lip became buried in the wound. We then introduced

a canula $3\frac{1}{2}$ inches long, and this barely sufficed to reach the pleura without pressure; the quantity of fluid drawn off amounted to five pints. It was entirely serum, without any admixture of blood, pus, or flakes of lymph. The relief which he experienced was very decisive; it was first manifested by the excessively blue colour of his lips being replaced by a more healthy arterial hue, the frequency of his inspirations then became less, and his efforts to inspire less marked, the alæ nasi less dilated, and the heavings of his chest less powerful. He presently lay down and slept tranquilly for two hours. In the evening the apex of the heart had returned to its normal situation; the pulsation had left the veins of the neck, and their distension was greatly relieved. Through the incision made in the side the discharge of serum from the cellular tissue had been so great that all the bedding was more than saturated.

His sense of relief was immense; and his only complaint now was a sensation of intense heat or burning, which he referred to his stomach. Some hours after this, he began to throw up a quantity of very sour water; at first colourless, it was afterwards very green, and during the night became dark coloured. This affection of the stomach continued to increase in severity. I saw him about four o'clock next morning; the vomiting recurred about every 10 minutes; the quantity of fluid ejected each time was from two to four ounces, and sometimes about six ounces. It was obviously hematemesis, the colour of the blood being altered, by admixture with gastric juice, according to the time it lay in the stomach. Each act of vomiting was preceded by a sense of great heat in the epigastrium, and pain; but there was little or no sense of nausea or sickness. There was extraordinarily little sinking of the vital powers, considering the amount of blood or fluid thrown off from the stomach, and the frequency with which the attacks of vomiting recurred. The hematemesis continued with great severity throughout this day (16th), the quantity thrown up could not have been less than four pints. We looked upon it as caused by the gastric veins being overloaded, partly by the backward pressure from a vena portæ obstructed by hepatic disease, and partly by the effects of a gastritis induced by the excessive administration of stimulants on the night of the 14th.

We contented ourselves with the free use of ice internally—occasionally a little iced champagne or moselle, and very free counter-irritation, and having the bowels relieved by active enemata

17th.—The vomiting somewhat less frequent, but still of the same character. His pulse more full and less frequent; urine secreted in greater abundance, still depositing lithates most copiously. He takes ice and cold water, and cold chicken tea, and a little moselle occasionally. During the day the vomiting gradually subsided, and towards evening ceased altogether. During the night he slept pretty well; but on the morning of the 18th we were surprised to find him very hot and more feverish, restless and tossing about, and complaining of inability to swallow, and a sense of great tightness about the throat; on the least exertion there was great dyspnea. Besides the sense of constriction, he complained of a constant accumulation in his throat, which induced frequent cough; and in this coughing he frequently lost his breath, and felt and appeared in danger of suffocating; he could not swallow without great pain. He was a man of immense moral courage; and when Dr. Mayne and I pressed him to let us see him drink, he said, "I will swallow anything you like, but it is perfect agony." We filled out a dose of a diuretic mixture, which he had been taking, and, on handing the glass to him, he at once reminded me of what I had once seen a man in hydrophobia do when similarly urged—he took the glass in his hand, but turned away his head to prevent himself from seeing it, and, with evidently an immense effort which produced a rigor at the moment, he swallowed the contents; and, throwing the glass from him, said, "Surely you will not ask me to do that again," and was immediately seized with a most violent convulsive cough.

We had to wait a considerable time before we could venture to enter upon any further local examination. On looking into the throat we could not see anything abnormal; but it caused him very considerable pain when we pressed down the tongue in making the investigation. Still he bore the pain, and allowed us to make a very full examination. I then introduced my finger, and felt the epiglottis considerably enlarged, and unyielding; the examination induced another paroxysm of coughing. There was some soreness and fulness externally above the thyroid cartilage. There was no weakness nor any alteration of the voice whatsoever; but when he did swallow fluids they were partly regurgitated; and even on coughing there was a discharge of mucus through the nares.

His great source of distress was the constant accumulation in the throat of viscid tenacious mucus, which he found it impossible to get rid of; and the pain he suffered when he occasionally tried

to swallow his saliva, which was secreted in undue quantity, was excruciating.

We looked on the case now as a distinct inflammation of the epiglottis, so graphically described by the late Sir Henry Marsh (*Vide Dublin Journal of Medical Science*, Vol. XIII., p. 1), and hoped that the œdema of the glottis would not supervene. We applied a few leeches externally, close to the os hyoides, and then covered the throat with a very light and very hot emollient poultice, while we made him inhale the steam of hot water, impregnated with some aromatic herbs, having first, in the usual way, applied a strong solution of caustic to the epiglottis. This produced immense pain, and great additional suffering at the time, but afterwards the secretion of mucus was greatly diminished, and he experienced proportional relief. We did not venture on the exhibition of mercury, for his mouth had not yet recovered from his late salivation. The only thing we could induce him to take all day was a little iced claret, and even that seemed to produce exquisite suffering; he was very drowsy, but he frequently started up as if suffocating, and this appeared to be caused by the flow of saliva into the larynx through the unguarded rima. Position did much to relieve him from this annoyance; he was placed sitting almost erect in the bed, supported by a very high bed-rest, and the saliva flowed from his mouth. In this way, towards evening, he got two hours uninterrupted sleep, and awoke greatly refreshed.

19th.—He was improved; he had had some quiet sleep, but still in the semi-erect posture; he could lie down without the least dyspnea, and he could swallow a little jelly with less pain. The same soothing plan of treatment was continued, for there was very little alteration in the condition of the epiglottis; but on the

20th.—It was decidedly less turgid and more flexible, and the pain on pressure at the root of the tongue no longer existed. He now took full doses of iodide of potassium in bark, and in a few days he had perfectly recovered from this alarming affection. His progress towards recovery from the dropsical affection was also very satisfactory. The extremities had returned to almost their natural size, and there was no evidence of pleural or abdominal effusion, but the heart's action was very feeble, and occasionally intermitting, without, however, any evidence of valvular disease; the liver, also, was somewhat enlarged towards the epigastrium; there was no evidence, microscopically or otherwise, of any renal affection.

Any undue exertion brought on urgent dyspnea, and palpitation, and intermitting pulse; still he was progressing satisfactorily, when on the

27th—He insisted on being allowed to get up; he remained up all day, and taxed his strength to an almost incredible amount. When he got back to bed he could not sleep from fatigue; passed a very bad night, and next morning I found him in a hopeless condition from exhaustion and debility. He took a large quantity of stimulants in the course of the day (28th), but he died at 10 o'clock that night. The body rapidly decomposed; no *post mortem* examination was allowed.

Whether we look upon the effusion in the above case to have been a hydrothorax, or the result of an inflammation of the serous membrane, the rapidity with which it supervened, and the urgent dyspnea which it caused, rendered the operation imperative. It is to be remembered in such cases that the dyspnea is produced not merely by the mechanical pressure on the lung; if it were so it might be advanced that the right lung would suffice to carry on the mere act of respiration, but when the diaphragm cannot yield on account of an already over-distended abdomen, the heart is compressed in a manner almost incredible to those who have not seen it under such circumstances. A very remarkable instance of this kind, which I brought under the notice of Mr. Adams, was presented by him to the Pathological Society, many years ago (*Vide Dublin Medical Journal*, XIX., p. 322), and the amount of compression which it suffered may be judged of by the fact that the heart remains to this day with the cavities folded up, nearly in the same condition as when removed from the body and exhibited by Mr. Adams. The drawing of the recent appearances, and the preparation, are still preserved in the Richmond Hospital Museum. I believe that cases like the present, where the operation is almost imperative, are those which are most likely to prove completely successful, not merely in obtaining complete relief to the patient's dyspnea, and comfort and respite from his other sufferings, such as cough, forced position, &c., &c., but, under such circumstances, the fluid is not likely to re-accumulate. From many examples which I could adduce, I will only give the following, with Dr. Stokes' permission:—An army surgeon, who has since died of cholera in India, rode several miles from the Curragh Camp one night, in very heavy rain, to see an eminent personage who was suddenly taken ill. After considerable delay, he again rode home, and

remained for some time in his wet clothes. On the following day he was seized with acute pain in his side; and from that moment dyspnea set in, and hourly increased. He came up to Dublin, and put himself under the care of Dr. Stokes, who, finding all medicines and medical appliances useless to control or reduce the effusion which had taken place, requested of Mr. Adams to see him. No time was lost in drawing off the fluid, which was altogether serum, and amounted to five quarts. The lung almost immediately expanded to its full dimensions, and the patient recovered completely and rapidly.

We are warranted, then, in expecting that, in cases of sudden extensive pleural effusion, paracentesis will not only relieve dyspnea, but, if it be a primary lesion, that the effusion will most probably not recur.

The diagnosis as to the cause of the hematemesis was given, I conceive, on sufficiently clear grounds. In connexion with hepatic disease hematemesis occurs only when the branches of the vena portæ are constricted by a more or less permanent pressure on them, as in cirrhosis of the liver. Professor Law made this statement long ago,^a and experience has confirmed its accuracy. Another very characteristic, although negative, sign of the existence of adhesive inflammation of the liver was to be found in the fact of its want of enlargement. With such impediment to the emptying of the vena cava as existed in this case, it is impossible to conceive but that the liver, if not so affected, would have become enlarged, as we know it to be capable of doing under ordinary circumstances; but neither did the right lobe become enlarged when venous circulation was so much obstructed, nor did it become reduced in size when the obstruction was removed; the undue quantity of stimulants no doubt favoured the occurrence of the hematemesis at the moment.

The inflammation of the epiglottis we considered to have been produced by the local action of the gastric secretion upon it. Even although occasionally diluted by the large quantity of blood which was thrown up with it, the quantity of acid secretion which must have passed over the laryngeal surface of the epiglottis, and its almost continuous passage over it for many successive hours, were more than sufficient to produce an inflammation even so acute as our patient laboured under. He had not been subjected to any exposure or other undue influence which could have caused it; but whatever may have been the cause, and that is comparatively

^a See Dublin Medical Transactions, N. S., Vol. i., p. 3.

immaterial, it is worthy of observation, the very clear diagnostic signs which existed, pointing out the affection of the epiglottis as totally distinct from that other more formidable, although, perhaps, except in extreme cases, less painful affection—œdema of the glottis.

This patient's death was caused, I think, partly by a weakened condition of the muscular fibre of the heart, as evidenced by the changes which took place in the body so rapidly after death, and partly by syncope, induced by extreme fatigue, from the patient so suddenly leaving the recumbent position to which he had been long confined, and making such undue exertion for so many successive hours. This I believe to be a more common cause of death than is generally imagined. I could point to more than one valuable life which, convalescent from typhus fever, has been lost by too sudden and protracted exertion; and to many others, the subjects of fevers and other acute diseases, in which, although the consequences were not fatal, relapses and distressing sequelæ were induced.

CASE II.—*Interlobular Empyema; Paracentesis; Insertion of Drainage Tube; Recovery.*

James Halpin, aged 36, a brewer's drayman, was admitted into the Whitworth Hospital, on the 8th of May, 1862, complaining of cough, difficulty of breathing, and weakness and emaciation, which were rapidly increasing.

He was bent forward, and could not by any means stand or walk erect. He was suffering from well-defined hectic, of which he had a daily paroxysm; he had also profuse purulent expectoration. I learned that he had been in the adjacent Hardwicke Hospital, from the 17th of December, 1861, until the 17th of February ultimo, under the care of my colleague, Professor M'Dowel, who at once recognized him as having at that time laboured under a very severe pleuro-pneumonia of the left lung.

His pulse was now 140 in the minute, and very feeble; his breathing short and rapid; he was very weak, and had very little appetite. His cough was very violent, paroxysmal, bringing up large quantities of purulent matter, which appeared to *flow* from his mouth; and this cough was frequently accompanied by vomiting, sometimes of half-digested food, sometimes of green watery fluid.

The physical examination of the chest did not confirm the idea of this being an ordinary case of pulmonary phthisis. The respiratory murmur throughout the right lung was puerile, and the sound,

on percussion, loud. There was large loose crepitation in the upper part of the left lung, with distinct, though feeble, respiratory murmur over all the posterior part; but there was complete absence of respiration, and perfect dulness, on percussion, over a large space in front, on the left side. This space included all the lower sternal region, and passed across to the cardiac region. The heart was displaced downwards and a little backwards.

Except for the displacement of the heart *downwards* it resembled very much an extensive pericardial effusion. However, the very profuse purulent expectoration (amounting to upwards of three pints in the 24 hours) being evidently vicarious—inasmuch as there was no evidence of a pulmonary cavity from which it could be secreted—determined to my mind that the pus was originally secreted in the cavity of the pleura.

Dr. Hutton, who also saw the case with me, and Professor M'Dowel gave it as their opinion "that it was no ordinary case of empyema."

The symptoms became very urgent—that is, when he had been a week in hospital he was unable to lie down in bed, and the cough was so constant as to deprive him of sleep. The amount of purulent expectoration was increasing, and the debility was extreme. Under these circumstances I determined to make an exploratory puncture into the space above defined, and was considering where exactly to make it, when, on the 20th, a soft tender spot had formed over the cartilages of the last ribs. Into this I made a rather deep incision with a very small scalpel, and gave exit to about four ounces of very fetid matter. On the following day I introduced a director, and, finding it stopped, I passed a medium-sized trocar and canula through the obstruction, and drew off upwards of a quart of most fetid matter. This perforation of the pleura, between the cartilages of the ninth and tenth ribs, was followed by immense relief to his breathing; and the cough and expectoration ceased almost instantaneously, and the crepitating rattle at the apex of the left lung soon became inaudible.

I would briefly refer to this practical point, as elucidating what I believe was originally adduced by Andral,^a and afterwards very fully explained by Dr. Corrigan^b—the formation of an external abscess in empyema—the communication, if any, existing between them being so small as practically to be of no remedial service. It

^a See Andral's Pathological Anatomy, Spillan's Trans., p. 571.

^b Dublin Quarterly Journal, Vol. xviii., p. 144.

is of the utmost importance in such cases to be satisfied, "not merely," as Andral expresses it, "that the abscess formed between the ribs and skin has been opened, but that a real operation for empyema has been performed;" and the extent to which the skin becomes undermined, and the amount of purulent matter which lodges in the external abscess in these cases are often fertile sources of deception. I had no doubt of this case being a partial empyema, and the local tenderness and swelling further reduced it to an empyema of necessity. On one or two occasions, when the patient assumed a particular posture, there was a certain amount of pulsation communicated to this swelling; but this was evidently owing to its proximity to the heart or pericardium. Had it been continuous, however, it would have rightly given to the tumefaction the further title of pulsating empyema of necessity.

He continued to progress favourably for several days; but on the 1st of June, the wound having closed some days previously, he was again attacked with cough, fetid expectoration, and dyspnea. I reopened not merely the cutaneous wound, but also divided freely the internal band, and, as before, gave exit to an immense quantity of fetid purulent matter. I took the opportunity to sound the depth of the abscess by means of a gum-elastic catheter. I found it to pass freely, and in the direction of the interlobular fissure. I also satisfied myself that the wound was at the lowest part of the chest, almost resting on the diaphragm. When the intra-thoracic abscess was again evacuated the pulmonary crepitation again ceased, as also the cough and fetid expectoration; and during the progress of the case these symptoms recurred on several occasions, but always subsequent to the closure of the wound, and again disappeared on its being re-established.

The due appreciation of these phenomena in connexion with empyema is a matter of the greatest importance to the practical physician. They have been repeatedly mistaken for positive evidences of phthisis; thus not merely inducing a wrong diagnosis, but sanctioning a neglect of remedies calculated to produce permanent and entire relief. Their real significance has been most fully elucidated by the late Professor Greene* in his medical reports from these hospitals, and he has left nothing to be added to his exposition of their value and import. I have always considered that exposition to be one of those great addenda to medical science which mark, as it were, a period in our acquisition of standard

* *Vide Dublin Medical Journal*, Vol. xvii., p. 268.

knowledge of a disease, and which are therefore well known to all true physicians. I would, therefore, have contented myself with a mere allusion to the existence, or otherwise, of these phenomena, did I not find the merit of this diagnostic discovery lately attributed to M. Trousseau.^a It is to be presumed that M. Trousseau was ignorant of Professor Greene's researches, which were published in 1840, whereas the first case from which M. Trousseau drew the same deductions did not occur until 1843.

I now determined to keep the wound open continually by means of a drainage tube, the free extremity of which lay in a small vessel fitted to the shape of his chest, which he wore continually, and so escaped the necessity of being confined to bed.

For some days the average quantity of matter drawn off in this way was about four ounces. This gradually reduced; and when he left hospital, on the 6th of August, the quantity drawn off was not more than two drachms in the 24 hours. Still the tube could not be removed, for, on different occasions, when, from want of cleanliness, it became closed, he was always attacked with cough, loss of appetite, and other symptoms which told him that the purulent matter was reaccumulating; and these symptoms were invariably removed on the tube being readjusted. It was finally removed on the 6th of November, and he went to the country, and has remained perfectly well. The rapid increase in his weight was most remarkable.

The treatment by means of the drainage tube was eminently successful in this case. Its advantages seem to be—1st, that it prevents the accumulation of any large amount of fluid in the pleura; 2nd, that it does so, when properly introduced, by removing the fluid from the most depending part of the cavity; and, 3rd, that it removes the fluid by a slow but continuous process. It is obvious, therefore, that the tube may require a twofold or a single insertion into the cavity of the pleura. In ordinary cases, where the fluid presents at the upper part of the thorax, or where the upper part of the thorax is selected for the operation of paracentesis, then the drainage tube, being inserted at this point, ought to have its point of exit at the most inferior part; and this object can be well attained by the means pointed out in Professor Banks' communication in the last volume of this Journal. I may here take the opportunity of stating that, within the last few days, I have seen the subject of that very interesting paper, and he continues in the enjoyment

^a *Vide Gazette des Hôpitaux*, Feb. 1., 1862.

of rude health. In other cases, like that of Halpin, an unusual variety of empyema may present at—or the operator may be able to select—the most inferior point of the chest, and then there will be no necessity for any second wound. In fact, for the success of the drainage treatment one essential point seems to be that the evacuation must take place from the lowest part of the chest; and I think it very probable that, even in those cases where an opening has been originally required into the upper part of the chest, when the counter-opening has been fully established the closure of the original wound may help to expedite the recovery.

I do not recollect to have ever before seen an empyema arising from an interlobular pleurisy which was distinctly recognisable during life, and conducted to a favourable termination. There was abundant proof that in Halpin's case the general cavity of the pleura was not affected, in the persistence of vesicular respiration, and in the absence of perfect dulness on percussion, at the postero-inferior portion of the lung; and the want of general dilatation or swelling of the side. The cessation of the purulent expectoration when the pleura was opened, the absence of evidence of pleuropneumonic fistula, and the information gained by *sounding* the interior of the chest, proved that the pus had not its source in a pulmonary abscess.

I need not dwell upon the exact anatomical position of this intrathoracic abscess. Similarly situated collections of matter have been often described as abscesses in the lungs; but careful dissection shows them to be bounded on all sides by serous membrane; "the space which they occupy being," as Hodgkin concisely explains it, "shut up by previous old adhesions." There is, perhaps, no more interesting case of inter-lobular pleurisy on record than that described by Andral,^a in which the disease proved fatal, unrecognised, and with all the rational symptoms of pulmonary phthisis.

I consider this case to be a valuable supplement to the somewhat similar one so admirably detailed by Dr. Thorpe in the 34th volume of this Journal.

CASE III.—*Pleuritis, with Effusion; Tubercular Pleurisy, with Phthisis Pulmonalis.*

James Murphy, a tall emaciated man, 27 years of age, having been out of health for several months, was, about the middle of

^a See Spillan's Transl. Andral's *Clinique Medicale*, p. 580.

September, seized with more severe symptoms of local disease in his chest, viz., rigors, dyspnea, cough, and fixed pain in his right side. He went into an hospital, and remained there until the end of November, when he was discharged, not feeling himself much improved. He remained at home until the 12th of December, when, finding his strength rapidly declining, he sought admission into the Whitworth Hospital. I examined him carefully on the following morning, and had no difficulty in concluding that he laboured under effusion into the right pleura: there was well-marked dulness over all the right side, without any pure vesicular murmur; and in some parts there was a total absence of any form of respiratory sound. The constitutional symptoms were of a very alarming nature; the emaciation was still progressing; his debility extreme; his pulse 120, very small, weak, and compressible; his tongue dry, and his restlessness and want of sleep most distressing. Under these circumstances the point for consideration seemed to be, whether it would be right to propose to the patient the operation of *paracentesis thoracis*. With this view we investigated chiefly the following two points:—1st, the nature and amount of the fluid effused; and, 2nd, whether the pleuritic effusion was an idiopathic disease or a complication and secondary affection.

On the first point we had the following amount of evidence:—Although percussion elicited a dull sound over all the right side of the chest, the dulness did not transgress the median line, nor was there any displacement of the neighbouring organs; the liver was not depressed, nor were the intercostal muscles bulged out or paralysed; the diaphragm acted freely, and the patient lay frequently, and for a considerable time, on his left side; and, on measurement, the right side was only half an inch larger than the left at the time of a full inspiration; the expectoration was very scanty and viscid, containing very little purulent matter, and there were now no chills or shiverings complained of; there was distinct frottement audible in front, over the cartilage of the fourth rib; and posteriorly and laterally bronchial breathing (not very intense) and bronchophony were audible over about half the side. We came to the conclusion, therefore, that the fluid effusion which existed was not purulent, but serous, and that it did not occupy more than half the right pleura. We now sought for information on the other point—how far the pleurisy, such as it was, could be looked on as a primary disease—and we found that the respiration through the left lung, particularly its upper portion, was continuously interrupted or

saccadé, and that there was occasionally a crepitating râle to be heard; also, that although percussion elicited a clear sound all over this side, yet that on the fullest inspiration the side only expanded one-eighth of an inch, and that the respiratory process was carried on chiefly by the diaphragm. Connecting these physical signs with those already enumerated as existing in the right side, we inferred that the respiratory distress was not to be attributed altogether or principally to the pleuritic effusion. For these reasons, therefore, the operation of paracentesis thoracis was not proposed. He was ordered a large quantity of wine and nutriment, the side to be covered with an emollient anodyne poultice, and iodide of potassium, ammonia, and bark to be administered internally. The constitution seemed to have lost all power of rallying, the debility rapidly increased, and, without any accession of illness, the patient died on the 15th.

Post mortem examination showed that the right pleura contained four pints of pale serum. The lung, reduced to about half its normal size, was covered with a dense, firm, organized, false membrane, nearly a quarter of an inch in density, and which in some places seemed to have attained to various degrees of organization. Intimately adherent to the serous covering of the lung, it became more easily detached more externally; and the outer layer, which was very rough and sponge-like in appearance, was traversed in all directions by vessels carrying red blood, and had also a quantity of soft lymph lying on it in many places. There were also to be seen throughout this false membrane, a number of small, opaque, round granular spots, which were evidently small scrofulous tubercles, developed in the false membrane. A section of the lung showed that, although it had evidently undergone great compression, a considerable quantity of blood still circulated through it; and there were still to be seen several distinct scrofulous tubercles scattered through its substance. The left lung did not collapse, from having assumed a more or less emphysematous condition. A small quantity of bloody serum was found in the cavity of the pleura, and the serous membrane was closely studded all over with miliary tubercles, hard, and of a grey colour, and about the size of small pin's head; while sections of the lung revealed various tubercular masses in its upper and middle portions. These tubercular masses, about the one-eighth of an inch in diameter, were evidently formed by a congeries of small tubercles coalescing; they were rather hard and gritty, and did not seem to have the least tendency to

softening. The heart was small, and was undergoing fatty degeneration; its right cavities were completely empty; the abdominal viscera were healthy, except that the peritoneal surface of the liver was universally opaque from the very free development of miliary tubercles all over it; on the peritoneal surface of the spleen they were also copiously developed.

The chief point of interest in the above case was the very practical question as to whether the operation of paracentesis thoracis for the relief of the urgent symptoms was advisable or not. I have already assigned the reasons why, in this particular case, I did not recommend it; but the question in the abstract, in similar cases, must be very much determined by the views adopted as to the order of succession or supervention of the two diseases, the tubercular deposition and the pleuritic inflammation.

This subject may be approached under two very different aspects: 1st. The propriety of thoracentesis in cases of pleural effusion in which we dread the supervention of phthisis; and, 2nd, its propriety in cases like the present, in which tubercular disease is already pronounced; or, in other words, adopting the division of Rilliet and Barthez, we are to consider the propriety of thoracentesis in pleurisy of the phthisical, and in tuberculization of the pleura.

From the fact of tubercle so often succeeding pleurisy in a scrofulous subject, Trousseau draws an argument for the early performance of thoracentesis in cases where the effusion is considerable; and in a communication on this subject, made to the Pathological Society, by Mr. Adams, in his usual clear and lucid manner (See *Trans. Dub. Path. Soc.*, Vol. II., p. 82), he favours the proposition of early operation, on the ground that we may thereby reasonably hope to prevent the development of tubercle in the opposite lung; and both these authors adduce the same proof of the pleurisy being the primary disease, and to which the phthisis succeeded, viz., that the lung of the originally affected side was afterwards found free from any tubercular development. Another reason which has been assigned for early operation in such cases is the fact, as observed in patients of this peculiar diathesis, that the solid effusion is to that amount, and of that nature, to retard considerably, if not prevent altogether, the process of absorption. This is, no doubt, the case in some instances; but in many cases of consumption, which commence as cases of pleurisy with effusion, the fluid effusion has been absorbed within a reasonable time, and a universal frottement has proved the lung to have fully expanded, and yet the phthisis has

rapidly progressed. It is not long since Dr. M'Dowel and I attended such a case—a young gentleman, about 19 years of age. The effusion set in with frightful rapidity, and caused proportional dyspnea and suffering; but on the 10th day the fluid began to diminish and gradually subsided. In a few months pulmonary phthisis was fully developed in the opposite lung, and rapidly proved fatal. I am therefore of opinion, with Trousseau and Louis, that these effusions are often but the evidence of the tuberculous diathesis; and that, therefore, while we ought to remove the fluid effusion, if it does not yield to remedial measures within a very reasonable time, we must not expect that we can thereby prevent the extension or development of pulmonary phthisis.

But when we are called to treat a pleuritic effusion in which we have reason to conclude that tuberculous disease is already established in the lungs, thoracentesis should not be performed unless the effusion be excessive. There are two reasons why the operation should not be successful in these cases:—First, the lung cannot expand, being bound down by the mixed fibrinous and tuberculous exudation which uniformly invests it, preventing indeed the further development of tubercle in the lung, but itself proving no less fatal. But, secondly, these heterologous deposits will, if the fluid effusion be removed, still continue to act as sources of irritation and still keep up a continued secretion. The complication of phthisis with pleuritic effusion would seem, therefore, to give a direct negative to the proposal of thoracentesis, while, in the scrofulous subject, even before the development of tubercle in the lungs, the operation cannot in general be looked on as a remedial measure.

At the present day I feel that the danger is rather that the operation will be performed in cases where it will prove injurious, than that it will be neglected in cases in which it is advisable. Circumstances sometimes warrant the performance of a desperate operation that life may be prolonged, even for a few hours; but, under ordinary circumstances, we should have a well-grounded hope of a recovery, more or less perfect, before we venture to bring into disrepute an operation which, fitly used, may save the lives of many, and when rashly adopted will surely add to the suffering which already exists. Paracentesis thoracis is not the very trivial matter which Trousseau would have his readers to believe, and unquestionably it does not admit of the universal application to all cases of pleuritic effusion with which he would invest it.