hope will prove successful. In the apparatus which is exhibited by Messrs. Maw and Co. the ball-exhauster is intended to be worked by hand-pressure.

It is almost unnecessary to point out that the pathological condition of the lung must determine the amount of pressure which may be exerted. Practically it will be found that the exhaustion of the pleural cavity may be carried much further than would be supposed possible without producing any sense of tension or discomfort, and, provided that the surface of the thorax is unaffected by the pressure of the cup, the apparatus can be worn without difficulty or constraint.

There are other uses to which this apparatus may be applied, in conjunction with the single drainage-tube: such as large abscesses of the abdomen, etc. I have omitted any reference to the various pathological conditions which are met with in empyema, and have avoided any depreciatory remarks on the ordinary surgical treatment of the disease. A careful consideration of several *post mortem* examinations, and the satisfactory results obtained in the cases of children in which I have used this method of treatment, leads me to introduce it at a meeting of the Association when the subject of paracentesis is to be especially discussed.

ON THE NATURAL HISTORY AND TREATMENT OF PLEURITIC EFFUSION.*

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THE question of the treatment of pleuritic effusion is so wrapped up in that of the natural history of pleurisy, that no apology is needed for bringing forward some figures bearing upon that point. The time at my disposal will, therefore, be chiefly taken up in so doing. The material is derived from the clinical records of Guy's Hospital for the last ten years; from those of the Evelina Hospital for Children for the last eight years; and from notes of my own out-patients at the latter institution. A total number of cases of pleurisy has been thus collected, amounting to three hundred and fifty-two. This is a large number, though it will be subsequently seen that, in reference to the operation of paracentesis, towards which my observations will be chiefly directed, it is not sufficient by any means for the purpose of settling the question of the treatment of pleurisy. It will, however, form a contribution towards that end, valuable because it is derived from an examination of all the cases admitted into our medical wards as cases of uncomplicated pleurisy. It is often, it hardly needs remark, difficult to say whether pleurisy is dependent upon some primary lung-disease or not, and some cases are of necessity included which were due to such an old-standing disease; but, as far as possible, any cases in which the history gave a fair indication of its presence have been excluded.

Of the whole number of cases,

Those in which there was evidence of lymph only amounted to	73
Those in which there was evidence of fluid	265
Cases of double and diaphragmatic inflammation	14

352

The 73 cases of plastic pleurisy need not detain us long: 39 were on the right side, 34 on the left; and the course of the disease appears to have been much the same on either side. The sex, and longest, shortest, and average duration of illness on the two sides are shown in the following table:

	Right.	Left.
Sex { Males	25	25
Females	14	9
Longest period of illness	13½ weeks.	13 weeks.†
Shortest	8 days.	8 days.
Average duration	6 weeks.	6½ weeks.

It may not at first sight be apparent what these details of dry pleurisy have to do with pleuritic effusion. They are given to show—a point that will come out better presently—how far the duration of illness, calculated from the onset of the disease to the discharge from the hospital, is lengthened by the absence or presence of effusion, slight, moderate, or extreme in amount. They also show that neither side has much advantage over the other in the duration of pleurisy, and probably not much in fatality.

The ages of attack, represented in decades, stand thus:

	Right.	Left.	Total.
Under 10	3	4	7
10 to 20	3	5	21
20 to 30	11	10	14
30 to 40	8	6	12
40 to 50	7	5	3
50 to 60	2	1	4
60 to 70	2	2	0
70 to 80	1	0	1
Not stated	2	—	—
	39	34	73

The thirty-nine cases on the *right* side show one death, a female child aged 2½, from extensive pericarditis with the pleurisy. One case, lasting thirteen weeks and a half, left with some falling in of the apex of the thorax—a point of very little significance in the prognosis in children, but perhaps of more serious import at the time of life at which it occurred in this instance, viz., nineteen years; and a man aged 28 was subsequently admitted with phthisis. On the *left* side, one of the patients was readmitted after eight months, for pain in the side and impaired respiration.

According to these figures, males appear to be attacked more than twice as often as females.

The temperatures recorded do not often show any high elevation. Many of them were normal: those not so, averaged 101 to 102 deg.; two rose to 104 and 105 deg.

In the remaining 265 cases, fluid formed; of these I shall speak in two groups, as serous and purulent. Serous effusion was present in the chest in 188 cases; 99 times on the right side, 89 on the left. Tabulated, they stand as follows:

	Right.	Left.
Sex { Male	82	62
Female	17	27
Longest period of illness	32 weeks.	61 weeks.
Shortest	3 weeks.	2 weeks.
Average, with slight effusion	9 weeks.	17 days.*
" moderate effusion	11 weeks.	8½ weeks.
" considerable or extreme effusion.	11½ weeks.	11½ weeks.

This contrasted with the former table of cases in which there was no effusion, this shows that the duration of the illness is somewhat in proportion to the amount of fluid present: when none was present, the average duration was six weeks; when a slight amount, nine weeks; when a moderate amount, eight and a half to eleven weeks; when much was present, eleven weeks and a half. Again, there is a great preponderance of males affected:

Age.	Right.	Left.	Total.
Under 10	20	23	43
10 to 20	22	14	36
20 to 30	20	26	46
30 to 40	13	14	27
40 to 50	16	5	21
50 to 60	3	5	8
60 to 70	2	0	2
Not stated	3	2	5
	99	89	188

As to the treatment of these cases and the results which followed, I have to say that paracentesis was performed on seventeen patients. The others were all treated either by counterirritation, the internal administration of iodide of potassium and diuretics, or by the restriction of fluid diet.

Taking the results as a whole first of all, and leaving the special consideration of those cases which were tapped till afterwards, we find that death occurred eleven times; a bad result thirty times. Forty-four disappeared from view in an ameliorated condition, but by no means well. The remainder, 103 cases, left well. Of those which are classed as relieved, it is but fair to state that the majority were far advanced towards recovery, but they left the hospital with some fluid still present.

Contrasting the affection on the two sides of the chest, we find—

	Right.	Left.
Deaths	6	5
Bad results	16	14
Relief	24	20
Well	53	50

This is in favour of disease on the left side. Paracentesis was performed eight times on the right side, nine times on the left.

It will now be necessary to go a little more into detail concerning those that died, those that did badly, and those that were tapped.

Of those that died, the following additional facts may be recorded.

1. A female child, a year and a half old, died after the incision of an empyema, which formed after twice removing serum from the chest by the aspirator. No other disease was found *post mortem*.

* Only two cases.

* Read in the Section of Medicine at the Annual Meeting of the British Medical Association in Manchester, August 1877.

† This excludes one case lasting thirty-four weeks—a time much out of proportion to all the other cases, and due to a previous cough, which could not be distinctly separated in time from the pleuritic attack.

2. A male adult had been very ill for five weeks with pain in the side, the dullness and evidence of fluid only reaching the angle of the scapula. Death took place, after $7\frac{1}{2}$ months' illness, from cerebral abscess associated with two abscesses in the right lung and chronic pleurisy on the left side. The lung on this side was in a peculiar condition. The pleura was not thickened at the apex, but the lung was riddled with smooth thin-walled cavities, communicating with each other and the bronchial tubes. Lower down, the pleura was one-third of an inch thick, the lung dense and broken up into smooth-walled cavities, but nothing that could be called tubercular was present. Now, in this case, two interpretations may be put upon the facts. It may be said that the pleurisy was dependent upon chronic phthisis; and in that case, supposing there had been signs of sufficient fluid, which there were not, it would have been of very little use to tap; or it may be said that the cavities described were dilated tubes dependent upon changes which ensued as the result of compression of part of the lung, and that the abscesses in the other lung were secondary to such compression, while the cerebral abscess followed at still later date. This is the view I myself am inclined to adopt; and, in that case, it may be a question whether early paracentesis might not have averted the ill result.

3. A man aged 20 died after six weeks' illness resulting from an injury to the chest. The fluid extended upwards to the sixth rib. The *post mortem* appearances were—compressed lung, chronic pneumonia, gangrene of the lung, and pneumothorax, with recent pleurisy on the other side.

This also is a case which may have been due to the pneumonia, or *vice versa*.

4. A girl aged 21, who had been ill three weeks, was admitted with extreme effusion. She was tapped at once; the other lung became cedematous, and she died within two days of her admission. The *post mortem* examination revealed simple pleurisy of the left side, the cavity still containing much fluid, and the lung being collapsed and airless, notwithstanding that fifty-five ounces had been withdrawn only about twenty-four hours before the patient's death. The lungs were in a peculiarly solid state on both sides, not pneumonic, but less bulky and less crepitant than normal. The bronchial tubes were red and velvety in the right lung. This was a case of acute oedema.

5. A boy aged 6 was suddenly taken with sickness and pain in the head. He died from tubercular meningitis and peritonitis, with his left chest full of fluid. Tapping would, of course, have done no good in this case beyond prolonging life for a few hours or days.

The other deaths were—one of extreme pleuritic effusion with chronic Bright's disease; one of double pleurisy with fluid on one side, pericarditis, and peritonitis; two of acute pleurisy with phthisis and peritoneal effusion; one of tubercular pleurisy and pulmonary embolism; and one of bronchitis with effusion.

Thus, of the whole number of deaths, only five are to be attributed directly to the effusion; in other words, only five could possibly have been prevented by tapping. The actual rate of mortality on the whole number of cases, not excluding any, is rather less than 6 per cent.; but the deduction of the six cases dying from other causes reduces this to the very small percentage of 2.6.

It may even be said, by those who are not favourable to paracentesis, that a still further reduction in the death-rate ought to be made, seeing that of the five deaths attributed to the pleurisy, the only two quite uncomplicated cases were tapped. In one, a child a year and a half old, the left pleura was aspirated twice, when the formation of offensive pus necessitated incision. The other died from oedema of the lungs. So much for the deaths. Thirty other cases gave a bad result, and I had drawn out a table giving some details of each, but time forbids my saying more than this, that the bad results include six cases which had, in all probability, some chronic pre-existing lung-disease. Four others were cases of intractable pleurisy in children, a condition which, in my experience, has almost always eventually been found to be purulent. Then, all cases are included which left the hospital with any considerable amount either of fluid in the chest or dullness and deficient respiration. (Dullness alone has not been considered sufficient evidence of the failure of the treatment, provided that the respiratory murmur was good.) It is probable that several of these recovered after they disappeared from view. If we take the whole number, 30, and add to that 11 deaths, we have 41 cases doing badly in a total of 188, or 21.8 per cent. But deducting, as I think we should do, at least the 10 cases just noted, 6 of old lung-disease, and 4 which were probably purulent effusion, and 6 of the 11 deaths for reasons previously given, we get a bad result in 13 per cent.

The paracentesis cases have not been excluded, except in so far as the operation was performed in any of the excepted cases. The recoveries give a percentage of 54.8 per cent. We will tabulate these

results, that they may be the better compared with those which follow the subjoined table of the results of the operation of paracentesis. (We may discard the fractions.)

	On all cases.	After certain deductions.
Deaths	6	3
Bad results (including deaths)	22	13
Recoveries	54	
Relief	24	

Table of Cases of Paracentesis.

No.	Sex.	Age.	Side.	Duration of Illness.	Operation.	Result.
1	M.	43	R.	22 weeks	Explored without result	Probable phthisis
2	M.	45	R.	31 "	Fluid withdrawn three times; 12, 5, and 41 pints	Absolute dullness below 4th rib; respiration diminished above, lost at base
3	M.	26	R.	5½ "	Aspiration of 6½ pts. on the 26th day of illness	Death from tubercular pleurisy & embolism
4	M.	43	R.	More than 7 weeks; exact duration uncertain	16½ ozs. withdrawn by a fine trocar	Probable phthisis. He died soon after leaving the hospital
5	M.	5	R.	6 or 7 weeks	Aspiration of 16 ozs., a few days after the onset of illness	Well
6	M.	8	R.	10 weeks	Aspiration after a month 22 ozs.	Well; some slight dullness
7	F.	11	R.	6 "	Aspiration on the 15th day, 44 ozs.	Some slight dullness; chest flattening; respiration good
8	F.	2½	R.	12 "	Paracentesis in 7th week; no result	Left the hospital with all the signs of much fluid present; but now, 3½ years later, she is quite well, and there is only the slightest subclavicular flattening
9	M.	8	L.	7 "	Aspiration of 13 ozs. on the 13th day	Chest refilled; but he got quite well
10	F.	28	L.	9½ "	Aspiration; no result	Respiration good; friction and dullness still present
11	M.	29	L.	7 or more weeks	Trocar used twice without result	Very slow subsidence of fluid
12	F.	38	L.	20 weeks	Aspiration, 50 ozs.	Evidence of fluid below 3rd rib
13	F.	19½	L.	8 "	Aspiration of 18 ozs. after a month.	Bad resonance; respiration good
14	M.	12	L.	16 "	Paracentesis twice in 4th week; no fluid reached either time	Slow retraction of the chest
15	F.	21	L.	3 "	Paracentesis at end of 3rd week; 55 ozs.	Death from oedema of lung & fluid in pleura
16	M.	6	L.	5 "	Aspiration of 20 ozs. on 10th day	Well
17	F.	5½	L.	3 "	Aspiration twice, not later than 3rd week, 6 ozs. and 4 ozs.	Effusion became purulent, and was incised; death in six weeks

Paracentesis was performed in seventeen cases in all with these results. In no fewer than five no fluid was withdrawn. Two of these died badly; the other three ran a rather long course, but recovered. In two, the operation cannot be said to have bettered the patients in any material way, for they left with much fluid in the chest. Six others did well; one of them, however, refilled after paracentesis, and the fluid subsided under the use of counterirritation. Four died: one from the formation of an empyema after the aspiration; two of tubercular disease; one of oedema of the lung. These figures give a percentage of recoveries of 53, a percentage of deaths 24; a death-rate much higher, and a recovery-rate nearly the same as on all cases taken together. The average duration of those that did well was nine weeks. This, with a chest full of fluid, is certainly a quick recovery, for it will be remembered that eleven or twelve weeks is about the average for any case with a considerable amount of fluid in the chest. But it must be borne in mind that the ages of these six patients were as follow—5, 8, 11, 19½, 6; five out of six children, and three of these quite acute cases, without any remarkably urgent symptoms.

I should have preferred to leave these figures as they stand, a contribution towards the natural history of pleurisy, and to have drawn no conclusions from them as to the merits of the treatment by paracentesis. It is obvious that the number of cases, though large, is not sufficient to form any reliable opinion. But the purposes of discussion will best be served by giving, by way of a summary, a provisional opinion; merely, however, as a resting-point for action till further light shall come.

1. It seems that the duration of the illness extends somewhat in proportion to the amount of fluid in the chest. It might at first sight appear that, if this be so, a strong argument is thereby afforded in favour of early paracentesis. But a moment's consideration will show that the amount

of fluid may be important or not, according as it is the index which depicts an intractable or severe form of disease. Trousseau makes this remark, and there is indeed every reason for thinking that this is the case, because these cases show, and the experience of every one will add to them, examples of rapid absorption of even extreme effusions. A quantity of fluid, therefore, *per se*, is no bar to a quick recovery.

2. The cases which gave the most satisfactory results by paracentesis were recent cases, and there is no evidence that I can see which goes to show that they would not have done equally well if they had not been tapped.

3. If, as I suppose, the chronic cases owe their chronicity not altogether or chiefly to the presence of fluid, their treatment may be expected to yield no definitely good results by the withdrawal of the fluid; and this does seem to be the case in several instances.

The late Dr. Anstie thought and wrote that the early evacuation of serous effusions averted a subsequent development of tubercle. I do not doubt that a person otherwise unhealthy, with pleuritic effusion, is, *pro tanto*, in a worse condition, and more likely to go wrong in many ways; but I do not see there is any evidence to show that a tuberculosis often originates in the focus of inflammation embraced by a simple pleurisy. There may be, and I think is, some evidence of its starting from an empyema. But, supposing Dr. Anstie to have been right in his assertion, it would not hold with regard to these cases; for it would surely be inverting the probable sequence of things to suppose that, with a history or the changes of old phthisis, the pleurisy was the primary disease. In the only case in which the tubercular disease was in any sense recent, paracentesis was performed on the eighteenth day, comparatively early in the disease; and I do not at all think it likely that the tubercular outbreak was secondary.

As far, then, as one can form an opinion, I do not think there is any sufficient evidence in favour of the necessity or utility of paracentesis as a remedial agent in any large number of cases of simple serous pleuritic effusion; and, if one may venture to differ from so high an authority, I would say that I do not yet feel disposed to agree with Dr. Anstie in his dictum that paracentesis "must become an everyday remedy for cases where an effusion, purulent or not (the italics are my own), lingers for more than a very limited period". The remedies which he almost despises, as counterirritants and diuretics, I still believe in. It was in cases of effusion with great displacement of the viscera, and the patient not improving, or going from bad to worse, that Trousseau obtained such good results by paracentesis; and for such, or for the relief of any urgent symptoms, or to avert impending death, the uses of the operation are so obvious and so imperatively called for as to be quite beyond question.

I must now turn from cases of serous effusion to those in which the chest contained pus. Of these, there are seventy-seven; forty-six males and thirty-one females. Thirty-four of them died. Of the forty-three others, all that can be said of twenty-seven is that they did not die. The result was bad in at least that number; and several of them were still discharging pus daily when last seen. It is true, Dr. Anstie says, that a single fistulous opening is merely to be looked upon as an unpleasant fact which will disappear in a certain number of months or years, but there is a wonderful background of amyloid degeneration and chronic disease of the lung, which supervene sufficiently often, to justify a discharging fistula in ranking as a bad result. The actual mortality of empyema thus reaches 44 per cent., and a bad result occurred in 79 per cent. The cases are apportioned to the different ages as follows:

	Fatal.	Non-Fatal.	Total.
10 and under	17	24	41
10 to 20	3	9	12
20 to 30	9	7	16
30 to 40	5	3	8
	34	43	77

The left side was affected in fifty cases, the right in the remainder: twenty-seven.* Of the fatal cases, seventeen were on the left side, and fifteen on the right side; one was double. The mortality is considerably higher by these figures on the right side, 59 per cent., than on the left, where it is only 36 per cent. Dividing the cases into two groups, of those under and those above twenty, the mortality is 38 per cent. in the former, 58 per cent. in the latter. Children are said to do better than adults, not only because the disease is more often uncomplicated, but from their more favourable age. But I do not think the lessened risk under twenty applies to children under two or three years of age. I have seen ten cases at two years and under, and eight of these have died. The youngest under my own care was four and a half months old. The cause of death, when not due directly to the

empyema or the discharge therefrom, has been tubercle in six cases, or about 18 per cent. of all the deaths; other lung disease in seven cases; double pleurisy in three cases; pericarditis, peritonitis, cerebral abscess, renal disease, or diarrhoea in seven others. The average duration of the illness, dating from its onset to discharge from the hospital, was in thirty-eight cases in which it was possible in some way to fix it, twenty-six weeks. This is sufficient to show how much more severe is *empyema* than *serous* effusion in the pleura, although from the fact that several of the cases left off treatment when the side was still discharging, this period is under the mark. Six cases lasted under ten weeks, fourteen under twenty weeks, and the rest various periods over this. The average duration of the fatal cases was six weeks.

Now with reference to the value of the various forms of treatment in empyema, it will be well to note at the onset the objection that the very existence of pus in the chest is in many cases one of the strongest arguments in favour of early tapping in *serous* effusions. There is no doubt that empyemata seldom come under treatment in hospital practice for some weeks after the onset of the illness, and it is quite possible that a serous effusion may have become in this time converted into a purulent one. But I doubt whether it is often so, because, first, the majority of these cases occur in children in whom there appears to be a liability on the part of the pleura to form pus; secondly, pus can be shown to form very rapidly; in one case I have seen a chest probably filled with pus in four days; and, lastly, the clinical symptoms of its formation, if looked for, are generally distinctive enough. Putting aside this preliminary objection as less generally applicable to empyema than has been supposed, the treatment of pus in the chest may be best considered under the following heads: 1. Cases which do not open externally; 2. Cases treated by aspiration; 3. Cases treated by paracentesis; 4. Cases treated by simple drainage; 5. Cases treated by subaqueous drainage; 6. Cases which open externally spontaneously; 7. Cases which are incised at the seat of election. The seventy-seven cases are apportioned to the various methods thus:

	Recoveries.	Deaths.
1. Not opening externally	4	11
2. Aspiration	0	2
3. Paracentesis	3	2
4. Drainage (simple)	1	0
5. " (subaqueous)	18	13
6. Spontaneously opening	11	0
7. Incision	6	6
	43	34

To take these in order, there is no doubt that an empyema occasionally recovers without any external aperture. This is proved by the clinical symptoms of many cases, notes of some of which are before me, and also by *post mortem* evidence; but it is, I think, very doubtful whether such cases are not local abscesses in a part of the pleura and not general or full effusions. I doubt whether the latter condition recovers unaided, except by opening externally or through the lung. The figures just given do not help much towards a decision of what cases may be left to nature or what is the risk run in so doing, for the fifteen cases (four recoveries and eleven deaths) under the head of cases not opening externally include dissimilars. Two of the four cases which recovered were by no means acute cases. The eleven fatal cases, on the other hand, include five of acute empyema, involving the whole of one pleural cavity, two of lung disease in addition to the pus in the cavity, one of tuberculosis, and one of pyæmia. But did time permit, several of the cases would show that, if empyema do occasionally get well spontaneously, there is, nevertheless, considerable risk, both immediate and remote, in leaving it to take its chance; immediate, because the lung is in considerable risk of undergoing secondary inflammatory changes; remote, because many recent observations go to show that local foci of chronic suppuration are liable to spread tuberculosis. Nor is this all; my cases include some which show that the risk of fever and septicæmia, which attaches to pus in other regions, is not absent here; and two cases, at least, have died, as far as microscopic appearances can decide the question, from no other cause than the presence of a by no means extreme amount of pus in one pleural cavity.

At this point, then, we shift our ground from the consideration, which has occupied us hitherto, both for serous and purulent effusions, of whether an operation is necessary for their cure, to the discussion of what operation is the best. In the case of pus in the chest, I believe that some form or other of surgical interference is generally necessary.

Simple aspiration has been used eight times. Three of the cases ultimately did well; but in one, incision was necessary; in another, a counter-opening and drainage; in a third, syphon-drainage and in-

* This is just the reverse of serous effusions, in which the right side showed a small preponderance. I should doubt whether, in a large number of cases, one side is affected much more often than the other.

* These details are abridged from a paper on Empyema in the *Guy's Hospital Reports*, 1877.

cision. Five cases died; two without any other measures being adopted, and three after subsequent incision. It is important to add, that of the five deaths two were cases of *serous* effusion at first. In all the cases, therefore, aspiration failed to cure. Aspiration is exceedingly useful in some cases as a means of temporary relief; in others, as a means of permanent benefit by allowing of contraction of the abscess sac and expansion of the lung; in all cases, for purposes of exploration; but I have seen no case of cure through its agency alone. At the same time, one cannot ignore the fact that others have obtained much success and cure by means of it. This has notably been the case with Dr. Bowditch of Boston. Notwithstanding, I wish to say that aspiration is not so successful, or simple, or harmless, as some would have us imagine; at least, this is so in its application to children. The pus is often very thick and will not run; at others, there are loculi formed by adhesions and the chest is not drained; at others, undue suction is exercised upon the lung, and air is drawn into the pleura through the weakened pulmonary wall. It is possible that in the latter way, the operation has helped to convert a serous into a purulent effusion: a matter of no slight importance.

Simple paracentesis was practised in eleven cases. Eight required subsequent drainage by other means; in another, a fistula formed; and one left the hospital with fluid still in the pleura. Four of the cases died; one of tuberculosis, one of diarrhoea (amyloid disease), one of pneumonia, and the cause of death in one is not stated. This is an operation which ranks with aspiration in its action, and some think highly of it as a curative agent, but I should say the same with regard to it as to the other: it is but seldom that a cure results. Now this is one of the points to which I would especially direct the attention of the meeting, and I make this somewhat dogmatic statement because I wish to bring out, if there be such, figures which tend in any way to show that simple tapping cures empyema sufficiently often to allow its use in the face of certain risks. Some say that though not likely to be followed by a cure in adults, simple paracentesis and aspiration are successful in childhood. That statement was made in one of the medical journals the other day. Will any one give us some facts on this point? I must confess to being biassed on this question by a former surgical experience. It has always seemed to me that, putting aside the special case of empyema, a very unfavourable one for a cure, and taking that of acute or chronic abscesses in the extremities or external parts, there is but a small amount of evidence in favour of abscesses disappearing after tapping alone; they require subsequent incision. If this be so with superficial abscesses, where all is in favour of the apposition of the abscess-walls, and many other points can be attended to, *à fortiori* must we expect that the same treatment will fail in the case of empyema.

The aspirator or trocar is also, I believe, useful in coaxing the pus to point spontaneously. Cases which point thus without interference seem to run less risk than others in which it is necessary. Eleven cases are found in our seventy-seven, and no death. It is true that only one cure was effected, a fistula remaining in the others. Still, a certain proportion of these recover after a time, and, any way, a fistula is better than death. It is not easy to say why cases which point of their own accord are less fatal than others, but I believe it is because the pus finds a free exit without admitting air to the pleural cavity. In most cases, treated surgically, the pus becomes offensive sooner or later, and in so doing, adds immensely to the risk. This is a point which is strongly suggestive.

Lastly, we have to examine three methods of treatment which profess to drain the chest completely. These are subaqueous or syphon drainage; drainage without any precautions for excluding air; and free incision of the chest.

The advantages of the *syphon* plan are obvious. It is simple in performance; needs no cutting; the soft India-rubber tube is so well tolerated by the skin and soft tissues that, under favourable conditions inside the chest, pus can be drained away for weeks without any decomposition; while, if it be thought advisable to apply any local stimulant to the pleura or to wash out the chest, either can be done most readily. Then what do figures say upon it?

The number of cases treated was	31
Cases drained thoroughly	7
The drainage failed more or less in	18
A fistula formed subsequently in	2
Deaths from complications shortly after the operation	3
Doubtful	1

The eighteen cases of imperfect drainage include several which ultimately did well; though, as far as can be seen, the result cannot be attributed to the method of syphon drainage. Thirteen died; but of these, three may be deducted as succumbing to causes independent of the present inquiry. Thus there is a mortality of ten in a total of twenty-eight, or 35.7 per cent. This death-rate is not higher than

that given by others as the rate for all cases of empyema taken together. But since the operation in question is not successful in the performance of drainage, it might reasonably be hoped that any plan working better would lead to more favourable results. The reasons of its failure are chiefly those which tell against aspiration, paracentesis, or even incision, viz., that the pus is often curdy and will not run, and that adhesions form and subdivide the cavity to be drained. Under these circumstances, it is difficult to drain the chest by any method.

Incision embraces twenty-four cases; seven recoveries, six with a fistula remaining, three with chronic lung-disease, and eight deaths. This gives a mortality of about 33 per cent. This is no great improvement upon the syphon plan, notwithstanding that there would seem to be more likelihood of its accomplishing complete drainage. That it has not produced better results is, I believe, in large measure due to a want of care in making the aperture in the chest as low as possible, and then, too, one is apt to assume, when the incision has been made, that the aperture is necessarily free enough. The approximation of the ribs, however, reduces even a large external opening to quite small dimensions, and it is generally necessary to have some short drainage-tube placed between the ribs. Then there is the atmospheric difficulty, the barrel requiring a vent-peg before the fluid will flow from the tap. It was to avoid this trouble that the original drainage plan of Dr. Morgan was adopted, that of an opening and counter-opening, a tube being passed in at one point and out at the other. This is still looked upon by many as a good method of treatment, and it is, I believe, from what I have seen, a really effective mode of drainage. Our records give no numerical results sufficient to enable one to say much upon its value. It has only been practised five times, with three recoveries and two deaths; but I think it an objectionable feature of this plan that there must be a tube inside the chest for a long time, and quite as free drainage may be ensured by one incision and the insertion of a short tube. This is the plan that I should now usually adopt; but occasionally no plan seems to be successful, and it becomes necessary, as some foreign writers and my colleagues Dr. Frederick Taylor, Mr. Howse, and Mr. Bryant, have found, to saw across and remove a piece of the rib to secure a sufficient outlet for the pus. In all cases of incision, it is better to operate and to dress the wound antiseptically.

Incision of the chest has one great drawback when practised in large effusions, viz., that it somewhat suddenly disturbs the intrathoracic tension by the withdrawal of the fluid, and may lead to urgent and alarming dyspnoea. This has happened in two or three, not more, of our cases. To obviate this, it will perhaps be better to do as Dr. Frederick Taylor advises, viz., remove the pus gradually by the syphon drainage for a few days, and then incise the chest at the end of that time at the seat of the puncture. In the case of a small or localised empyema, incision, if necessary at all, may be practised at once.

ON THE SKIN-AFFECTION LATELY DESCRIBED AS "DYSIDROSIS".

By TILBURY FOX, M.D., F.R.C.P.,

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DR. THIN contributes to the BRITISH MEDICAL JOURNAL of December 1st a paper on "Dysidrosis"; and as in that paper he seeks, by the aid of certain statements recently published by Dr. Robinson of New York in the American *Archives of Dermatology*, to show that there is no disease exactly such as I have described under the term dysidrosis, I should be glad to point out very briefly wherein both he and Dr. Robinson are in error.

Firstly, my difference with Mr. Hutchinson—the resuscitation of which I much regret—was not so much upon the question of mere priority in observation, or even of publication, as of a complete ignoring by Mr. Hutchinson, in his first publication upon the subject of Dysidrosis, of what I had written *three years previously*; and this notwithstanding the fact that I had been in correspondence with Mr. Hutchinson on the subject some time before the appearance of his first publication about the disease, and that his attention had been otherwise called to my original papers. Mr. Hutchinson in 1876 ignored what I had written in 1873; and he has candidly admitted to me that he never read my papers, though he intended to do so. Besides, if Mr. Hutchinson's account of the disease be true—viz., that it is a pemphigus—there is really no novelty about the matter, for pemphigus of the fingers has been known and described for any number of years past. The novelty consists in my assertion as to