history of cancer; and I quite agree with Mr. Cripps that, where only two members of the same family are attacked by cancer, they ought to be nearly related, and that we ought to be cognisant of a very large proportion of instances of such a kind, before the theory of inheritance is accepted on that ground. Even then it would be necessary to discount the evidence by a careful investigation into all the circumstances by which the cancerous members of the family were surrounded, particularly with respect to the locality in which they resided, and the existence of other possible predisposing causes of cancer.

I have, on more than one occasion, pointed out the peculiarities which have been noticed in the transmission of cancer by inheritance. The cancer derived by inheritance is not necessarily of the same variety as the cancer from which it was inherited. It does not necessarily or usually affect the same part of the body; it may arise in widely different tissues; it may attack a person of the opposite sex; and it may occur at a very much younger age in the offspring than in the parent. If it be urged that the same objections may be made against the inheritance of other diseases regarding which there is far less doubt, and gout may be given as an example, the reply must be that the evidences of the inheritance of those diseases is far stronger than that on which the inheritance of cancer rests; and, were it not so, I suspect we should not be so ready as we are to accept their hereditary character. I have no intention of denying that cancer may be inherited; but the evidence which is at present before us is not satisfactory. On that account, we are seeking information on the subject from a source which has not hitherto been used, and are trying to gain, from those who are acquainted with the families of cancerous persons, facts which may tell largely in favour of or against the theory of inheritance. I have written letters to a large number of men, residing in different parts of the country, begging for information particularly on this subject, and asking those who have been many years in practice in the same town or village whether they can give us an account of any family in their practice in which cancer has been very prevalent.

It has been pointed out, in the statement by which the cancer-cards are accompanied, that Mr. Haviland, who has paid great attention to the geographical distribution of disease, considers that the high and dry localities are unfavourable to the occurrence of cancer, and that the disease flourishes particularly in those parts of the country which are low and flat, are covered by alluvium, and are watered by many streams which frequently overflow their banks and flood the surrounding country. Mr. Haviland's statements and statistics have attracted hitherto comparatively little attention, doubtless owing to the circumstance that they have not been brought very prominently before the profession. The intention of the Investigation Committee is that they shall be much more widely known; and it is hoped that the Committee may be able, with the co-operation of medical men in all parts of the country, to extend his observations, and to confirm or correct them in accordance with the facts which it collects.

The result of the present inquiry, so far as locality is concerned, will, I trust, be to obtain more detailed information respecting the habitations of the cancerous, and a better knowledge of the parts of the country which are least favourable to the development and growth of cancer; but it is hoped that the inquiry will not end here. Some of the letters I have received make it probable that cancer of certain organs is far more prevalent in some districts than cancer of other organs which may be said to be almost equally predisposed to cancer. I am not sure how far the present inquiry will elicit that fact, if, indeed, it be a fact; but it has already raised a suspicion of it, and has, therefore, laid the foundation for other and more extended investigations on cancer.

The work which the Collective Investigation Committee is undertaking on the subject of cancer is thus far quite within its capacity, and the capacity of the Association, to carry out; but there are other questions in the etiology of cancer which ought, in the interests of the public, to be investigated, and which, if they be not beyond the strength of the Association, are matters rather fitted for the attention of the Government than of an association of the profession. Of these, the first and most important is the classification of the cancers of different parts of the body, with a view to discover which of them are increasing, or whether they maintain, year by year, the same relation to each other, and to the total returns of cancer. As far as can be seen, the Government is not likely to undertake such an investigation unless the necessity for it be pressed repeatedly and forcibly upon it.

Now this is a matter in which the profession may very properly, and to the great advantage of the public, act. Nor do I think that any body of the profession can do more to promote such a project

than the splendid and powerful Association of which we are members. Memorials proceeding from its several Branches, from the Investigation Committee, and from the Association as a whole, cannot fail to produce an impression upon the Local Government Board. But the part which the profession can and must take in this matter, does not end with a mere suggestion to the Government. In order that such an inquiry should thoroughly succeed, it is essential that each individual member of the profession should lend his assistance to the Government by furnishing such accurate death-certificates in cases of cancer as lies within his power. Even if this entailed a much greater amount of labour on every medical man than it is at all likely to do, I feel sure the labour would be cheerfully borne; for our profession has justly gained the reputation of great readiness to sacrifice much for the public good; but, in truth, in most instances, a word added to the certificate usually given would suffice for all the purposes of the inquiry; and, in a vast proportion of cases of external cancer, there is no difficulty in supplying the desired word, for the original seat of the disease has long been known to the patient or the medical attendant.

A LECTURE ON BOUGIES, THEIR USE AND ABUSE.

By F. SWINFORD EDWARDS, F.R.C.S. Eng.,
Surgeon to the West London Hospital, etc.

THE use of urethral bougies and sounds dates back to the earliest days of surgery. Apparently in those days, stricture not being known, they were used only for pushing back impacted calculi and other foreign bodies which obstructed the outflow of urine. Guaynerius, who wrote in 1440, mentions the use of wax bougies for this purpose.

Ferri, in the middle of the 16th century, described various kinds of bougies for breaking down caruncles; but it was not till Hunter by his writings directed the attention of surgeons to the permanent obstructions of the urethral passage, that bougies came into general use for dilating purposes, (see Voillemier, *Dictionnaire des Sciences Médicales*, vol. x).

The varieties of bougie which are employed at the present day may be classified thus:

For Diagnostic Purposes.—1, *Bougie à boule*, metal or gum-elastic; 2, the urethrameter, designed by Otis.

For Treatment.—1, Steel; 2, silver; 3, pewter bougies or sounds; 4, French gum-elastic: *a*, olivaire; *b*, coudée; *c*, bicoudée; 5, English gum-elastic; 6, filiform of gum-elastic, whalebone, or catgut.

For Guide Purposes.—The pilot or guide bougie.

Besides these, we have Lallemande's *porte caustique*, a bougie or catheter for applying nitrate of silver to the deep urethra; also soluble bougies, by means of which medicaments are applied to the urethral surface in a base of gelatine, cacao-butter, or wax.

Let us take the consideration of these various varieties in the order in which I have enumerated them, and first we come to the *bougie à boule*. This is made either of gum-elastic or of metal, and is used purely for purposes of diagnosis. The shaft is thin, and terminates in a bulbous head, which may be made cone, pear, olive, or acorn-shaped, the last two varieties being the ones I usually use. The metal bougies have this advantage over the gum-elastic. They are more durable, and can be used possibly with more precision. The soft instruments are, however, more comfortable to the patient.

By the aid of these instruments, we are able to determine the exact situation and extent of any strictures, inequality in the mucous membrane, ulcers, or tender and inflamed areas. If we examine an average sized healthy urethra, with one of these *bougies à boule* whose bulb measures No. 22 of the French scale, we shall find that it will probably pass, without any difficulty or much discomfort to the patient, for about six inches.

Here one usually meets with a slight resistance, but not enough to impede the passage onwards of the instrument into the bladder. Now, if the bougie be gently withdrawn, as the bulb leaves the prostatic urethra, two distinct catches may be felt, about half an inch apart; the first not so marked as the second, and sometimes indeed scarcely discernible. These catches are due respectively to the posterior and anterior layers of the triangular ligament. In a healthy urethra, on further withdrawing the bougie, no other obstruction is experienced until one reaches the meatus, where another catch may occur. These

three catches then indicated the narrowest parts of the normal urethra.

In examining for stricture, it is well to bear these points in mind, for I have on several occasions seen surgeons—myself included—misled, diagnosing stricture (a pathological condition) when there was none. This is, of course, a serious mistake for the patient, as he is probably subjected to a course of needless, nay, mischievous instrumentation. That this may prove harmful to the patient, I firmly believe, by, to use a term of Mr. Savory's, "nursing into existence" a true organic stricture. It is easy for us to comprehend the course of events leading to such a dire event. The passage of the instrument, irritating the membranous urethra, causes spasm and congestion, followed by inflammation; and this leads in time to a deposition of neoplastic tissue.

In examining, with a view to stricture, my method of procedure, in conjunction, I believe, with that of my colleagues, is as follows. It is well to be provided with several sizes of searcher, as this special kind of bougie is sometimes named, say Nos. 14, 18, 22, 26, and 30. The patient, standing in front of me with the penis well exposed, I attempt to pass No. 22 through the meatus; but, should I fail, I now take the next size bougie, namely, No. 18, and find that this passes readily for 2 inches, but no further. No. 14 is now taken, and passed for 5½ to 6 inches, without any resistance; let us suppose that at this point only a slight impediment is experienced, and the instrument passes on into the bladder. On withdrawing it, a distinct catch is felt at 6 inches, where we found a slight resistance to the introduction. It is clear, then, that we have here an urethra strictured in three places; namely, at the meatus, at two inches from the meatus, in the antescrotal portion of the urethra, and at the junction of the bulbous with the membranous urethra; that is, at the site of the anterior layer of the triangular ligament.

It is a matter now for determination, as to what method to employ for the relief, or possibly cure, of this condition. If you believe in the doctrine of the American school as enunciated by Otis—namely, that strictures are curable—you will probably measure the urethra with the urethrometer. Having found the capacity of the individual urethra before you, which, let us say, measures 30 millimètres in circumference, you will proceed to cut the two penile strictures, using probably Otis's dilating urethrotome, passing afterwards *bougie à boule* No. 30, as far as the deep stricture, to make sure that all the constricting fibres have been divided. The third stricture (of our typical case) is not now dealt with, in the hope of its being chiefly, if not entirely spasmodic, and dependent on the two anterior ones.

Should, however, you be a follower of the other school, which says "once a stricture always a stricture," then you will first try gradual interrupted dilatation; and, if this do not succeed, you may have to call to your aid continuous dilatation, or internal urethrotomy.

A point with regard to the use of the *bougie à boule* is that it, of all kinds of bougies, is apt to set up spasm. This occurs at the spot where the urethra is surrounded by the compressor urethræ muscle. Sometimes the spasm excited is sufficient to prevent the passage of the instrument. Should this occur, take a *bougie à boule* with a tapering point, or pass a small *bougie olivaire* first. You will then, after a minute or two, succeed in passing your "searcher." This also holds good in cases of spasm where you wish to pass a catheter. Here is a case bearing on this point. Not long ago, a distinguished officer in the Army Medical Department consulted my colleague, Mr. Coulson, in reference to cystitis, for which he had sought relief in vain. It was agreed that I should daily wash out and inject his bladder. On the first occasion, a full sized catheter passed easily into his bladder, the urethra being caught unawares; but, on subsequent occasions, I was obliged to pass a small *bougie olivaire* before the full sized catheter would pass. The spasm, in this case, was distinctly felt by the patient.

I believe that spasm exists in many more cases than surgeons imagine, either associated with organic contraction, inflammation, or congestion, or independent of these, being then reflex in its nature.

It is a matter of common knowledge that under chloroform a bougie, which before the administration of the narcotic could not be passed, has slipped in easily, muscular spasm being allayed. Again, it has fallen to my lot on more than one occasion to see cases of presumed organic subpubic stricture, accompanied by stricture of or near the meatus, vanish, after the complete division of the anterior stricture. After the operation for ligature of piles, how often one meets with retention of urine due to reflex spasm! Sir Henry Thompson, speaking of this, says:

"Spasmodic stricture is an exceedingly useful excuse for the failure of instruments. It is a refuge for incompetence. When you cannot pass a catheter, and wish to desist, it is a convenient thing for the

operator to say, 'there is spasm.' I do not think that you ought ever to fail in passing an instrument because there is spasm. Spasm may prevent the urine from going outwards. I do not know that it ever prevents the instrument from going in. In most cases it is failure of the hand, not spasm of the urethra."

I agree with Sir Henry that one ought not to fail in passing an instrument because there is spasm, that is, some instrument; but spasm may certainly prevent the passage of a given instrument.

Besides the *bougie à boule*, there is the urethrometer devised by Dr. Otis for purposes of diagnosis. It consists of a small straight cannula, of size No. 8 F., terminating in a series of short metallic arms, hinged upon the cannula and upon each other. At the distal extremity, where they unite, a fine rod running through the cannula is inserted. This rod, which is worked by a screw at the handle of the instrument, when retracted, expands the arms into a bulb-like shape capable of expansion up to forty millimètres. A thin rubber stall drawn over the end of the closed instrument protects the urethra from injury, and prevents the access of the urethral secretions to the interior of the instrument. When introduced into the urethra and expanded up to a point which is recognised by the patient as filling it completely (and yet easily moving backwards and forwards), the index at the handle then shows the normal circumference of the urethra under examination. In withdrawing the instrument, contractions at any point may be exactly measured.

The advantages of this instrument are these. 1. By means of it we can measure the size of the urethra, and ascertain the locality and size of any strictures present without reference to the size of the meatus. 2. It enables the surgeon to complete the examination of several strictures by a single introduction of the instrument, and, by reduction of its size, to avoid the pain which usually attends the withdrawal of the *bougie à boule*.

Its disadvantages are, 1. Often a little bleeding accompanies its use. 2. By reason of the bulb being covered by India-rubber, the sensations conveyed to the hand are somewhat masked. To obviate this, Messrs. Mayer and Meltzer are now making, at my suggestion, a urethrometer whose bulb will not be so delicate as in Otis's instrument, and one which I hope to be able to use without the stall.

I now pass on to the consideration of bougies which are useful in the treatment by dilatation, and first and foremost comes the *bougie olivaire*. This has now quite superseded the English gum elastic, and, as a rule, all metal instruments, as there can be no question that its introduction is attended with less discomfort to the patient than that of steel or silver instruments. The characteristics of a good *bougie olivaire* are as follows. It must be soft and pliable, not too bulbous at its extremity, with an easily bendable neck.

Let us suppose that we have before us a case of stricture that we wish to treat in the usual way, namely, by gradual interrupted dilatation. Having found out the number, situations, and sizes of the contractions, either by the urethrometer or *bougie à boule*, should the patient not be lying down, get him to do so; if this be his first experience of instrumentation, you may thereby save him a nasty fall should he faint during your manipulation, an occurrence which sometimes takes place. Warm the bougie by passing it two or three times through the hand. This will also have the effect of removing any dust which might be on it. (I take it for granted that, if the bougie have been used before, it has been well cleaned.) The cleanliness of all instruments which are introduced into the urethra is a matter of the utmost importance. Who will say that, where cystitis and urethral pyemia follow the introduction of instruments, this may not sometimes have been due to impurities introduced on or through them?

Whilst passing the bougie through the hand as suggested, give it a slight curve. I have known this curve to make all the difference between success and failure.

As to the size of the bougie; one two or three sizes smaller than the capacity of the smallest stricture should be selected; that is, if the patient have several. This is passed gently and removed after a minute or two; we may then succeed in passing one larger than the estimated size of the stricture. Let us imagine that, in this case, the size of the smallest of the strictures is 14 millimètres. The first bougie passed is 12, followed by 15. In two or three days, the patient comes again, saying that he has passed urine in a larger stream. On this occasion, we commence with 13 or 14 (a size or two smaller than the bougie last introduced); 16 will now probably pass easily, and so on at each successive visit until the stricture has been dilated to the size thought requisite, usually No. 22, equal in size to 12 English, or rather more; though, in some cases of capacious urethra, it is necessary to continue dilatation to 25 or 30. The next step is to teach the patient to pass a bougie himself, and to insist on his passing it once a week regularly. It is better, perhaps, to name a day on which this

is to be done. Should the patient neglect the regular use of the bougie, recontraction will almost inevitably take place. I do not believe that any organic stricture, the same being situate outside and around the mucous membrane, is to be cured in this way. If it be capable of cure, it can only be by complete division of the neoplastic tissue, which is to be effected by urethrotomy.

All cases must not be expected to go as smoothly as this. The urethra may become inflamed and irritable; if so, other means must be employed to calm the urethra before again having recourse to the bougie. A patient's food and drink, as also the weather, may make a difference in what is known as the temper of a stricture. In the majority of cases of stricture of large calibre, with care and trouble, one succeeds in so dilating a stricture that a patient will get on very comfortably, passing a bougie for himself at stated intervals.

There remain, however, a good many cases where the dilating process is not attended with success, owing to the resiliency or what not of the stricture; for such cases, an operation is necessary. Of the metal bougies or sounds used for dilating purposes, I prefer a pewter one. It is heavy enough to pass in of its own weight. Its point is made on the type of the *bougie olivaire*, being sufficiently bulbous to prevent the catching of the end in the lacuna magna—which, by-the-by, ought easily to be avoided, whatever instrument is used, if only you recollect its whereabouts—or any other of the urethral-follicles. Its diameter is greatest about the curve; the shaft, being smaller, is not so liable to be held by a small meatus; and, lastly, you may give the instrument any curve or shape you may think fit.

One sometimes meets with a case where a curved metal instrument will pass after every form of flexible has failed. Regarding the method to be employed in the introduction of curved metal instruments, as to whether one should practise the *tour de maître*, or pass the instrument straight in, keeping the concavity always pointing towards the pubes, seems to me to be of as small importance as the standing on the right or left of the patient. A dexterous surgeon ought to be able to pass an instrument either way and from either side. Certain it is, that several times failing with the *tour de maître* from the left, I have succeeded on trying it from the opposite side. The introduction of the finger into the rectum, or the pressing upon the perineum with the fingers as a point of support, after the instrument has been introduced as far as the bulbo-membranous urethra, are methods to be resorted to for guiding the point of the bougie through the triangular ligament, where often a slight difficulty occurs.

As to the use of the English gum elastic catheter, I know of only one set of cases where this is useful, and this is where the third lobe of the prostate is enlarged. Pass the catheter down to the seat of obstruction, now withdraw the stylet for one inch, and the point of the instrument will be tilted upwards, thereby enabling the catheter to ride over the protruding gland. The coudée and bicoudée catheters answer this purpose very well. This is their special function, and for it they were designed.

For the treatment of strictures of small calibre, we have the filiform gum-elastic, whalebone, and catgut bougies. Each of these has its own special and peculiar attributes. For instance, the filiform are made sometimes with a corkscrew-like twist at the end; this you will find most useful, when the stricture is at all tortuous, with its orifice situated eccentrically—that is, to one side or other of the canal. The whalebone bougie is of special use, by virtue of its rigidity, for passing through dense and callous strictures. Its extremity can be bent at will, where it is necessary to direct its point to one side or other in cases of eccentric stricture. The advantages attaching to the catgut are almost all shared by the whalebone, with this one exception—namely, that if a catgut, being passed through a stricture, be left *in situ*, it will swell slightly, thereby dilating the stricture more rapidly than can be accomplished by the other varieties.

Long catgut and whalebone bougies are also used in the rail-road or tunnelled catheter—an English gum-elastic catheter, open at both ends; the catgut, having been passed through the stricture into the bladder, acts as a guide for the passage of the catheter, which is pushed on over the bougie.

The filiform bougie is often used as a guide or pilot, being, in these cases, screwed on to either a catheter, urethrotome, or some dilating instrument, as Harrison's. With several varieties of the filiform bougie, one rarely comes across a case of impassable stricture; at least such has been my experience in many hundred cases of stricture. Syme used to dwell with force on the fact, in which all surgeons of much experience in urinary diseases concur, "that there are really very few strictures which are impassable, if only the surgeon be dexterous and patient." I need not point out to you that this dexterity is only to be acquired by constant practice. If Syme taught this in his day,

how much more ought it to hold good in ours, seeing how much better instruments are at our disposal!

In cases where one or more false passages accompany a stricture of small calibre, and it is desired to get a bougie into the bladder, a good method of procedure is as follows.

Suppose you pass a filiform, and you feel that it has left the urethra and entered a false passage (this may be indicated by the grating or creaking sensation conveyed to the hand), leave it there; it will block up this road at all events. Now, pass another; should this likewise pass into a false passage, take a third; and, should there be no more false passages for it to go into, it must per force enter the orifice of the stricture.

You will find that injection of the urethra by oil is an useful adjunct when endeavouring to pass a filiform bougie through a tight stricture; and, better still, is the plan of getting the patient to pass a few drops of urine at the time of manipulation.

I must just say a few words on the treatment of stricture by continuous dilatation—that is, the leaving in of a bougie or catheter for a lengthened period. I must own that I am no friend to this method of treatment, believing it to be more fraught with danger to the patient than internal urethrotomy. Neither do I hold with the practice of tying in a catheter after the operation of internal urethrotomy. The irritating presence of an instrument in the urethra will almost certainly set up an inflammation of both the urethra and bladder; and we may congratulate ourselves if our patient escaped with nothing worse, in the way of urethral fever, leading to suppression of urine and death. Perineal abscess, extravasation of urine, and orchitis, are other local complications. Any, or all, of these may succeed the mere passage of a bougie; but they are certainly more likely to occur in the treatment of stricture by continuous dilatation.

In conclusion, I will formulate a few rules which may be of service in using a bougie or catheter; firstly, as to what ought to be avoided.

1. Avoid being misled as to the presence of stricture by the deep perineal fascia.

2. Avoid the use of force in introducing an instrument. You will do more harm than good. *Apropos* of this, I will quote you a passage from Mitchell Banks, on diseases of the genito-urinary organs. "The one rock ahead is the desire which the hospital-surgeon (who must operate *coram publico*) has, even in the present day, to get into the bladder at all costs. The unhappy patient being brought into the theatre before a crowd of students, the surgeon considers it a point of honour to get something—if only a No. 1—into the bladder. After 20 minutes' prodding, with all sorts of instruments, this No. 1 is finally jammed in; the surgeon triumphs, and the patient is led away, bleeding profusely, and possibly with a false passage. A week's rest in bed with hot fomentations to the perineum, would probably so have softened down this patient's stricture, that No. 3 or 4 would have gone in quite easily, to the great facilitating of further treatment."

3. Avoid hæmorrhage if possible. Mr. Savory, in the *St. Bartholomew's Hospital Reports*, "On Spasmodic Stricture of the Urethra," says: "Whenever blood follows the introduction of an instrument, is it not a sign that in one respect at least, mischievous force has been employed?" To this I would reply "Not always," as it is sometimes a necessary part of the cure, as when a patient is suffering from an obstructed urethra, due to a valve, wart, or bridle, the breaking down of which must necessarily be accompanied by a few drops of blood. It is in these cases that cure follows on the use of the bougie alone. I recollect the case of a graduate of Oxford who came to see me in reference to his stream of urine, which was diminishing in volume, and escaped forked. He had, in addition, pain in the bulbo-membranous urethra, on the passage of an instrument, and slight gleet. After passing a No 22 *bougie olivaire*, on two occasions, my patient was cured. On each occasion, the passage of the instrument was followed by a drop or two of blood. I imagine that in this case some wart or bridle was broken down.

4. Avoid continuous dilatation—if interrupted is inapplicable to the case, practise, in preference, urethrotomy. Cystitis is caused by continuous dilatation, but cured by internal urethrotomy.

5. Avoid tying in a catheter after internal urethrotomy; pass a bougie on the second or third day.

6. Avoid instrumentation in purely spasmodic strictures.

7. Do not imagine that, because in a given case a so-called full-sized bougie, No. 22 or 25, passes easily through the penile urethra, there can be no stricture sufficient to set up a spasmodic stricture in the deep urethra, or to keep up a gleet.

I would now offer the following advice.

1. Use great care in the introduction of all instruments; see they

are smooth, clean, in good condition, and well lubricated, and if of metal, warmed.

2. Always use soft elastic bougies, if possible, and see that the *bougie olivaire* has a pliant neck.

3. More benefit is derived from a bougie which passes easily through a stricture than from a larger one, which is tightly held, and requires force to send it through.

4. It is well, before passing a bougie, to give it a curve, the concavity of which, on introducing it, should look towards the pubes.

5. When using a pilot bougie, always see that the screw is firmly fixed. After the bougie has been used several times, it is apt to become rotten at its junction with the screw. Should this be the case, on withdrawing the instrument through the stricture, the pilot might be left behind in the bladder, necessitating further prolonged operative measures for its removal. I once met with an accident of this kind, the pilot remaining behind in the bladder. I saw the patient two days afterwards, and, after performing internal urethrotomy for a stricture, was able to extract the bougie by means of a lithotrite. —[*Vide* BRITISH MEDICAL JOURNAL, 1882.]

TWO CASES OF BRONCHOPNEUMONIA TREATED WITH BLEEDING AND ICE.

By DAVID B. LEES, M.D., F.R.C.P.,

Physician for Out-Patients, St. Mary's Hospital; and Assistant-Physician to the Hospital for Sick Children.

CASE I.—Emily B., a domestic servant, aged 15, but looking older, came among my out-patients at St. Mary's Hospital on January 24th last, complaining of cough, shortness of breath, and sharp cutting pain in the left side. She had been ill for about ten days, and thought that she had taken cold from sleeping in a damp bed, having on several occasions awoke during the night to find herself shivering. I found that there was a patch of dullness in the second left interspace in front, and *râles* over the greater part of the left lung, and also at the base of the right. There was much dyspnoea, and the temperature was over 104°. By the kindness of Dr. Cheadle, I was enabled to admit her into the hospital under my own care. She was at once put to bed, and hot poultices applied to the chest.

January 25th. She had slept fairly during the night, but this morning had much distress in breathing. The dyspnoea was very obvious. There was restlessness; the lips were livid, and the cheeks dusky. Temperature 105°; pulse 136, regular, and fairly strong; respirations 44. The urine was of specific gravity 1030; it contained urates, but no albumen; chlorides were present. The bowels had not been opened during the last four days. The sputum was copious, viscid, not rusty. There was dullness over the whole of the front of the left side of the chest to the nipple-level; the breathing, however, being simply harsh, and not tubular. Resonance was somewhat impaired below the angle of the scapula on both sides; and at both bases, in front and behind, was an abundance of moist *râles*, heard during expiration as well as during inspiration. These physical signs, combined with the high temperature, seemed to denote a severe bronchitis extending to the smaller tubes, with commencing consolidation of the left upper lobe. Taken with the symptoms of great dyspnoea and lividity, they seemed to render it necessary at once to give relief to the overstrained right heart, without waiting for the slower action of purgatives and emetics. Venesection was, therefore, performed at 11 A.M., ten ounces of very dark blood being drawn off. The relief to the dyspnoea was immediate, manifesting itself even while the blood was flowing; and the lips lost their blueness. An enema was administered, after which the bowels were opened twice. —At 12.30 P.M., the temperature had fallen to 103.6°, the pulse remaining at 136, and the respirations still in number 44, but much quieter. The patient felt much more comfortable. —At 9 P.M., the temperature was again 105°; but the lips were red, and the dyspnoea had not returned. An emetic was ordered, to clear the bronchial tubes of the very copious secretion, and a mixture, containing ten drops of antimonial wine and ten grains of bicarbonate of soda, with half an ounce of liquor ammoniæ acetatis, to be taken every four hours.

January 26th. She was relieved by the emetic, and had slept fairly well. The cough was less troublesome; the lips were rather more blue again, and the cheeks somewhat dusky. Temperature 105.6°; pulse 144; respirations 48. The right side of the chest was forcibly expanded during inspiration, especially in its upper part. The left front was dull from the clavicle to the nipple-level, with bronchial breathing under the clavicle. There was dullness also about the posterior

edge of the left scapula. At both bases, *râles* were heard as before. The heart was normal.

It was obvious that, though the immediate urgency had been met, the pulmonary symptoms were advancing in gravity. It was therefore determined to give up the poultices, which had been used for two days, and to try the effect of cold applications. Directions were given that the patient should be sponged, first with tepid and then with cold water. This change proving pleasant to her, an ice-bag was applied to the left chest at 3 P.M. Immediate benefit seemed to follow. At 8 P.M. she looked tranquil and easy; the lips were redder; the temperature had fallen a degree and a half (to 104°); and the frequency of the pulse had lessened by 28 beats per minute, being now only 116. The respirations were still 46 per minute, but without marked dyspnoea. The physical signs also had improved, there being now fair resonance from the clavicle to the second rib. From the second rib to the mamma there was still dullness, with bronchial breathing, and coarse *râle* during inspiration only. At the right anterior base there was still moist *râle* to be heard, during both inspiration and expiration. Pain in the left side continued.

January 27th. The ice-bag had been kept on all the night. Slight delirium was observed early this morning. The temperature had fallen continuously, and at 5 o'clock this morning was only 98°. After 8 A.M., however, it rose again, and at 4 P.M. stood at 105.8°, the highest temperature throughout the illness. Pulse 126; respiration 40. I found that the left apex was still improving, the resonance having now reached as low as the third rib; and over this area the breathing was fairly normal, only the expiration a little prolonged. There was still dullness from the third rib downwards, but the breathing over it was less harsh, and there were expiratory as well as inspiratory *râles*. There were still moist sounds at the right base as before. So far there was improvement, but the rise of temperature was accounted for by the discovery of fine inspiratory crepitation at the angle of the left scapula, and bronchial breathing in the axilla. Obviously a fresh portion of lung had been attacked. The ice-bag was continued, and senega substituted for the antimonial wine.

January 28th. The temperature had again fallen to 98°, and the pulse to 82. The respirations still numbered 44. The dullness was now limited to a small area at the anterior border of the left axilla, over which loud moist *râles* were heard, with hardly any bronchial breathing. There was diarrhoea yesterday, the bowels being opened twelve times, and she was sick after the medicine, which was therefore changed to quinine. At 2 P.M. the temperature began to rise again, but the high st point which it attained was 103°.

January 29th. Temperature 98°; pulse 108; respiration 36. She was taking food well. In the afternoon there was another (and final) rise of temperature to 104.2°. I found that the signs on the left side were still improving, but there was now dullness in the first interspace on the right side, which had hitherto been quite normal, and harsh inspiration as low as the second rib. It seemed as if the right lung were about to follow the example of the left. Another ice-bag was at once applied to the right apex. To my surprise, I found next day (January 30th) the right apex perfectly normal; with good resonance and natural breathing. Pulse 84; respiration 42; temperature 96.7°.

On the 31st the temperature was 98.4°, at or about which it remained; the pulse 84; respirations 36. There remained only some slight impairment of resonance over the left lung posteriorly, and the catarrhal sounds had quite disappeared.

From this time convalescence was uninterrupted, and when I examined her chest, before her departure for a convalescent home, I found everything perfectly normal.

CASE II.—On February 3rd, I was asked to see, in consultation with Mr. Langston, of Westminster, a female infant aged 6½ months. She had been seriously ill for two days, and had had a slight cough for several days previously. She was believed to have taken cold from exposure to cold winds. The temperature was 103.4°. There was some active distension of the abdomen, with cough, which was evidently painful. On examining the chest, we found that there was only very slight impairment of resonance over the right back, with dryish *râles* over the upper lobes behind, and a good deal of moist *râles* over the bases, both before and behind. We directed that a large turpentine-stupe should be applied to the chest, to be followed by the use of linimentum terebinthinæ, and that a bronchitis-kettle should be kept constantly on the fire, the temperature of the room being maintained at 65° Fahr. By the mouth, she had been taking milligramme-granules of aconitine and of scillitine; these were now exchanged for similar granules of emetine.

February 4th. Temperature 103.5° (last night, 104°). There was now decided dullness over the root of the right lung, with bronchial