Thesis.

Empyema, with notes on a series of cases.

by

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The name Empyema (ἐν πύον)
which was originally used to
denote any internal collection of
pus, is now restricted to pus in
the pleural cavity - It is also
called Pyothorax, Purulent Pleurisy,
and Suppurative Pleurisy, and has
been diagnosed since the time of
Hippocrates -
In the majority of cases Empyemata
occur in the course of a simple
pleurisy - the liquid first thrown
out being clear, and afterwards
becoming cloudy and then more
and more opaque and purulent
owing to pus being freely secreted
and becoming mixed with the
serous effusion, some constitution-
-al cause being as a rule
the reason of this change -
That in some cases however the
fluid has from the first the
appearance and composition of

pus is asserted by Dr. Wilson Fox (B.M.J. 1877). who thinks that in a great number of cases of pleurisy where suppuration occurs it does so "ab initio" and that its occurrence depends on the character of the inflammation, and that it does not result from a slow and gradual change of a fluid in the first instance serous. This has also been demonstrated by Moutard Martin of Paris (Pleurisie Purulent 1872) from post mortem examination of women who have died in childbed from suppurative pleurisies. Dr. Coats points out that in such cases there has usually been some specially virulent irritant present in the pleura, as where a metastatic abscess has approached the pleura, or where pleurisy is one of the phenomena of septicaemia. Fraentzel (Ziemssens Encly) however regards

it as an established fact that primary purulence is of extremely rare occurrence. of this view however Goodhart inclines to be doubtful The causes of Empyemata are both Local and General. Among the former being wounds of the chest; fracture or caries of ribs, abscess of wall of chest, effusion of blood, pulmonary gangrene, rupture of cavities, and other injuries of adjacent organs, especially where pus has been discharged into the cavity — Paracentesis Thoracis has been accused of being a cause, and by Wilson Fox it is considered that in the great majority of cases where purulence has followed tapping the operation must be blamed for it. This view is supported by Dr. Stokes of Dublin. while it is altogether rejected by Trousseau —
By the older methods of aspiration

such may have been the case, but since the introduction of more improved instruments, it is a question if such a small puncture and the complete exclusion of air, when the operation is carefully performed, can be accused of producing such results—

Among the general causes may be mentioned the eruptive fevers, measles, small pox, and especially scarlet fever. When pleurisies occur in the course of these diseases, and they often do, they are generally purulent in character— Puerperal pleurisies are also frequently purulent, as well as those occurring in people run down by ill health, over-work or alcoholic excess. Millon-Fagge says rheumatic pleurisy is never, and renal pleurisy rarely purulent.

In treating of the pathology of

empyema, it seems advisable to touch on that of simple pleurisy which is so generally present in the initial stage of the more formidable disease.

In acute pleurisy there is first a hyperaemia of the serous membrane and subserous connective tissue, followed in the course of a day or two by an effusion of lymph which forms a thin layer over the surface of the pleura, and which may be easily peeled off, when the serous membrane is seen to be highly vascular. Along with the lymph a considerable quantity of serum may be poured out. Owing to the deposit of fibrinous lymph the pleura is thickened and loses its transparency.

Under the microscope it is seen that the epithelium cells are

swollen, greatly increased in number, and detached in large quantities, while the connective tissue is loaded with liquid in which are seen increased quantities of leucocytes - The granulations covering the pleura are invaded by new blood vessels from those belonging to the subserous tissue, and are thus capable of being organized and converted into tissue analogous to the cicatrix, and it is this tissue which forms the bands which unite the parietal to the visceral pleura - The adhesions being caused by contact and union of vegitations on the two opposed layers of pleura -

When a simple effusion becomes purulent, a layer is formed over the pleura similar to the wall of an abscess, and the contained matter has a greater or less number

of leucocytes, according to the quantity of pus mixed with the serous fluid. It may be thin or thick containing heavy flocculi, and varies in colour from mere opalescence to gray the quantity ranging from a few ounces to several quarts. As a rule it has no smell, but may become extremely fœtid when it has been in contact with the air.

As the chest becomes filled with fluid the lung is compressed, and if non-adherent contracts occupying the hollow formed by the angle of the ribs at the back of the chest.

It is a question if the purulent matter is ever absorbed, in the course of time it either tends to the death of the patient, altho. if it is in very small quantity

or circumscribed it may possibly remain inert for a considerable period" or else it attempts a natural cure by making its way out, which it generally does either through the external parietes or through the lung – In the former case the spot at which it points is not usually the one most favorable for tapping, but usually, according to Mr. Marshall (L. 82) the 5th space below the nipple. These modes of spontaneous cure were known to the ancients – although their views as to the pathology were of necessity very meagre and indefinite – discharge through a bronchus being noted by Hippocrates when he wrote "Those in whom a pleurisy ends in suppuration, may be cured if they bring up the matter within 40 days from rupture into the pleura" and such a termination

was in these early times, and for long after, looked on as the most hopeful that could be anticipated, for the condition was regarded as so necessarily fatal and the prognosis so grave, that surgeons despairing of success, only resorted to operation in the last extremity.

When the abscess bursts it may discharge for a long time through the fistulous opening, and should recovery take place there is generally considerable deformity from the falling in of the chest.

Should the discharge take place through the lung the opening is generally into a bronchial tube when the matter is spit up through this opening air may enter the pleural cavity when we have a condition known as Pyopneumothorax and under these circumstances the

pus may become of the most offensive character—
The physical signs are practically the same whatever the nature of the fluid may be, and it is a question if we can determine from them whether in a case of pleurisy the effusion is serous or purulent. Dr Wilks in the British Medical journal of 1/79 says "If under any circumstance whatever of an inflammatory attack in the chest, there result localized dulness with absence of breath sounds, and perhaps tubular breathing, an empyema may be safely expected". but I do not fancy many would care to rest their diagnosis on these signs alone One of the chief indications of pus is a continued high evening temperature, frequently hectic in type, after the first 2 or 3 weeks.

Oedema of the affected side is said to be a sign, but is not always present, and in a case mentioned by Traube where oedema was observed, the fluid on being withdrawn was found to be fibrino-serous -

The signs are therefore - enlargement of the affected side, and impairment of movement with widening or bulging of the inter-costal spaces, and displacement of thoracic and abdominal organs along with the results of auscultation and percussion - These signs of course depending greatly on the amount of effusion, being more marked as the fluid increases - When this, according to Frantzel reaches as high as the 3rd rib, or in some cases not so high, the apex beat becomes affected, the displacement being to the

right or left according to which side of the chest is involved, and being greater and more obvious when the effusion is on the latter side - Sometimes the cardiac sounds are altered, a Ventricular Systolic murmur being noted over the aorta in one instance by Dr. Hope, while in another case noted by Dr. Walshe there was a blowing murmur for several days with [illegible] sound of the heart -
Other displacements are those of the diaphragm, liver, and spleen, these organs being pushed down -
Auscultation does not give much assistance, as the signs vary much The breathsounds may be feeble, indistinct, or absent, while in other cases they may be distinctly tubular in character.

Percussion gives one of the chief indications of fluid, the note being early altered, usually at the base, although a circumscribed collection of serum (or pus) may cause dulness in any part of the chest. If the collection of fluid be small however it may not be detected.

The dulness of effusion differs from that of consolidation in being much more absolute, and in imparting a much greater sense of resistence.

The area of dulness depends on the amount of effusion present, and also to some extent on the habitual position of the patient.

If the fluid is considerable, the whole of the chest may be dull except, as was first pointed out by Skoda, in some instances immediately below the clavicle in front, and perhaps over the first 3 or 4 ribs the percussion note may be hyper-resonant. Various reasons have been ascribed to account

for this phenomenon, German writers putting it down to relaxation of the pulmonary tissue - Dr. Walshe to the presence of air in the minute tubes within the lungs, and Dr. Bristowe to diminution of the vibrating area formed by the chest walls -

Vocal fremitus is diminished or absent and is a very important sign in diagnosis - Vocal resonance is much less reliable, and varies greatly in different cases -

There is one method of diagnosis we now have at our command for clearing up any doubt as to the presence of fluid in the pleural cavity, or as to what the nature of that fluid may be, namely by an exploratory puncture with a hypodermic needle, and of this we ought always to avail ourselves if there is any uncertainty in our minds as to the nature of the case -

The prognosis in cases of Empyema depends to a great extent on the cause and chronicity of the case, and on the age and constitution of the patient. In a healthy child where a serous effusion has become purulent we expect the best results. The lung in many cases re-expanding and recovering completely after free incision and drainage. In healthy adults cure although the rule is not often so perfect. While in cases following scarlet fever and child-birth, or occurring in tubercular or debilitated subjects, or in those advanced in years the prognosis is necessarily more grave.

Operation for the treatment of Empyema although one of the oldest in surgery was until recently so unsatisfactory in its results, septic fever, and prolonged suppuration from imperfect drainage usually bringing about a fatal termin-

ation, that it was only resorted to as a last resource. Dupuytren only knew paracentesis succeed twice in fifty cases, while Sir Astley Cooper only knew one successful case — Now, thanks to drainage and anti-septics we are hopeful of cure and look for good results from operative interference, without which there is small chance of recovery. When once the presence of pus is assured there should be no delay. The longer treatment is postponed the greater is the risk of the lung being bound down by adhesions, and the less the hope of its expansion — Besides if a way of escape is not afforded, the pus may burrow beyond the limits of the pleural cavity and find its way down to the iliac region, or more rarely into the abdominal cavity (Erichsen). These cases should according to

Godlee, be left alone, which, occurring in the course of chronic phthisis, are not a source of inconvenience to the patient. That death in these instances is hastened by operation has been demonstrated by Wilson Fox. Again when an empyema is being expectorated, and there is no tubercular disease, it should be left alone for a time, as a certain number of cases cure spontaneously, but it is not advisable to delay very long unless there are signs of improvement, and the same remarks apply where pus has found its way into other cavities.

The operations for the relief of Empyema are

Aspiration (Paracentesis Thoracis)
Incision (Thoracotomy)
Estlanders Operation (Thorocoplasty).

In a certain small number of cases empyema may be cured by simple aspiration, and Erichsen

advises this being attempted before opening the pleura by external incision - Cases are recorded where recovery has taken place after frequent tappings - Dr Barnes mentions a case (B.M.J./77) where a patient of 19 recovered after four aspirations of large quantities - and Dupuytren cured a patient after no less than 73 operations - In general however re-accumulation takes place, and in most cases cure would be quite as rapid with incision, which after much loss of time has generally to be resorted to in the end -

Of course incision is a more serious operation with more risk attending it. and the proper line of treatment is still a matter of controversy - At the debate on Empyema at the German medical Congress at Vienna in 1890 a number

of speakers were against incision preferring drainage by syphon. aspiration as advocated some years ago by Dr Bulau of Hamburg. The majority however were against delayed incision, while all were in favour of prompt interference. Probably the best line of treatment is that recommended by Godlee, namely to aspirate in the first instance, and should signs of improvement set in, e.g. fall of temperature, and slow re-accumulation of a more serous fluid the operation may be repeated with hopes of success. If on the other hand the relief is slight and temporary. re-accumulation being rapid, and pus as thick as ever, it is advisable to proceed at once to operate, as the longer the delay with repeated aspirations the less chance is there of perfect

ucovery-
Various spots at which to puncture the chest have been recommended by different Authorities. Some selecting the 5th space on the left side or the 4th on the right about 2 inches outside the Pectoralis Major, while others prefer the 6th or 7th space just in front of the posterior fold of the axilla - While a favourite place with a great number is the 8th or 9th space just external to the angle of the Scapula. This latter being the spot I have most frequently seen chosen, and the one I have always preferred myself. A trocar and cannula or any of the numerous forms of aspirator may be used, care being taken to render the instrument thoroughly aseptic. In the method already spoken of as advocated by Bülau, he inserts a wide trocar and cannula between

two of the lower ribs, withdraws the trocar, and passes into the pleural cavity through the cannula, a full sized rubber drainage tube, this is fastened in situ and connected with a piece of glass drainage tube to a long piece of indiarubber tubing whose end lies in a vessel containing an antiseptic solution. The cannula is then pulled over the tubing and removed, the contents being slowly and painlessly syphoned off without the danger of the admission of air.

Caution must be observed in piercing the chest to keep close to the upper border of the rib, and direct the trocar slightly downwards so as to avoid the risk of injury to the intercostal artery.

As much pus should be got away as possible, as long as the withdrawal does not cause serious embarrassment

and the opening should be closed by a pad of carbolized lint or other simple dressing secured by strapping –

In the vast majority of cases re-accumulation takes place, when a second aspiration may be tried, with the result that the fluid again collects, and in these circumstances the best thing is to make a free incision. Some men are inclined to try further tappings, although by so doing they are giving the patient a much worse chance when, as is almost inevitable, opening the chest has to be resorted to –

Incision or Thoracotomy consists in opening and draining the suppurating pleural cavity, and is in no way different to the treatment of an ordinary collection of pus elsewhere –

There is considerable difference of

opinion among surgeons about the most suitable site for incision.
If there is any evidence of pointing the opening should be made at that spot - and this, as pointed out by Marshall is most frequently the 5th space in front external to the cartilage, and he accordingly advocated that the opening should be made there whether pointing had occurred or not.
In the case of localized empyemas the opening must be made where the pus is found, even though a second may be necessary to secure complete drainage.
Erichsen recommends the 5th space 1 to 1½ inches in front of the mid-axillary line, because at that part the interspaces are wider and a larger tube can be inserted, and the muscles there are not thick, and further that as the lung as it ex-

-pands first comes in contact with the back part of the chest there is less chance of the opening being obstructed -
The 6th or 7th space in front of the posterior axillary fold is preferred by some - but the spot most usually selected is the 8th or 9th space below or a little outside the angle of the scapula - This is the place recommended by Godlee and advised by Reeves, the argu-
-ments against its adoption being the closeness of the ribs to one another, and the consequent difficulty sometimes ex-
-perienced in inserting a tube of sufficient size without resecting a portion of rib - the thickness of the muscles in that region necessitating a deeper incision, with more resulting discomfort - that as the patient often lies on the affected side and not on his back the discharge does not get

freely away, and that owing to the lung in expanding coming first in contact with the chest wall behind drainage may be interfered with.
I have never seen difficulty arise from any of these causes, and do not fancy they can be very serious, or the spot would not be one so frequently selected for the operation.
Having decided where the incision is to be made, we must see that the skin is thoroughly cleansed and aseptic, and if an anaesthetic is used chloroform is the best. In the Medical Times and Gazette for 75 Dr Bowditch mentions 5 cases in which ether was administered for paracentesis, 2 of which died immediately after the operation, another was only revived after the most energetic treatment, while in the other two the anaesthetic was abandoned before the operation was completed.

The patient having been brought close to the edge of the bed, and the arm raised to a right angle but no farther on account of the displacement of the skin, any such displacement being noted, and allowed for, so that the incision may afterwards correspond with the opening into the pleura and not be oblique. The opening should be from 1½ to 2½ inches in length and parallel to the upper border of the rib, and after the first incision the left forefinger should be used as a guide in cutting through the intercostal muscles and opening the pleura, so that by keeping close to the upper edge of the rib injury to the intercostal artery may be avoided. After puncturing the pleura the opening may be enlarged by means of the fingers or dressing forceps, and the abscess cavity explored and any thick curdy material removed.

resection of part of a rib may be sometimes necessary, when the inter-costal spaces are so narrow that efficient drainage cannot be got. Godlee often resects, considering that he can get better drainage, and can explore the cavity with his finger and can break down any adhesions and so open up up other loculi, and clear out any curdy material. this was his practice in 2/3rds of the cases of children reported by him in the Lancet of 86. With Goodhart on the other hand resection is the exception, he only have done it three times in 45 cases, and then only because they were of old standing and there was no room to put in the drainage tube (B. M. J. 84).

Washing out the chest, although still practiced by some, was much more in vogue at one time than now, as evidenced by numerous letters and

articles in its favour in the medical journals about 12 years ago, the sudden deaths that have occurred from the use of even the mildest injections, (simple water in one instance being the fluid used) determining most men from resorting to them, especially as the innumerable good results obtained without irrigation show that the treatment is not essential.

One case of such sudden death occurred in Guy Hospital in 1874, in which the agent employed was carbolic acid. Dr. Caley reports another in 1876 in which iodine was being used. While Dr. Godlee refers to one which took place in University College Hospital. while still another is reported in the Lancet 1886 by Dr. Daache of Norway where the patient died after a 7th injection of a 3% solution of peroxide of Hydrogen, no ill effects having been experienced after the previous 6 injections.

Injections may be used for two objects to diminish fetor and to stimulate the granulations, and it was for this latter object they were being used in the fatal case with Dr Leache alone referred to. Godlee however conceives that they are utterly imaginative and futile, and indeed rather tend to break down and destroy the granulations than to encourage them to increased activity. In regard to the first object however injections are no doubt useful, and indeed even essential to the comfort of the patient in cases where the cavity remains unclosed and the system is being poisoned by the putrid discharge.

Treves advises that when the discharge has subsided a little, and especially if the escaping matter is offensive, the cavity may be washed out once or twice a day with a weak antiseptic solution such as 1-8000 of perchloride of Mercury

1-1000 of Iodine. or a cold saturated solution of boracic acid heated to blood heat.

In the discussion at the Germans medical congress in 1889. there were few of those who practiced incision and suction who thought it needful or wise to use injections.

A series of cases are recorded in the Lancet 1889 which were treated by injections of iodoform emulsion with rapid cure the tube being left out in from 8 to 14 days. It is a question however if they might not have done quite as well without the emulsion, the tube being simply left out at the same early date. Various tubes made of rubber, vulcanite, metal or celluloid are in use. They should be large and not too rigid, and should not be inserted far inside the cavity as they only cause irritation, and no

object is served by a long tube. Care must be taken to guard against its slipping into the pleural cavity and being lost, and various devices have been invented to prevent the accident.

The skin having been cleaned and the wound dusted with iodoform any good absorbent dressing may be applied, care being taken that it is plentiful in quantity or the discharge will soon soak through, and it must, at least at first, be changed frequently.

It is not easy to say at what time the tube should be removed, as the discharge lessens it may be shortened from time to time, when in the end it is often forced out by the granulations. Goodhart recommends that in a week or ten days it be shortened so that it is just long enough to pass in

between the ribs and no more-than allowing simply for continued patency and nothing else.
Every case must however be decided on its own merits, and no hard and fast rule can be laid down In children the wound may be allowed to close in about a month, especially if the opening has been made early, while in adults owing to the greater rigidity of the chest, and less perfect ex-pansion of lung, a much longer time may be necessary before the cavity is closed. While at times long sinuses troublesome to heal are left.
It is important to allow the patient to get up as soon as his general health will permit, as the chest will thus have a better chance of being expanded.
The results of the operation are

now as encouraging as they were formerly discouraging - especially is this so in healthy children, while even in adults we see cases recovering again and again, without any resulting deformity.

In certain cases in spite of long continued and free drainage no healing occurs, the cavity remaining unobliterated. the lung lying unexpanded after the chest wall has contracted to its utmost and the diaphragm risen to its fullest extent, so that there is little hope of its ever closing by the slow and exhaustive process of granulation. In these circumstances nothing remains but the performance of a plastic operation, with a view to obliterate the cavity, and this is done by cutting away the whole rigid part of the cavity wall, and so allowing the parts to approximate. This

being known by the name of Estlander's operation.

That a cure may be effected after incision it is necessary that the cavity be obliterated and before this can take place the visceral and parietal layers of the pleura must come together. This result being brought about by the expansion of the lung, the rising of the diaphragm, the falling in of the chest wall and other consequential deformities. The lung, which, unless previously adherent to the chest wall has been compressed by the fluid into the hollow formed by the angle of the ribs at the back of the chest, in general re-expands to some extent, this expansion being assisted by the contraction of any bands of adhesions which may have formed between the lung and the chest wall. Should the compression however

have been excessive and long continued the lung may form a mere fleshy layer at the upper and back part of the chest (Coats). When expansion of the chest wall is imperfect, retraction of the chest wall takes place, due to the granulation like tissue which lines the pleura, in the process of contraction acting so as to draw the structures together. As a consequence of this a number of deformities take place, depending on the amount of retraction which has occurred. The chest is flattened from before backwards especially in the infra-clavicular and mammary regions, the ribs fall down so that the intercostal spaces are much narrowed or almost obliterated. and accompanying this there is more or less drooping of the shoulder and some compensatory curvature of the spine

At the same time the movements are much limited, and sometimes completely absent on inspiration -

By these changes the capacity of the affected side is much lessened and so makes up for the want of expansion of the lung, at the same time alterations of quite an opposite nature are taking place on the other side of the chest -

The sound lung undergoes some compensatory hypertrophy, and to permit of this additional space is required, and this is got by raising of the shoulder and widening of the intercostal spaces, at the same time the expanding lung encroaches on the affected side, pushing the mediastinum before it -

These changes are better seen, and are more frequent in children than adults - owing to their chests being of a more yielding nature.

The following 12 cases of Empyema came under my care during a residence of a little over nine months in the Royal Infirmary, Dundee— This is a very large proportion of cases, considering the numbers treated, and shows an average, including cases not under my care, during that time of

1 in 41·25 in the male wards
1 in 63· in the Children ward.
1 in 269. in the female wards.

And is double the number in the whole house in all the previous Year when the average was 1 in 136·5 and 1 in 366·5 in the male and female ward respectively. Of these 12 cases, 10 were adults, whose ages ranged from 18 to 60 years, the average being 31·8. while the other two were each 14 years of age.

Such a large proportion of adults is a very unusual experience, the disease being much more frequently met with in children. Dr. Goodhart, in the B.M.J. /84. says that Empyema is not common in adults, and puts 2 to 3 cases per annum as a full average in his wards in Guys Hospital, while in his Children wards with an equal number of beds he says it is as common as possible"

The proportion of male to female cases is however much nearer what is usually found - being in this instance 6·5 to 1 - & this is probably higher than what is generally found to be the case. though Mountard-Martin states the proportion in his experience to be about 8 to 1.

The side of the chest most frequently affected

is generally supposed to be the left - Hilton Fagge mentions 42 cases in his own experience 14 of which were right and 28 left, and gives others recorded by Dr Addison in which the numbers on each side of the chest were equal (20) and by Dr Richards 3 right 7 left, Dr Carter 19 right 26 left - while on the other hand Dr Bodies mentions 20 cases in which 11 were right and 9 left, and in my own case the right side was in the majority by 864. The cause of the Empyema in almost every case was most difficult or impossible to arrive at - like the bulk of hospital patients, any accurate account of the history of their illness previous to admission was impossible to obtain. in several instances however pneumonia seemed to have been a probable accompani-

of the initial pleurisy, while in the case of the boy (No 12) some injury must have been the exciting cause, though none could be detected at the time of his admission.

In three of the cases simple aspiration was all that was done & in each instance only once. In one case (No 1) a cure resulted, in another (No 9) death took place, while in the third (No 11) the patient left the hospital refusing further treatment.

The remaining 9 cases were incised, 6 without previous aspiration, and 3 after fluid had been withdrawn from 1 to 3 times.

In every instance aspiration was performed at the same place, viz the back behind, and usually in the 8th or 9th

space - and this was also the spot selected for incision except in case 8 where the pus was pointing in front -
The mode of operation was the same in every case, unless otherwise mentioned, and along with the after treatment is similar to that described on p. 26 ch seq.
In no instance was an anaesthetic used, except in case 3 when the rib was resected - and all the operations were done in the ward, except in two instances (Nos 2 & 7) when the foetid nature of the pus indicated the evacuation being done elsewhere.
Nearly all the cases made a most excellent recovery, which is partly due to the fact all these cases occurred in perfectly healthy individuals, and that the incision was made moderately early in

the course of the disease.
In case No 2. the result obtained was in every way most satisfactory. at the time of the operation and for some days after it did not look as if the patient could recover, but from the time he began to mend his improvement was most steady and rapid - and on his return from the Convalescent home after 6 weeks stay, I actually did not recognize the man he had grown so stout and robust looking
Case 3. was a very long and tedious one - and I think some blame for this is due to the great length of tubes which were used, and which were the cause of a long discharging sinus, which latterly could not be got to fill up.
A curious fact to note in this case is that on the 12th Sept. after pus had been withdrawn on

two occasions, some time watery serum was got on exploratory puncture.

Although the illness in this case extended over a long period there was never any sign of albuminoid disease.

Nos 4, 5, and 6 came into the hospital on three consecutive days. the 4th 5th and 6th of November. at the time of admission Nos 4 and 6 had been ill for 14 days while No 5 had been complaining for 21 days.

The first two were incised at once while the 3rd was not incised until he had been aspirated 3 times, and they all left the hospital within a short time of one another. No 4 on the 28th of Jan. and the other two on the 16th of the same month. although No 6 would not have been dismissed so soon, but he had a

very good home to go to - and was anxious to get out of hospital. In his case recovery would in all probability have been a good deal quicker if he had been incised sooner, as his temperature fell the same day as the pus was evacuated, and from that time his recovery was uninterrupted.

No 8 was a most interesting case. The empyema having been so long neglected, was pointing in front, although not quite so high as is said to be usually the case. the rupture having taken place between the 7th and 8th ribs.

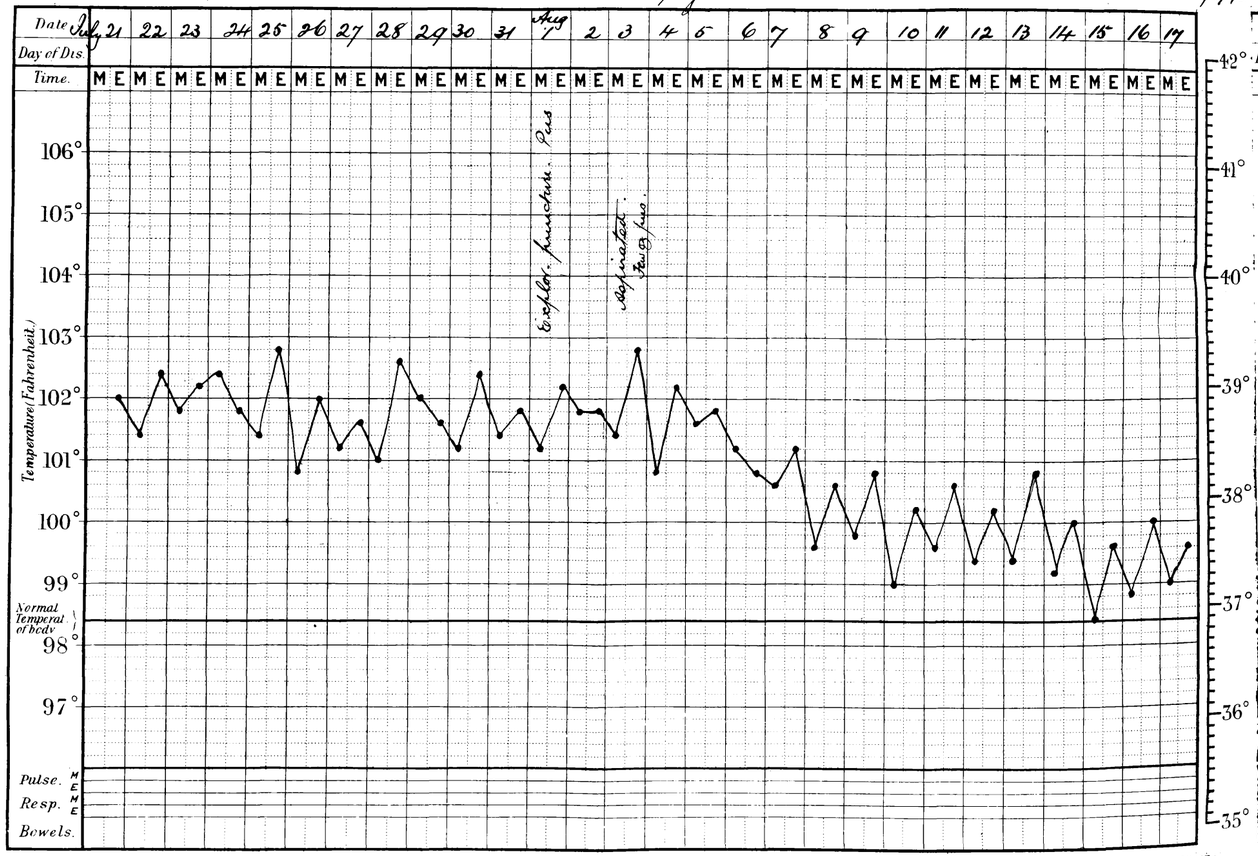
In case 9 in which death took place, the patient was in a very emaciated condition at the time of his admission. and although there

was no disease to be detected at the apices. the patient had never been a healthy man. There was nothing of special interest in Cases 10 or 11 - but Case 12 is worthy of note from the fact of being of traumatic origin - and of the quick and insidious onset of the disease and the rapidity with which the pus became foetid.

Although these cases occurred during a residence of nine months - it will be noticed that they were all admitted into the hospital in the space of a very little over six months. the first coming into the hospital on the 21st day of July 1891 and the last on the 29th of January 1892 - And they were all out of hospital by the 31st of March - and the

to the time at which I ceased my connection with the Institution none of them had returned - but as far as could be ascertained had remained in good health.

Name C. Strachan Age 19 Disease Empyema Admitted 21st July /91.



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A VERTICAL LINE MAY BE DRAWN AT THE END OF EACH WEEK OF DISEASE.
FOR NOTES OF CASE SEE BACK OF CHART.

(RIGDEN'S CLINICAL CHART.)

Printed & Published by H K Lewis 136 Gower Street W.C.

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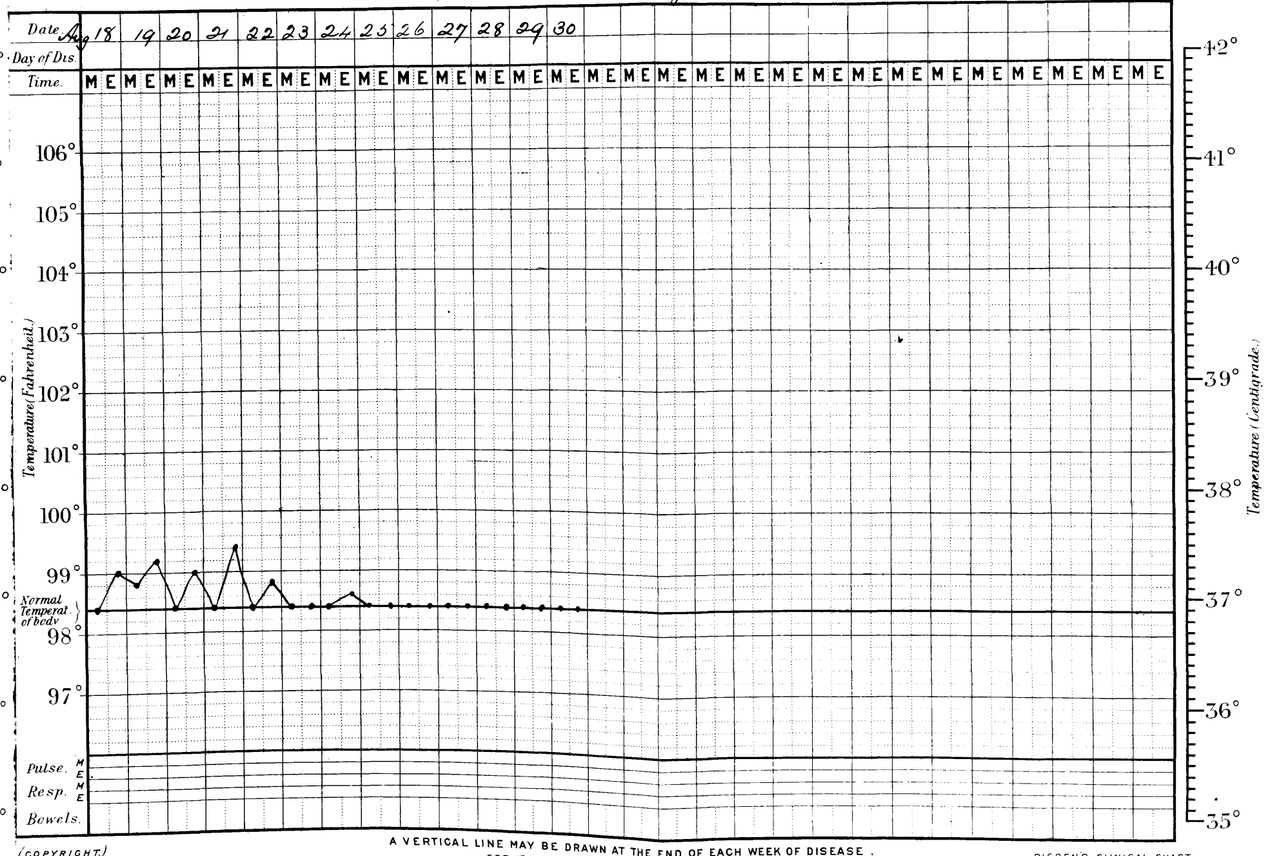

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RIGDEN'S CLINICAL CHART

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Case 1.

C. S. aet. 19. Millworker was admitted to the Infirmary on the 21st of July 1891 - He was then complaining of a troublesome cough, with little expectoration, and pain in his left side. This commenced without rigor 4 days previously up to which time he was perfectly well - He has always been a healthy man, and his family history is good -

On admission he was somewhat pale, with slight lividity of the lips and an anxious expression of face - The teeth were covered with sordes, and there was a slight eruption of herpes at the left angle of the mouth - The tongue was furred, and the bowels constipated -

He had never noticed his spit to be at any time reddish in colour -

Skin dry and hot T. 102.
Pulse 101 fair in quality.
On examination of the Chest the movements were seen to be pretty free, but restrained to some extent on account of pain. The Right lung was normal to auscultation and percussion - as was also the upper part of the Left lung, except for some harshness of the R. M. About 4 inches at the base of the left lung behind was quite dull, with tubular breathing, and a number of medium crepitations, especially at the upper part of dull area. The vocal fremitus and resonance were both slightly increased over the Left base.
His chest was poulticed where pain was complained of, and an ammonia and senega mixture

given for his cough.

22nd Coughed a good deal during the night, and did not sleep much. Complaining a great deal of thirst - drinking large quantities of milk and potass. Urine ac. amber. no albumen. Pulse 108. Respirations 36.

24th Dulness and tubular breathing as before. Cough very troublesome with a good deal of stitch. Pulse 108. keeps fair quality. Respirations 35.

26th Condition much the same, but pain almost gone. Poultice stopped Pulse 112. Respirations 36.

29th Still dulness and tubular breathing but the R. M. more distant

Aug. 1st Dulness the same, R.M. very distant and tubular. Vocal fremitus decidedly diminished, but not absent. Sweating considerably. looking rather worse and cachectic.

Not taking nourishment well.
Pulse 110 softer. Respirations 36.
Exploratory puncture in 9th space
behind showed pus.

3rd Aspirated in 9th space below the
angle of the scapula but only a
few ounces of pus with difficulty
obtained.

4th Slept fairly well, complained
last evening of slight feeling
of sickness.
Pulse 104 Respirations 30

6th Sleeping and feeling better. Still
sweating a good deal.
Pulse 98. Respirations 28.

9th Taking food and sleeping much
better, Cough still troubles patient
a good deal. but the pain has
Quite gone.
Pulse 94 Respirations 26.

13th Not sweating nearly so much
looking much better.
Temperature pulse and respiration

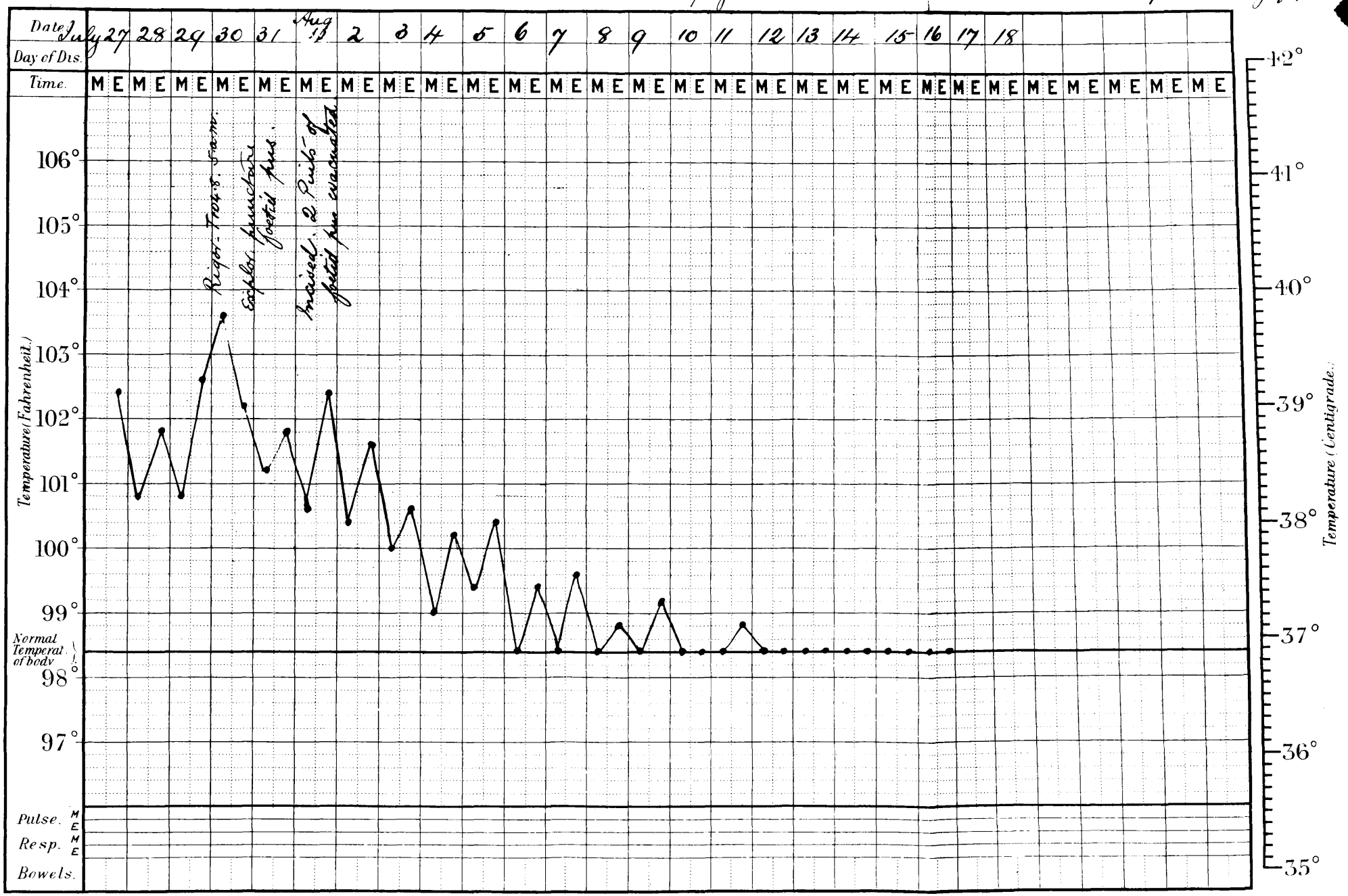
all much improved, but physical signs little changed since aspir-
ation -
Left base to be painted with Iodine
17th Steadily improving. and the dul-
ness is not quite so marked.
Pulse 84.
23rd Patient has still a slight cough
but is feeling very much better.
taking his food very well — the
T. has been normal in the morning
for some days -
Pulse 76. improving in strength.
28th Dulness still persists at the left
base, with diminished vocal fremitus
and resonance, and very weak R.M.
The movements of the left side are
slightly but decidedly impaired.
The T. has been normal for
the last 4 days. To get up.
Sept 4th Pat has been up for the last 5
days. He is putting on flesh and
looking better. Cough has quite

gone now.

15th Dulness is still quite distinct, but note is very much improved; though the R. M. is still very weak.

Oct. 1st Pat left Hospital to day, the dulness has almost quite cleared up, though the note is still slightly flat. and the R. M. though much improved is still considerably weaker than the other side. The expansion of the left side is a little limited but there is no appreciable difference in the measurement.

Name W. Lumsden Age 60 Disease Empyema Admitted 27th July 191



A VERTICAL LINE MAY BE DRAWN AT THE END OF EACH WEEK OF DISEASE.
FOR NOTES OF CASE SEE BACK OF CHART.

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RIGDEN'S CLINICAL CHART

W. L. aet. 60. Fireman admitted on the 27th of July /91 complaining of cough and spit of seven weeks duration –

Patient has always been an exceptionally strong and healthy man – and, although not an abstainer, has always been temperate. From the nature of his occupation he is liable to sudden extremes of heat and cold –

Seven weeks ago when at his work he "got a chill" and seems to have had a distinct rigor, from that date he was unable for his work but has only been confined to bed completely for the last 3 weeks – He was attended by a doctor who gave him some medicine and ordered him to the poulticed, but as he was getting steadily worse, he made up his mind to go into the infirmary –

Fourteen days ago he says he was

seized with a sharp stabbing pain in his right side, which was worse when he coughed or tried to draw a long breath, and which prevented him from lying on that side, although he could lie freely on his back or left side - Since his illness began he has lost flesh very much -
He says he had "fits of shivering 2 or 3 times last week.
On admission Patient was sweating heavily, and looking very worn and exhausted, with a dirty gray colour of face, and slight muscular tremor -
Tongue heavily coated - Bowels rather constipated -
Pulse 112 soft and compressible
Respirations 28.
Skin moist. T. 102·4.
Spit scanty and muco-purulent.
Examination showed the movements of the right side to be much im-

paired. The left side of the chest and the upper part of the right except for some exaggeration of the R. M. and a few mucous râles were normal. Over the lower half of the right lung to within 2 inches of the spine of the scapula, percussion was markedly dull, with very distant R. M. and complete absence of the V. R. and V. F.
The heart sounds were faint but pure, and there was no appreciable displacement of it or any other organ.
There was no bulging of the inter-costal spaces.
To have 3ss brandy every 3 hours.

28th Slept poorly. Rambling slightly. Not taking nourishment well.
Urine. &c. dark amber no albumen or bile.

30th Seems to have a distinct rigor this morning. and is looking very bad

and sweating very heavily - An exploratory puncture in the 8th space behind showed foetid pus - Pulse 118 and weak and dicrotic.

31st Spit to-day is thin purulent and foetid, similar to the fluid withdrawn y'day with the hypodermic needle - and on examination of the chest, all the signs of pneumothorax are found to be present - Succussion being very distinct and well marked.

Aug 1st An Incision was made to-day in the 8th space ~~space~~ below the angle of the scapula, and two pints of extremely foetid pus evacuated - Two large sized drainage tubes of india-rubber put in and a large dressing of woodwool applied - the wound being first dusted with iodoform - A silk cord passed through the tubes, and fastened round the body, prevented the possibility of their slipping into

the thoracic cavity. In the future cases these minutiæ are not given as in all cases they were practically the same –

Pulse 114 –

2nd = Slept fairly well – coughing very little – Complaining of hunger. There has been very considerable discharge at the dressings.

4th Pulse to-day is very slow and irregular 48 per min. and inter-mitting – He is taking his food and sleeping well. The lungs is decidedly clearer.

5th Pulse 64, and better to-day, but still intermitting at times. Discharge is now quite sweet.

6th Pulse 78 soft but regular.

8th Sleeping very well, and feeling much easier, and taking his food very well.

Pulse 74. quite regular

11th Discharge lessening. little or no

cough now.

Pulse 74. and improving in quality.

14th Going on very well, the only thing
he complains of is the want of more
solid food.

17th Very little discharge now - one
of the tubes removed.

Pulse 65 and fair strength.

21st Tube shortened - To get up for
a little in the evening.

28th Discharge much less, tube still
farther shortened.

There is very fair resonance over the
lower half of right lung although
the note is still dull and the R.M. weak

Sept: 3rd Patient is gaining flesh every day
Sleeping and taking food remarkably well

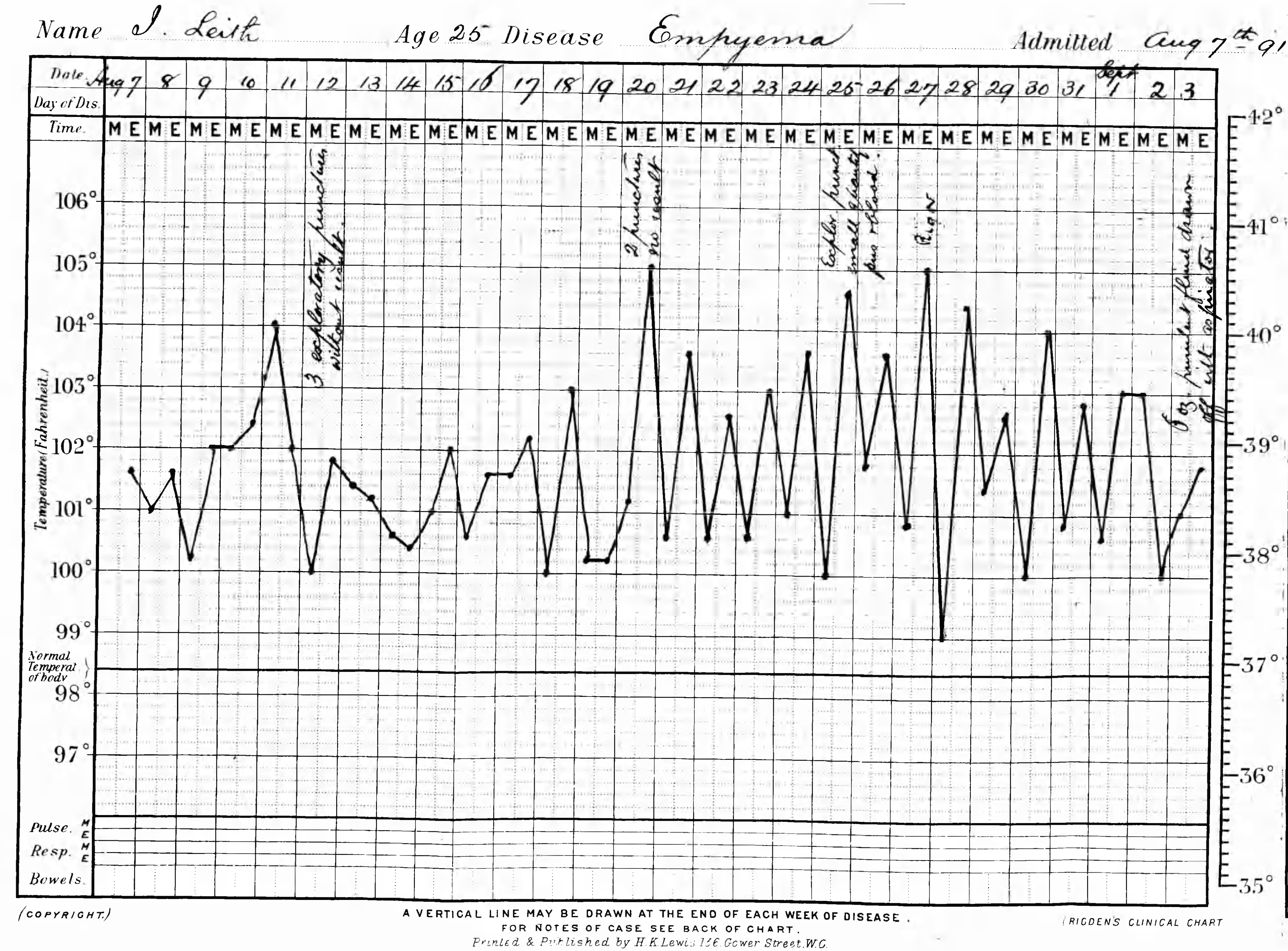
10th Discharge almost stopped.

18th Tube left out.

Oct Oct. 13th Patient went to the convalescent Home
to-day. The note is still slightly flat and
R.M. weak below the incision - but
the expansion is good. and there

is practically no flattening. and the right side is fully larger than the left by measurement.—

Patient came back to show himself 6 weeks after he left having been all that time at the Home— He had put on flesh very much, and was then a stout robust looking man, and his chest on examination was practically normal. and he felt no difficulty or inconvenience in going up hill or exerting himself. and he was on the point of starting for the arctic regions in a short time on a whaling vessel.


Name J. Leith
Age 25 Disease Empyema
Admitted Aug 7th 91
Temperature (Fahrenheit.)
Pulse
Resp.
Bowels
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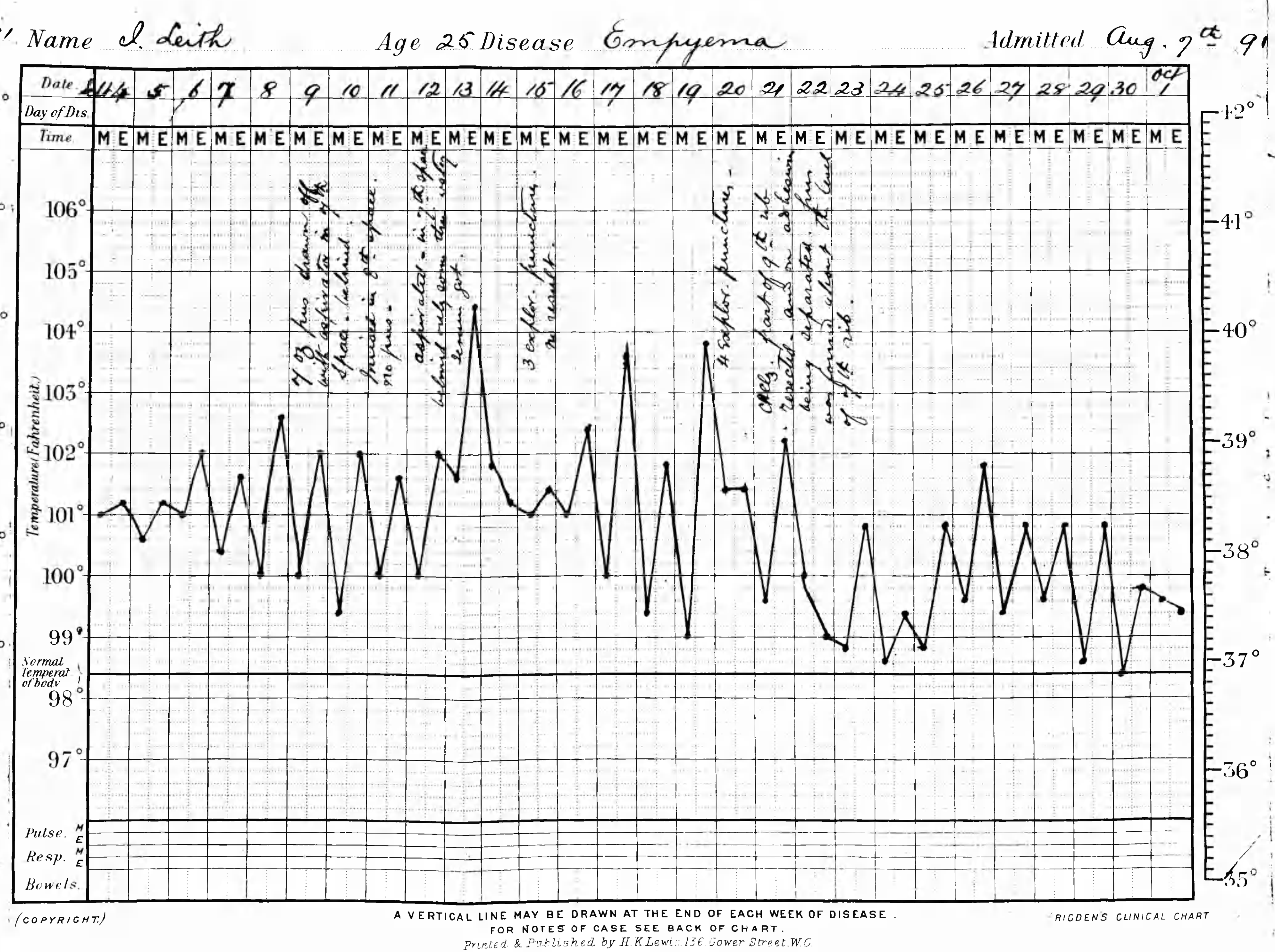
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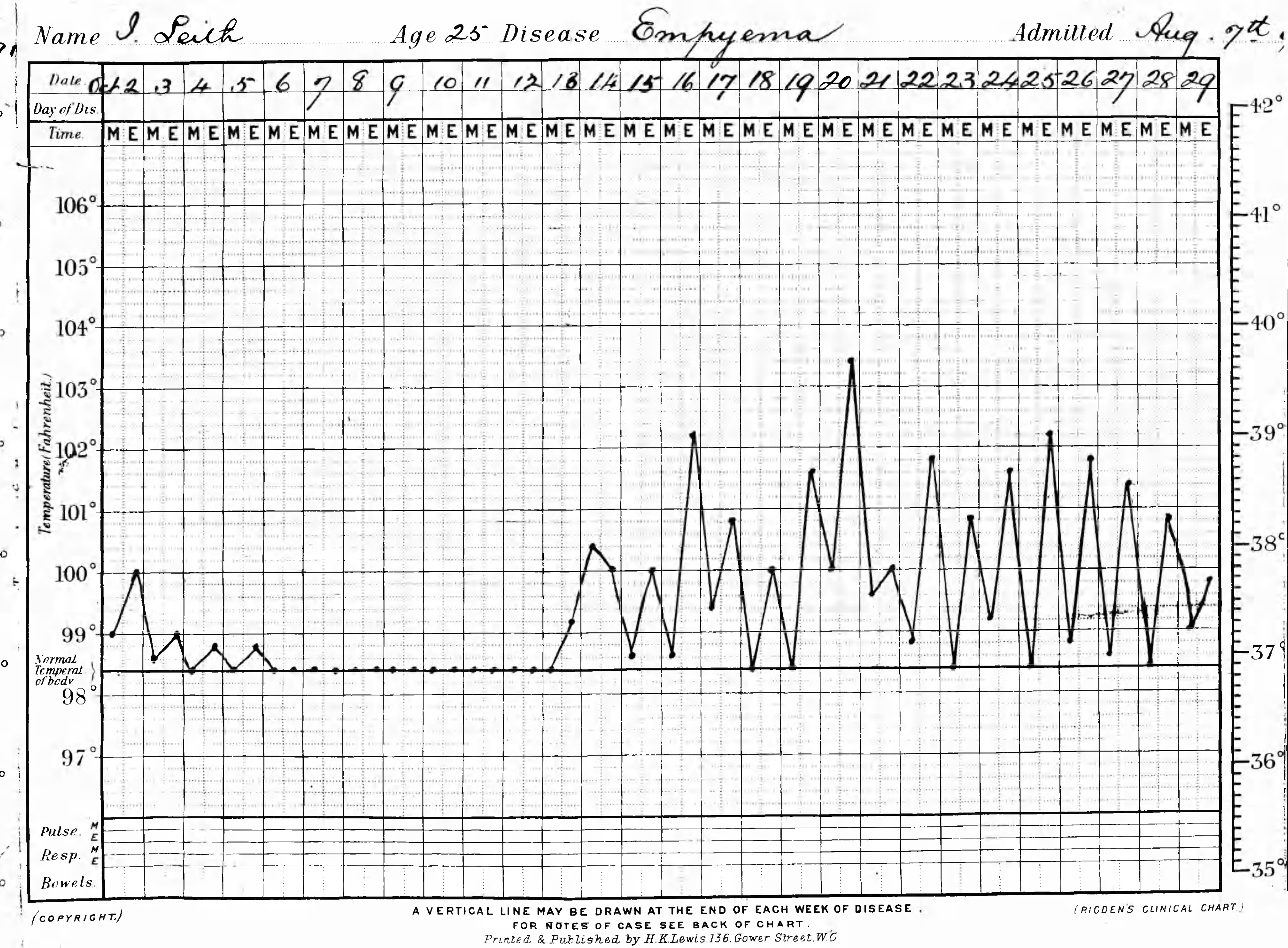
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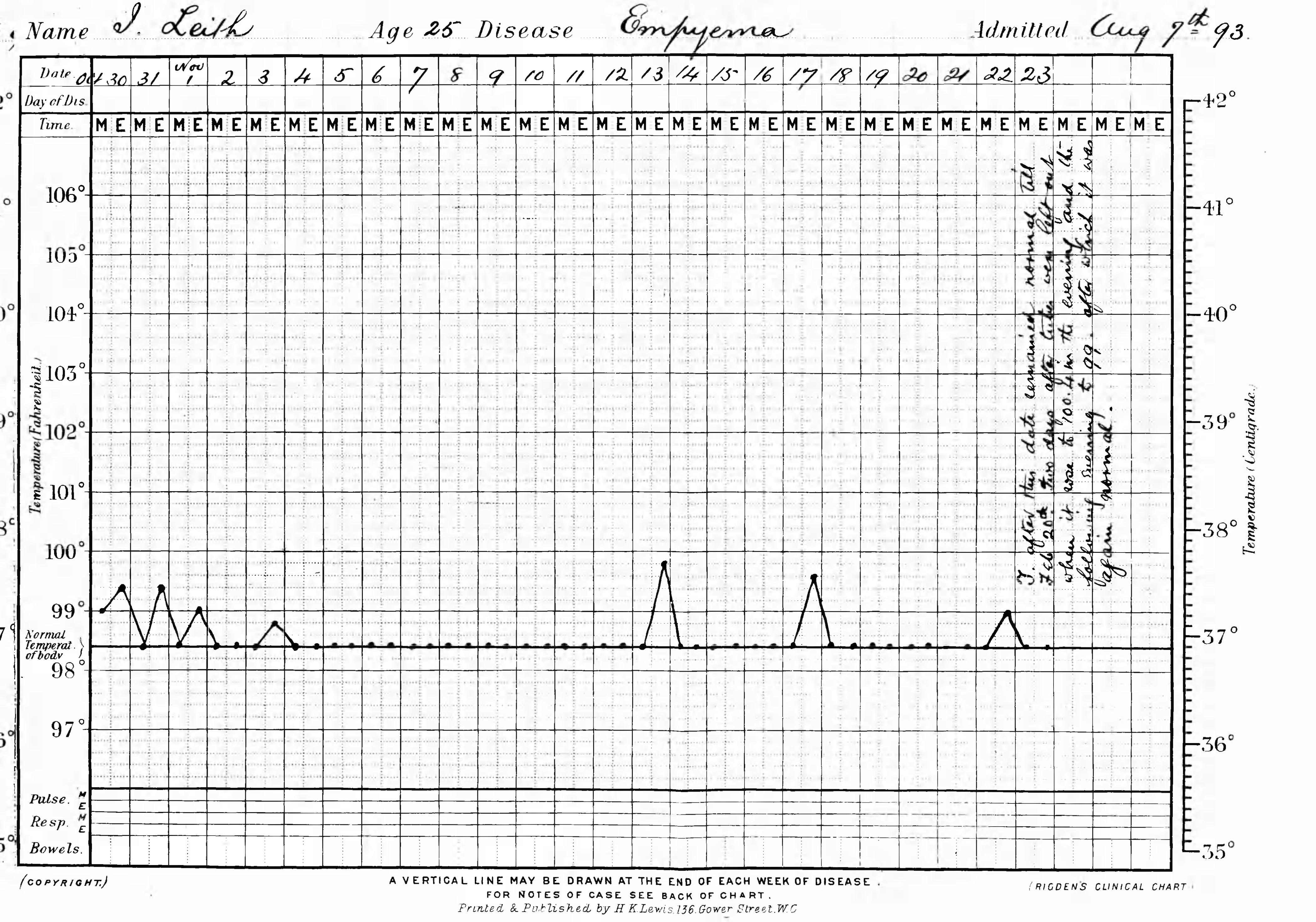
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Temperature (Fahrenheit.)
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RIGDEN'S CLINICAL CHART

Case 3.

J. L. aet 25. Quarry-worker. Came into the infirmary on the 7th aug. 191-. complaining of pain in his left side and cough ~~which~~ which was most troublesome when lying on the painful side., but hardly annoyed him at all when lying on the other side.

He says he has always enjoyed good health till now. There is nothing to be made out of his family history. his father and mother having died when he was young. cause unknown. and he has no other near relatives except a sister aged about 30 in. good health.

His illness began 10 days ago when he was siezed with pains in the legs and back and felt so unwell that he had to go home to bed. That evening he was sick

and vomited. and he was very feverish. He was then said to be suffering from influenza. In a couple of days the pain had all gone, and he got up and went out, but was seized the following day with shivering and pain in his Right side. especially severe when he coughed and he had again to take to his bed. and has been getting steadily worse. His cough is still very troublesome and there is a good deal of mucopurulent expectoration. There is nothing special about patients appearance, beyond that he is somewhat pale. Tongue thickly covered with a yellow fur. Bowels regular. Pulse 94 and fairly strong. Skin moist. patient says he has been sweating a good deal. T. 101.2. The right side of the chest was

normal. but the lower part of the left side was dull as high as the angle of the scapula with distant breathing and diminished V.F and V.R. and some fine crepitations, almost like friction just below the angle of the scapula.

8th Urine alk. strav. no albumen. To have ammonia and senega mixture -

10th Sleeping poorly, says he has not slept well since the beginning of illness. Not taking food well.

11th Pulse 102. rather soft. Complaining today of pain in the left inframammary region, and is unable to lie on that side. Its friction can be detected Pulse 106. Respirations 34. Lips are slightly livid.

12th Three exploratory punctures

made today, but no fluid got.

14th Had 15 m. of nepenthe the last two nights, and slept rather better. Pain has shifted to the left infraclavicular region - feeling somewhat better and breathing easier. respirations 28.

Pulse 104.

15th Cough and spit less. Can lie on either side now, but coughs more when on the right. V.F. and V.R. are diminished in left axillary region - where the R.M. is feeble but not absent.

Pulse 102 and very soft.

To have 20 m. chlorodyne. h.s. every night.

17th Slept better and generally easier lips are a better colour.

20th Two exploratory punctures made but without result:

Urine ac. amber. no albumen

28th Sleeping very poorly again and sweating a good deal at times.

25th Exploratory puncture in 9th space behind gave a small quantity of blood stained pus.
Pulse 118 very soft.

27th Taking food very poorly, and sleeps very little, although he lies very quiet all night.

28th Patient had a distinct rigor last night.

29th Again complaining of pain in left mammary region.
Pulse 114.

Sept. 1st Dulness now extends as high as the spine of the scapula, otherwise the condition is unchanged.

3rd Six ounces of semipurulent fluid drawn off with aspirator bidy.

5th Sleeping and taking food rather better, sweating a good deal.
Pulse 122 and somewhat dicrotic.

7th says he feels a little easier the last few days. and has no pain at all now, and little cough.

9th Seven ounces of pus withdrawn by aspiration in 8th space below the angle of the scapula.

10th Incision made in 9th space but no pus got - finger meeting the lung strongly adherent to chest wall as far as can be reached. but on account of the closeness of the ribs the part opposite 8th space could not be got at, where the pus was obtained yesterday

12th Aspirated in 8th space behind but only some thin watery serum got.

15th Three exploratory punctures made but without result.

16th Complaining of breathlessness this afternoon - and there is again some return of the lividity of lips. Pulse 148 - extremely soft Respirations 38 To have 3ss brandy every 4 hours

17th Breathing is easier again today Pulse 134. Respirations 26.

20th Four exploratory punctures made but without result. The dulness is the same as on 1st inst. The movements of the left side are practically nil.

21st Chloroform was given to-day and a part of the 9th rib resected, the adhesions separated and pus found about opposite the 7th rib. where there is found to be a cavity as far as the finger can reach. Two drainage tubes about 8 to 9 inches in length were inserted, and the wound dressed. There was not a large quantity of pus, probably about half a pint. and it was quite sweet.

22nd Had a rather restless night, but feeling easier today.
Pulse 124.

24th Patient was a good deal disturbed by cough the last two nights.
To have 20 m. Chlorodyne at bed time.
Pulse 115.

26th Rested much better last night. the cough being much relieved by the Chlorodyne.
There is considerable discharge.

29th Taking food better, and feeling much easier since the operation. Not sweating so much.
Pulse 116.

Oct. 3rd Temperature is now almost normal, and patient is looking much better, and is more cheerful.
Pulse 106. still soft.

7th The discharge has lessened very much, the dressing only needing to be changed now once a day.
Urine. normal.

12th Tubes shortened about 2 inches.

14th Temperature has been up again the last 2 days, and sweating is more profuse.
Pulse 122.

16th Temperature still keeps up, the tubes are quite patent and discharge

getting away quite freely.

20th Pulse 124 full and bounding - and patient is flushed. but there has been no rigor.
New tubes inserted.

22nd Since the 14th patient has been taking his food poorly
Pulse 114.

24th Coughed a great deal last night, and brought up a quantity of brownish coloured, purulent spit. There is almost no movement of the left side of chest, even on deep inspiration, and the R. M. below is quite inaudible.

25th Cough has quite gone again this morning.

28th Patient is sleeping better again and improving in appetite.

Nov. 2nd Sweating a good deal at night. There is nothing to be detected at the apices.

9th The discharge for the last month

has remained pretty constant in quantity. There is a long sinus of which a probe passes in an upward direction for about 8 inches.

17th Discharge lessening but no sign of the sinus closing.

24th Taking his food and sleeping well. To get up.

Dec 10th Tubes still pass in some 8 6 9 inches. There seems to be little expansion of the lung and the R. M. is quite inaudible.

25th Patient now sweats very little. There is a distinct falling of the shoulder and a slight curvature of the spine to the left side.

Jan 20th There is little to note beyond a gain in general health. The condition of the chest remaining the same.

Feb 18th Tubes left out.

21st There was a slight rise of temperature last evening and patient

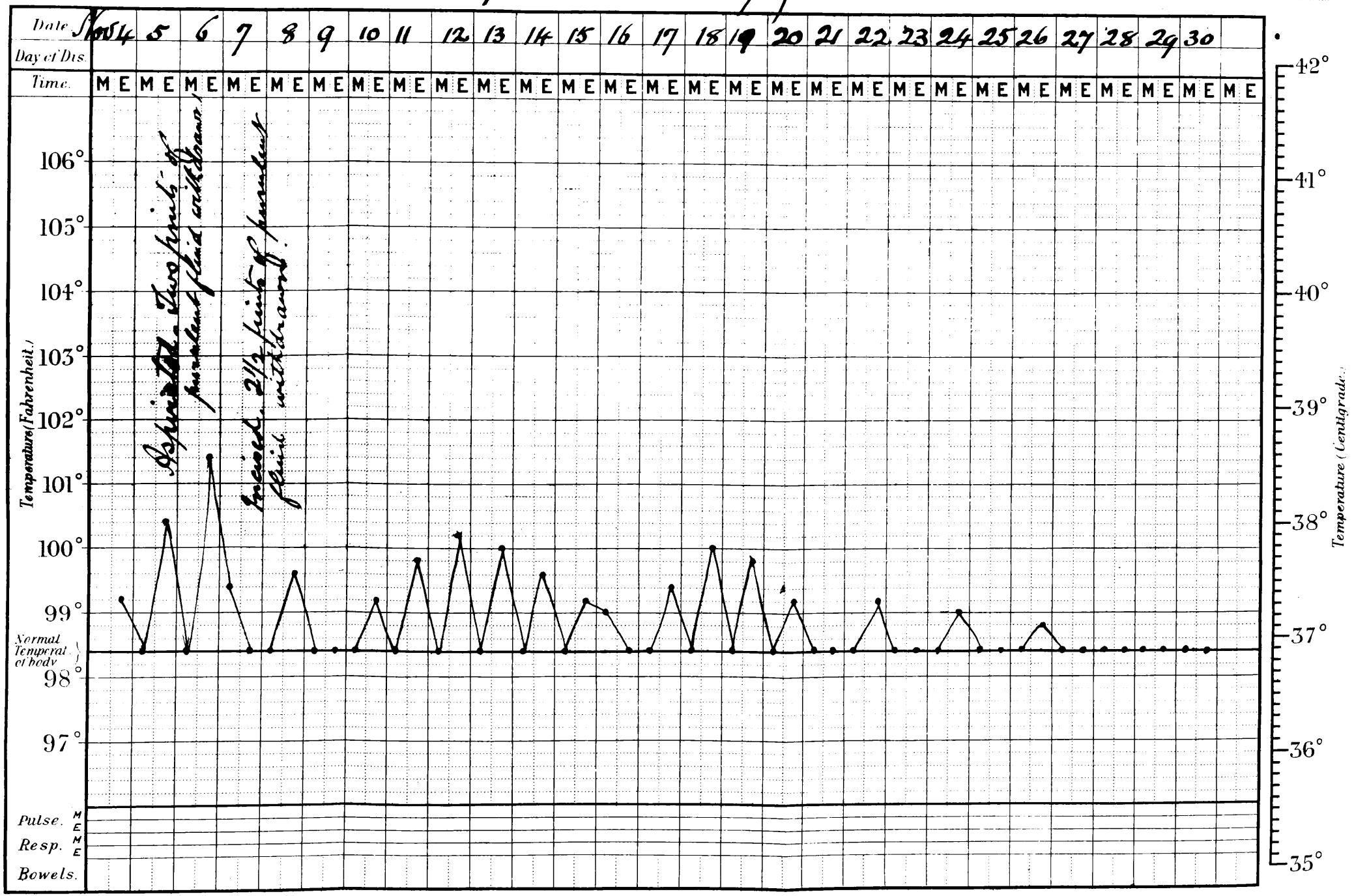
did not feel quite so well.

22nd. Temperature was again slightly up last night.
Pulse 84.

24th. Temperature has again been normal since 21st and patient feels again as well as before.
Urine ac. amber. no albumen.

29th. Patient went to the convalescent home today. There is still a long sinus but it seems to be closing in slightly. A month later he came back to the Hospital with the wound closed. and feeling and looking much stronger. but troubled with shortness of breath on the least exertion. and up to May, when last heard of he remained well though unable to do any work requiring any exertion.

Name J. Callan Age 29 Disease Empyema Admitted 4th Nov. 1891.



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RIGDEN'S CLINICAL CHART.

Case 4.

J. C. aet. 29. Millworker admitted 4th Nov. /91. Complaining of cough and pain in right side of chest.

His illness began 14 days ago when he was seized with severe stabbing pain in his right side and a short troublesome cough but very little spit. Since then he has been confined to his bed. He says his spit was reddish coloured for a couple of days at the beginning - but there was no shivering -

He has never had any illness that he remembers - although he has never been a very strong man - His family history is very indefinite.

On admission he was considerably troubled with dyspnoea, although not so much as to prevent his lying down - and there was a good

deal of lividity of the face and lips -
The tongue except at the tip and edges was covered with a thick white fur. Bowels rather constipated. Pulse 124 small and compressible. Respirations 40 and shallow.
Apex beat in 4th space, just below the nipple - Sounds faint but pure.
The liver dulness extends to within 1 inch of the umbilicus
The movements of the right side of chest very limited, with quite apparent widening of the intercostal spaces -
The left side of the chest normal.
The right absolutely dull except at the apex in front where there was a somewhat tympanitic note. The R.M. was everywhere very distant and the V.F. absent, while the V.R. was diminished. There was also an

increase in size of the right side it measuring 18 in. to 16½ on the left side.

5th Patient had a very poor night being much troubled with dyspnoea Pulse 128 Respirations 42.
Urine ac. dark amber. no albumen.
This afternoon 43 ounces of sweet purulent fluid was withdrawn by aspiration in 8th space behind. the operation being stopped owing to faintness and coughing.
After the operation the liver dulness was raised fully an inch. & the percussion note was clear down to nipple line.

6th Had very restless night. and perspired very much - but the dyspnoea considerably relieved.
Pulse 126. Respiration 36.

7th Restless in early part of night but slept well after 15 m. of Liquor Opii -
Incision was made to-day at the

site of aspiration - and fully 50 ounces of thin purulent fluid let out.

Pulse 120. Respirations 38.

8th Slept fairly well last only after repeated - Sweating very much. Pulse blocked - on removing a considerable quantity of discharge escaped.

Pulse 112. Respirations 28.

10th Dressed twice a day. the discharge being pretty copious.

12th Tongue has fur cleared and is now bare and raw looking. To have Ol. Cinchonae. Co. 3i. t.i.d.

Pulse 104. Respirations 28.

15th Patient has been taking his food poorly ever since admission and is still sleeping poorly

Pulse 98. Respirations 24.

18th Discharge much less, and wound only dressed once a day now.

23rd Patient is taking his food rather

better - but his tongue still keeps bare -

29th Patient is now sleeping and eating well - His tongue has quite lost its raw look - For the last few days the pulse and temperature have been normal.

Dec 5th Tubes shortened - The percussion note is flat down to line of incision behind with faint R.Bs. and dull, though not absolutely so below that, with almost inaudible R. M. To get up.

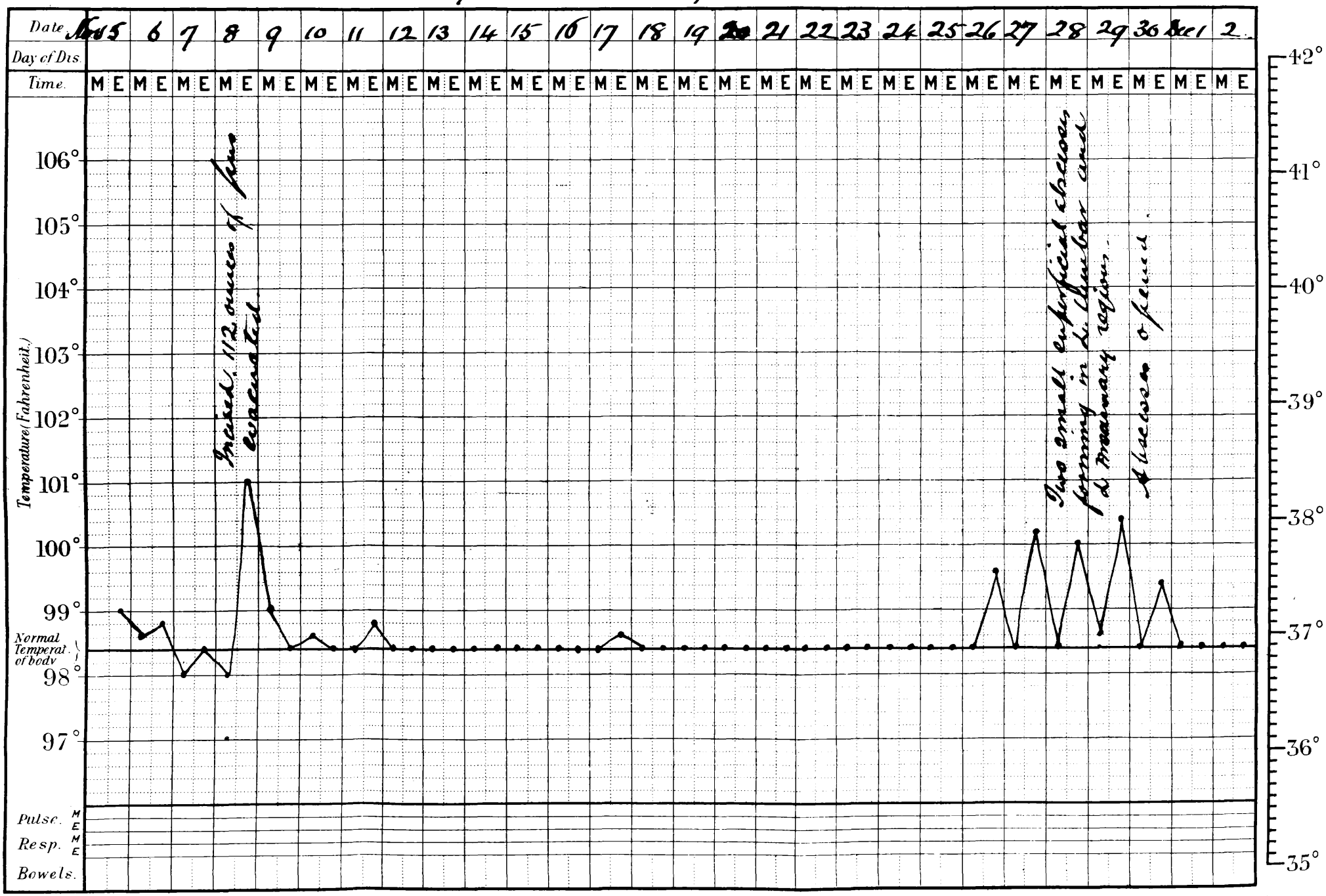
14th Tubes shortened - very little discharge -

28th There is some slight flattening of the Right side of chest and the movements are much impaired but the percussion note is decidedly improved since note of the 5th.

Jan 12th Tubes left out - the physical signs still continue to improve.

28th Patient went down to the Convalescent Home to-day. There is still some weakness of the R. M. which at the extreme base is almost quite absent and the expansion is considerably impaired. the measurements being Right 16 1/2 left 17 1/2. The percussion note is normal all over the chest except at the extreme R. base.

Name P. Meldrum Age 37 Disease Empyema Admitted 5th Nov. 1874.



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(RIGDEN'S CLINICAL CHART.)

Case 5.

P. M. aet. 37. Labourer - admitted to the infirmary on the 5th of November /91. Complaining of pain in his left side and difficulty of breathing for the last 3 weeks.

Patient is an extremely stupid man and little reliable history can be got from him -

He has been confined to bed since the beginning of his illness and the dyspnoea has been getting steadily worse, although it is not even now very marked

Patient has naturally a good deal of colour in his face, and there is the remains of a herpetic eruption round the lips.

Tongue thickly coated. Bowels regular

Pulse 82. Respirations 36.

Heart displaced to the right - the impulse being felt at its lower

end of the sternum, when also the sounds are most distinct. The edge of the liver can be felt 1½ inches below the costal margin. And there is some re-traction of the intercostal spaces of the right side during inspi-ration - while the movements of the left side are absent.
The Right side of chest is nor-mal except for a very exagger-ated R. M. while the left side is absolutely dull from base to apex, with distant tubular breathing towards the apex, getting fainter towards the base where the sounds are quite absent.
The V. F. is awanting as is also the V. R.

6th Slept fairly well, but talking a good deal. decubitus is mostly left, but he can lie for a short time on the Right side, till

difficulty of breathing compels him to turn again.

7th An exploratory puncture showed the fluid in chest to be purulent. Urine. ac. straw. no albumen. Pulse 86.

8th Incision made to-day in 8th space behind and 112 ounces of thickish pus evacuated –
In the evening patient was feeling pretty well, and breathing much easier. The thick dressing was soaked with about a pint of discharge.
Pulse 112. Respirations 42.

9th Restless and did not sleep till after 15m. of nepenthe –
There is a flattened tympanitic note in the first 3 inter-spaces in front, and numerous small crepitations on inspiration.
Pulse 92 Respiration 32

11th Sleeping badly. muttering and

talking a lot. It seems he was taking chlorodyne in pretty large quantities during the whole time of his illness, previous to admission. Pulse 80 Respirations 32.

13th. Sleeping much more quietly the last two nights. Taking food well. The note in the 3 first interspaces is flat but not tympanitic. The crepitations are no longer to be heard. but an occasional dry rhonchus.

16th. Discharge much less. dressed only once a day now.

20th. Sutures shortened slightly as they were causing some discomfort.

27th. Temperature was up a little last night but nothing to account for it. The discharge is getting freely away.

29th. Two superficial abscesses in the left lumbar and mammary region account for the rise of temperature

30th Abscesses freely opened, washed out and drained.

Dec. 5th Abscess wounds have almost healed.

10th Tubes shortened - discharge is lessening a good deal -
The note over the left side is still very flat over the lower 2/3rds and the R. M. weak.
To get up.

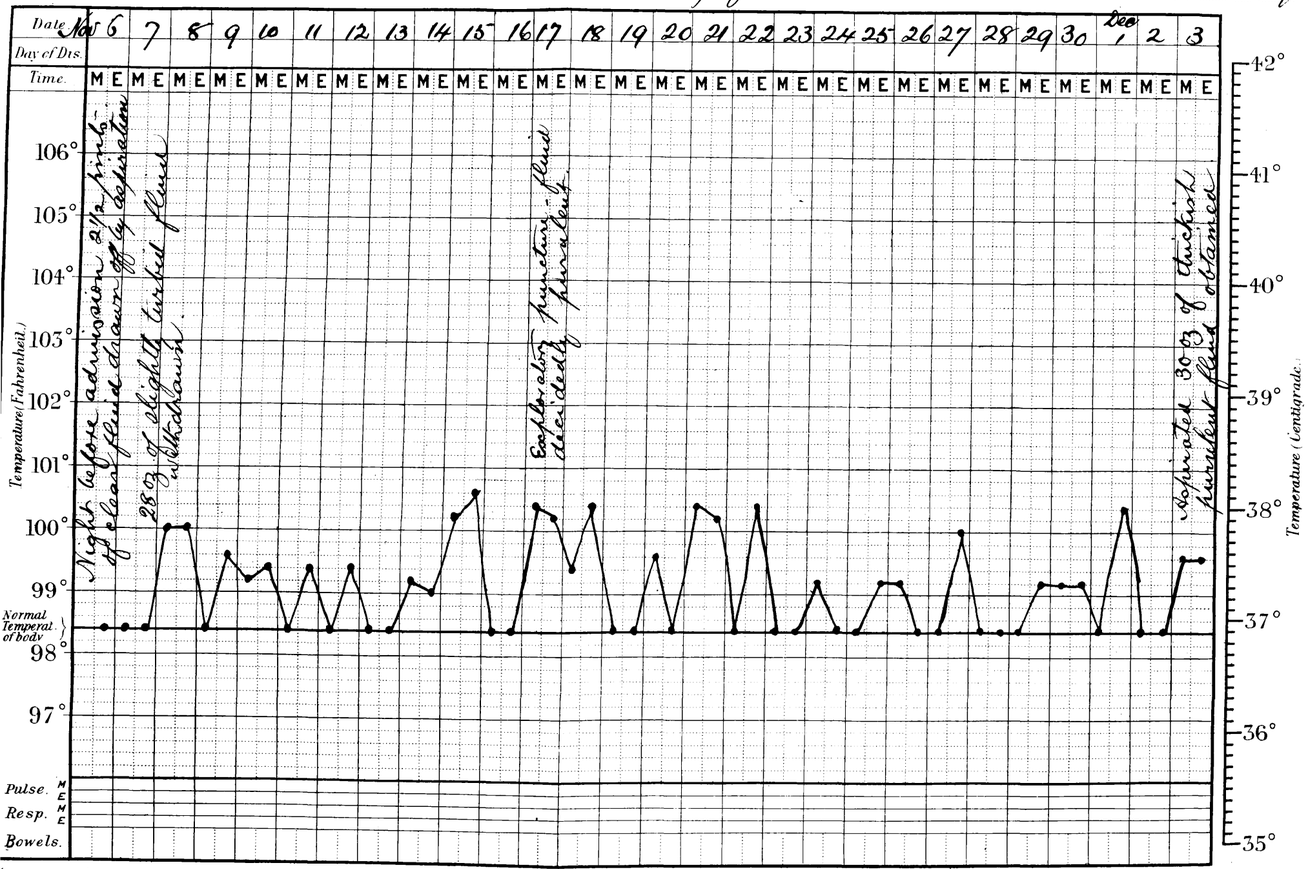
25th Discharge is now very slight
Tubes farther shortened.

Jan. 2nd Tubes left out - There is a distinct improvement in both the percussion note and breath sounds.

12th Wound quite healed.

16th Left infirmary - The percussion is very good down to the level of the incision - but still somewhat flat below
The movements are only slightly impaired, and there is no appreciable retraction - The vesicular murmur though weak is quite pure and distinct.

Name J. K. Henderson Age 48 Disease Empyema. Admitted 6th Nov 1891



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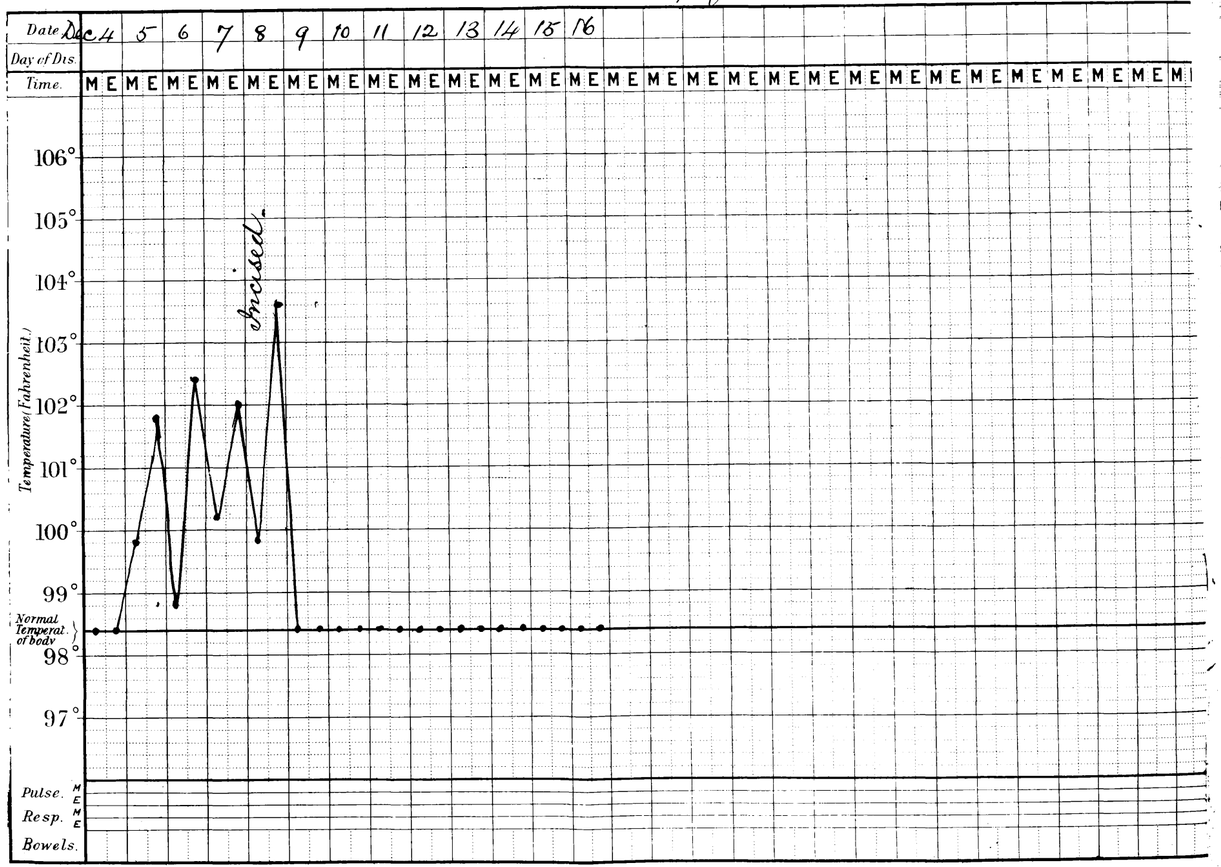

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(RIGDEN'S CLINICAL CH.

Case 6.

J. K. A. aet. 48. Engineer. Came into the Infirmary on the 6th of November-/91 complaining of cough and shortness of breath.
A fortnight ago patient got a chill coming out of a public meeting, being much heated at the time, and has been ill and confined to the house since - He says he had difficulty of breathing from the beginning but never any acute pain - Yesterday the doctor who was attending him says he drew off by aspiration 2½ pints of clear fluid. and to day, as patient thought he would get better attention in Hospital he came in to the Infirmary.
14 years ago patient had an attack of "liver complaint" in Egypt but otherwise has always been a most strong and healthy man. and at present he is very

well nourished and muscular.
By preference he assumes a
sitting posture, but can lie
down with comfort if he likes
He is rather anxious about himself
and restless.
Tongue slightly furred and moist.
Bowels regular.
Pulse 112. good quality.
Respirations 25.
Movements of right side of chest
impaired.
Heart sounds pure, apex beat
cannot be defined.
Liver dulness comes down a
full inch below the edge of the ribs.
There is nothing beyond some
exaggeration of the breath sounds
on the left side of chest.
The right side is dull all over ex-
cept at extreme apex, but only
absolutely so from the angle of
the scapula downwards, and there

the breath sounds ~~the breath sounds~~
are extremely faint, with diminish-
-ed V. R. and absent V. F.

7th Urine ac. amber no albumen, urates
Did not sleep well restless and
talking -
Pulse 114 Respirations 36.
Aspirated in 8th place and 28
ounces of serous muddy fluid
withdrawn -

8th Complains this evening of feeling
very poorly - coughing a good
deal - but very little spit.
Pulse 90. Respirations 28.

10th Perspiring a great deal - Taking
food moderately well but sleeping
poorly - dream broken - Spit scanty
viscid pretty clear and of a
greenish colour
Pulse 96 Respirations 29.

12th Dulness is by no means complete
and only very marked below
the level of 8th rib - The breath

sounds are very weak all over the right side. and the V. F. and V.R. are slightly increased above and diminished below the level of 8th rib. Pulse 90 and rather poor.

13th Slept poorly again. to have 30grs. of Sulphonal at 5 p.m.
Pulse 116 Softer. Brandy 3/s. q.v. 4 hrs.

14th There is a very high pitched tympanitic note over the first two interspace on the right side today.
Pulse 100. Respirations 28.
Urine. Normal.

15th Pulse 116. Respirations 35.

17th On exploratory puncture the fluid is seen to be distinctly purulent.

19th The percussion note noted on the 14th seems to be due to position being tympanitic when lying and quite wooden when sitting up.
Pulse 104. Respiration 27.

22nd Patient still sweats a great deal. but takes his food fairly.

25th Even when lying the note is only very slightly tympanitic now, in the 1st space -
Spit scanty viscid and transparent. Sleeping better.

26th Two exploratory punctures made in 8th and 9th spaces but nothing got -

30th Exploratory puncture made in 7th space and thickish pus got -
Pulse 112. soft and compressible.

Dec 3rd Aspirated and 30 ounces of rather thick purulent fluid withdrawn.
Pulse 116.

6th Not feeling so well to-day - tongue dry - complaining of thirst - and not taking his food so well -

6th Pulse 124 small and soft.
Respirations 36.

8th Incised and about a pint of pus evacuated. Pulse 114.

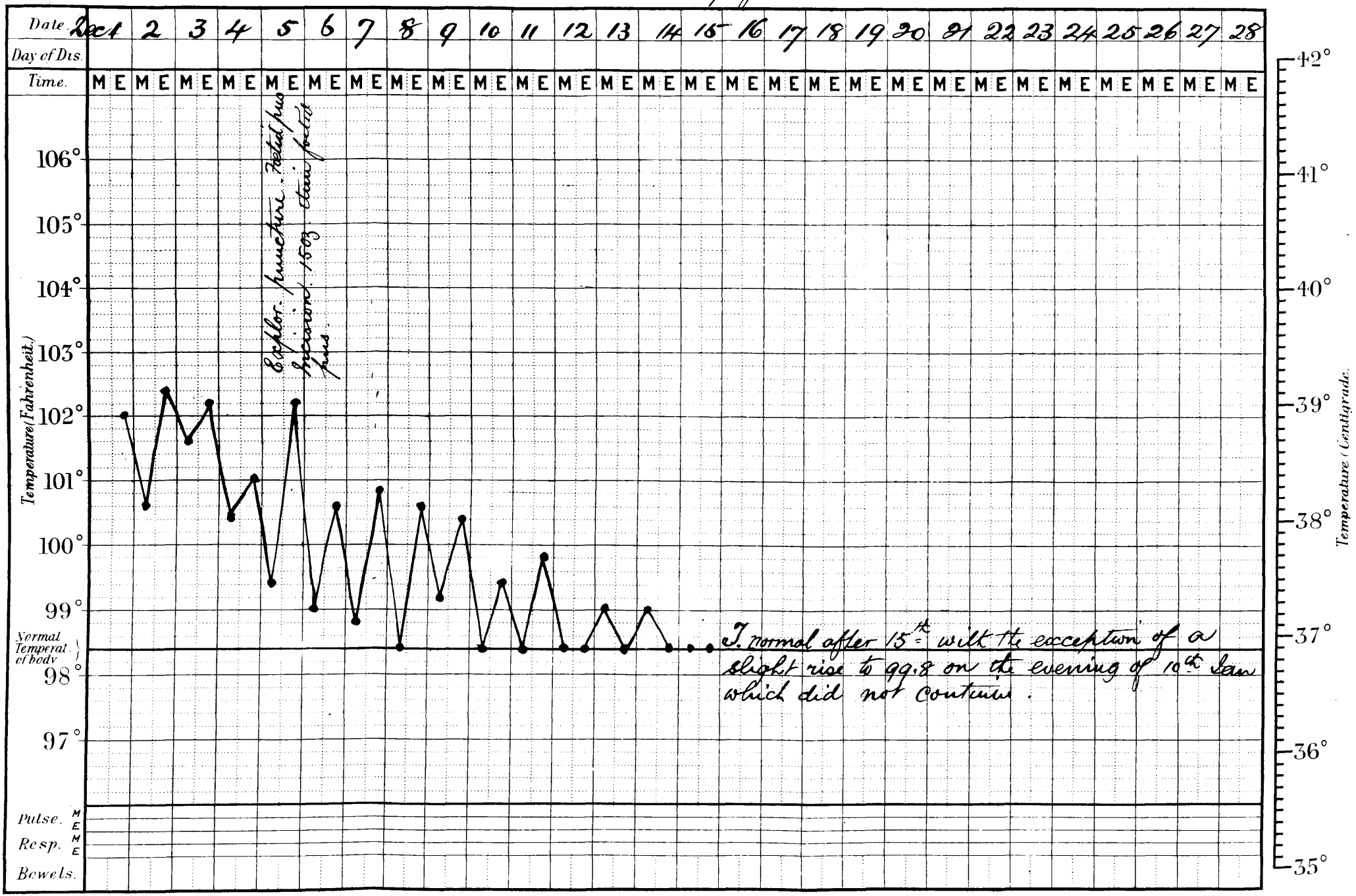
9th Slept better and feeling easier
10th Considerable discharge at dressings
Note below the right Clavicle is quite
clear for 2 spaces - R.M. vesicular
but harsh there
Pulse 110 Respirations 32.
12th Feeling much easier. and not
sweating nearly as much -
Pulse 98.
14th Sleeping and taking food
well -
18 Discharge lessening. dressed
once a day.
Pulse 84.
23rd Tubes shortened - To get up in
the evening -
Pulse 74. and much better in
quality.
30th Below incision the note is still
very dull - but above it is
decidedly improved and the
breath sounds are much more
distinct. Very little discharge - tube

shortened and one removed.

Jan 12th Tube being forced out by the granulations, was removed.

16th Patient went home to-day. wound not quite healed. The movements of the right side of chest are a good deal impaired with some slight flattening. but the percussion note is almost normal, except at the extreme base, and though faint the R. M. is quite distinct.

Name J Halkett Age 35 Disease Empyema Admitted Dec 1st 91.



A VERTICAL LINE MAY BE DRAWN AT THE END OF EACH WEEK OF DISEASE.
FOR NOTES OF CASE SEE BACK OF CHART.

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(RIDDEN'S CLINICAL CHART.)

Case 7.

J. M. aet. 35. Labourer. was admitted on the 1st of December /91 complaining of illness of a weeks duration which began with Shivering. Pain in right side and cough and spit.

He was previously in perfect good health, and has hardly ever known a days illness. He has been a pretty heavy drinker all his life, and has been taking a considerable quantity of alcohol since his illness began.

Patient is looking bad. face of a dirty gray colour, with a good deal of lividity of the lips. Eyes sunken. and Tongue covered with a thick yellow fur. Bowels constipated.

Pulse 106 small and soft

Respirations 25.

Skin moist, sweat foul smelling

Temperature 102.

There is no appreciable difference

in the movements of the two sides of the chest.
Heart normal. sounds rather weak
The lower half of right lung is quite dull, with tubular breathing and if anything a slight increase of the V. R. and V. F. but there are no crepitations to be heard. while at the extreme base the signs are more those of fluid.
The upper part of right lung and the left lung are normal.
Patient says he has still pain in his right side. but he can draw a long breath without uneasiness.
He has evidently been drinking before coming in to the infirmary. and does not seem to be very clear about his illness.
2nd Patient slept well, and is taking nourishment very fairly.
Pulse 100.

Urine - normal -

5th Condition similar to what it was on admission - and patient still looking very bad -
To day an exploratory puncture was made at the right base and some very fœtid thin pus got.
Pulse 104.

6th Incision was made today in the 9th space behind and about 15 ounces of fœtid pus let out. The ribs were very close, and the drainage tubes were not easily introduced.

7th Restless last night, and complaining of pain in the region of the wound -
There are some medium crepitations to be heard to day over upper part of dulness -

9th Patient has been much easier the last 2 nights - and not complaining of any pain. Pus not nearly so fœtid
Pulse 102.

12th = Patient is sleeping and taking his food well - Tongue moist and quite clean except at the extreme back -
The discharge is getting much less.
Pulse 94. and gaining in strength.

15th = The dulness is clearing up well. There are still some crepitations over the upper half of the dull area.
Pulse 82.

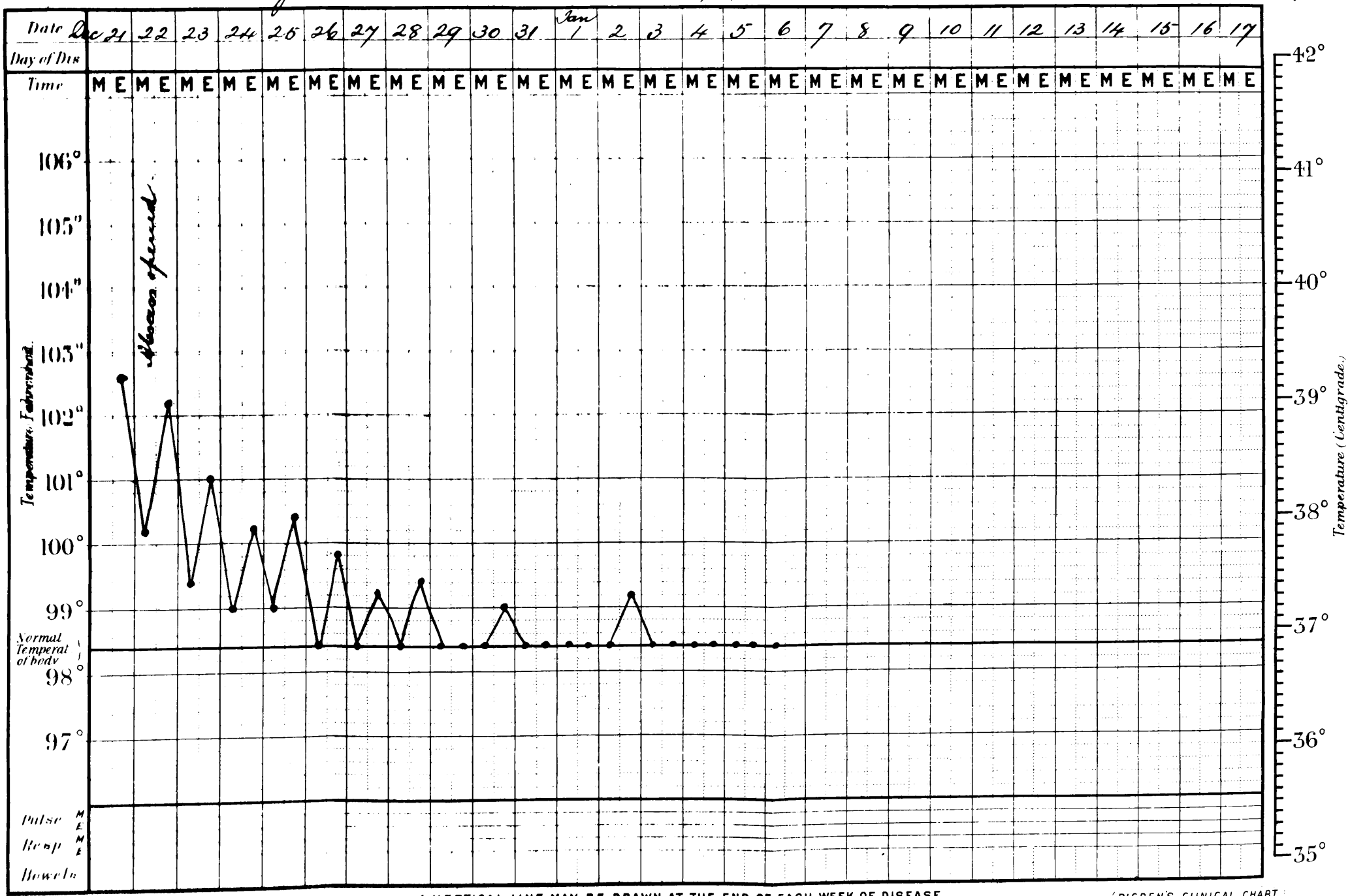
19th = The discharge is now very slight One of the tube has been left out as there is a good deal of difficulty in keeping them both in.
Patient is a much better colour and looking much better.

23rd = Patient has been up for a little the last 2 days. He has been complaining of some discomfort from the tube.

27th = Tube left out. for some days it has been forced out, and gauze

to the narrowness of the spaces it has been difficult to replace.
The condition of the chest continues steadily to improve. There are no crepitations now, and the dulness is steadily clearing up.
Jan. 11th Patient has continued well since the tube was [illegible] out all last night when there was a slight rise of temperature and pulse to 99·8 and 92. but both are again normal this morning. and patient complains of nothing.
15th Patient left today against advice the wound has almost quite healed and beyond a little flatness of the percussion note at the extreme base and some weakness of the breath sounds the two sides of the chest are practically the same.

Name M. McFadyen Age 14 Disease Empyema Admitted Dec 21st /91



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Case 8.

M. M. aet. 14. Millworker.

The following case came under my care during the absence of the other house surgeon. to whom I am indebted for the notes of the later treatment of the case.

Patient was admitted to the Infirmary on the 21st of December /91. and was then complaining of cough and spit of 2 months duration. and shortness of breath which has been getting worse lately. Her illness began with a sharp pain in the left side unaccompanied by rigor. and was followed by a cough and spit. the latter never being great. She has been confined to her bed more or less since beginning of illness. and has been getting steadily thinner and worse. For the last week or two she has had occasional shiverings and for some time back has

been sweating a good deal but this has been specially noticeable since the shiverings began.
She says she has been "off her head" a bit at night for the last week. Her appetite has been poor from beginning of illness, and her bowels have been generally constipated.
Patient is very emaciated and anaemic looking, with a bright malar flush
Tongue dry and furred.
Pulse quick and small 144.
Respirations 48.
The movements of the left side are almost absent.
Heart sounds very indistinct, the apex beat cannot be defined.
The liver dulness is slightly lowered.
There is a fluctuating swelling in the left hypochondriacal region which patient has only noticed

for the last 2 days.
Right side of chest normal.
Left side dull behind almost
to the apex. and in ~~front~~ axillary region
as high
as the 4th rib. and running into
cardiac dulness in front. The V.F.
is much diminished. but there is
little change in the resonance.
there is some slight bulging of
the intercostal spaces.
22nd Patient had rather a poor night
talking a good deal in her sleep.
Pulse 140. Respirations 42.
Urine. ac. amber. trace of albumen.
The abscess was opened and
fully a pint of pus evacuated.
on passing the finger into abscess
cavity the lower border of the
7th rib was found to be bare and
between the 7th and 8th rib there
was an opening communicating
with the pleural cavity.
23rd Patient did not sleep well

but says she feels easier since the operation. and breathing with less difficulty.
Pulse 142. Respirations 36.

24th There has been a considerable quantity of discharge at each dressing. Slept better last night.
Urine ac. pale amb. slight trace of albumen.

26th Feeling very much better, and has had no delirium the last two nights.
Pulse 128.

29th Discharge getting freely away. Still pretty considerable.
Pulse 114.
Urine ac. amber. no albumen.

Jan 2nd Taking her food and sleeping very well. little cough.
Pulse 116.

7th Apex beat can now be felt in the 5th space about 1 inch inside the nipple line. The discharge is

steadily decreasing in amount.
Pulse 96.

12th. Percussion over the left lung is much improved and the breathsound though faint are quite distinct. Cough quite gone and not sweating at all.
Pulse 96.

19th. Tubes shortened. discharge is very small in quantity.
To get up.

25th. Steadily improving. Taking her food well. Tube shortened
Pulse 78.

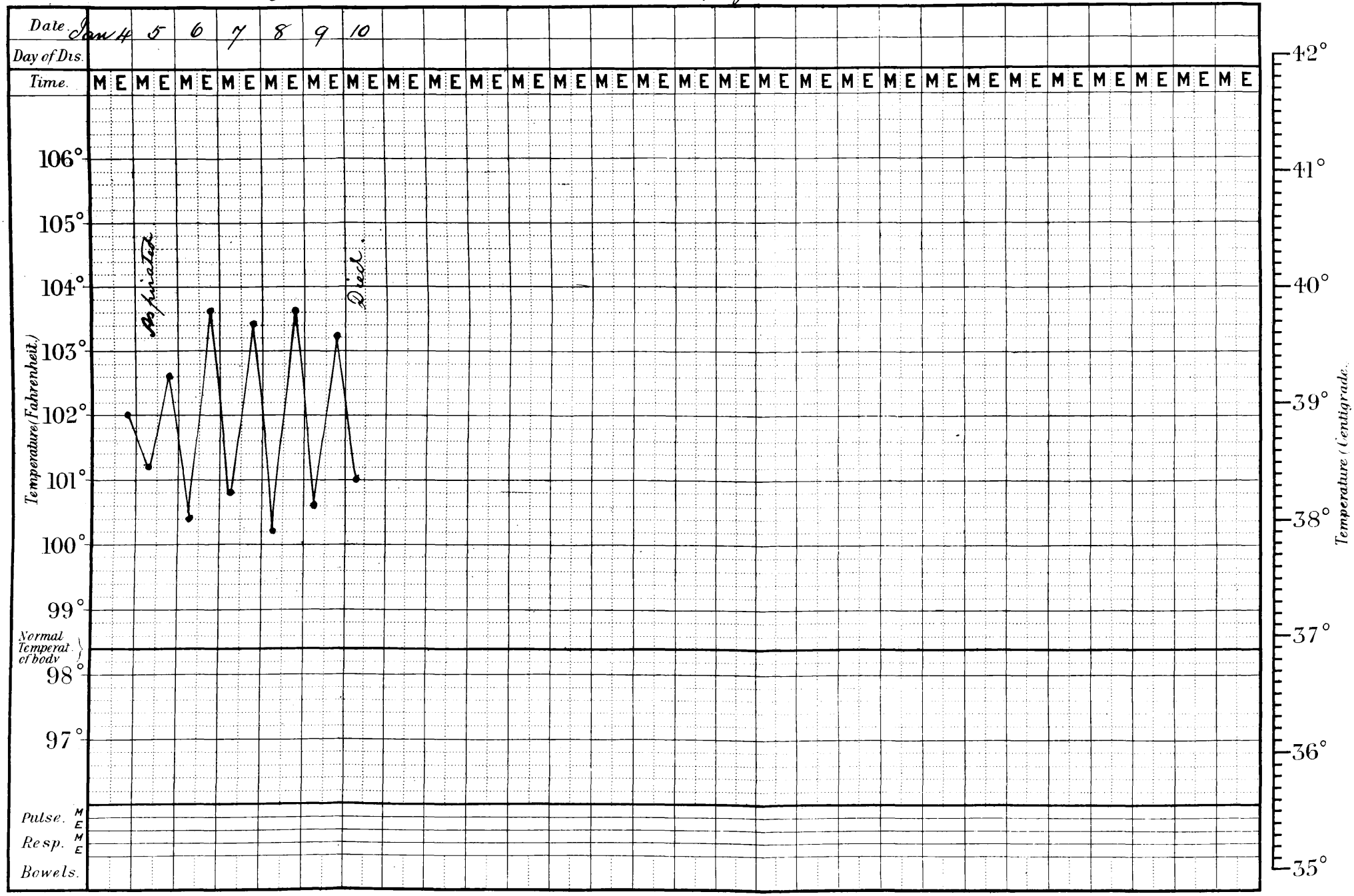
Febr 1st Tube removed. Urine normal.

9th. Exuberant granulations touched with $CuSO_4$

16th. Wound quite healed. Except for the breathsounds being somewhat faint over left base. the chest is almost quite normal.

29th went down to Convalescent home today There is no difference in the two sides, beyond a slight want of expansion + weakness of R. L.

Name J. Donnachy Age 29 Disease Empyema Admitted 4th Jan /92.



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Case 9.

I. D. Millworker aet. 29. was admitted to the infirmary on the 4th Jan. /92 complaining of cough and sharp pain in the right side for the last 7 weeks -

For the first six weeks of his illness - he continued at his work - but has been confined to his bed for the last week -

The pain, which was worse when he coughed or lay on the affected side, has been easier for the last 10 days -

Patient says he has never been very strong, although he has never been off work on account of illness. Little family history obtainable.

Patient says he has been wandering during the last few nights, but has not been sweating and has had no shiverings -

Tongue dry and furred. Bowels are regular.

Pulse 140 distinctly dicrotic.
Respirations 40.
Patient is looking worn with
sunken cheeks and bright red
lips, and is much wasted.
Heart normal. no displacement
of any of the viscera.
Respiration shallow, and the
expansion on inspiration restricted
on right side.
The right side of chest is dull
from just below the spine of the
scapula behind and to the nipple
line towards the front. with absent
V.F. and almost inaudible breath-
-sound. V.R. unchanged.
Skin moist. Temperature 102.
To have 3ij brandy every 4 hours.
5th Restless and rambling in his
sleep. and suffering from slight
dyspnoea.
An exploratory puncture showed the
presence of muddy [illegible]

fluid. and in the evening 29 ounces were drawn off by aspiration. the operation being stopped on account of cough.

6th Patient slept better last night. Taking food badly.
Fluid withdrawn last night on settling shows slightly greenish supernatant fluid with about one fourth sediment of pus. no fibrin.
Pulse 138. Respiration 38.

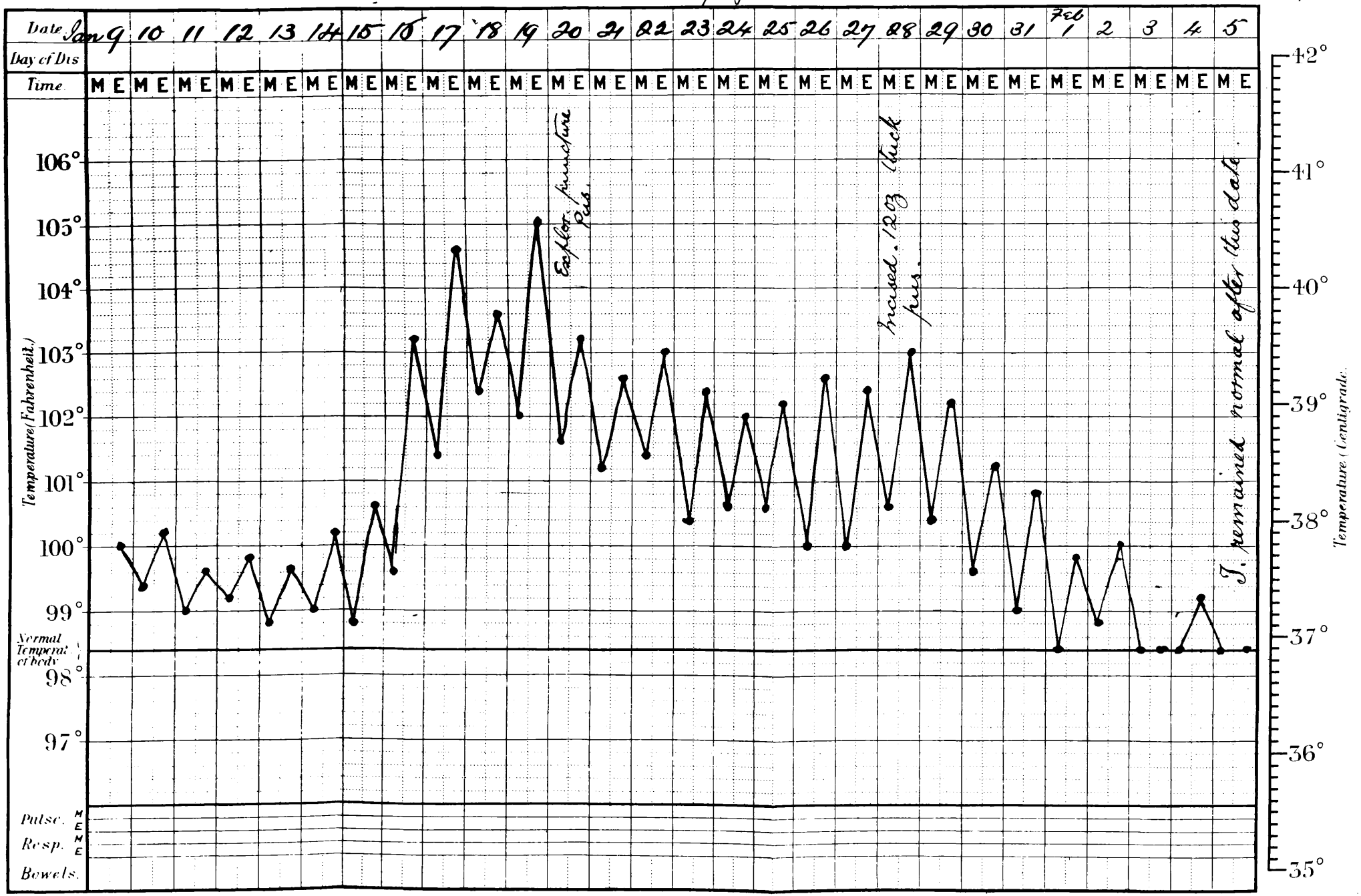
7th Patient complains of a little pain in the right infraclavicular region

8th Feeling easier but very weak. not coughing much.
Pulse 128 very weak and dicrotic.
To have 3ii brandy every hour.

9th Taking food very poorly. merely a little beef jelly and the brandy with a very little milk. looking very bad and getting steadily weaker.

10th Patient has been getting progressively worse and died this morning. P.M. refused.

Name W. Wilson Age 18 Disease Empyema Admitted Jan 9th /92



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RIGDEN'S CLINICAL CHART

Case 10.

W. W. aet. 18. millworker admitted Jan. 9th -/92.

For the last week patient has been confined to his bed suffering from cough and spit and pain in his right side. He says his illness began with a severe shivering, and that his spit was red coloured at the beginning of his illness. Until 8 days ago he was perfectly well.

Patient is a well nourished lad and has always enjoyed good health. His Father, Mother, and 4 brothers and sisters alive and in good health. one brother died in infancy. cause unknown.

There is an eruption of herpes at the left angle of the mouth, which was first noticed 3 days ago. and also a slight malar flush

The tongue is dry and coated and the bowels confined.

Pulse 90. good Quality - Respirations 28.
Movement of chest unimpaired.
Right lung normal.
Left lung dull for about 4 inches at the base with faint breath sounds and diminished V.F.
Heart normal.

10th Patient had a very good night
Urine ac. dark amber. no albumen.
Pulse 92

12th Patient is taking his food and sleeping well, but is sweating a good deal.

15th Condition of chest is much the same as on admission. no crepitation to be heard.

17th Temperature rose suddenly last night. but no rigor. and patient complains of no illfeeling. but he is perspiring very freely.
Pulse 90

19th Temperature continues high. but nothing further to be made out in

Chest. Not taking his food so well.

20th An exploratory puncture in the 9th space behind showed pus which was thick and quite sweet.

Pulse 96. and keeping fairly strong.

24th Temperature keeps generally high although it has come down a little since the 19th and patient is sleeping and taking his food rather better.

Pulse 102.

28th An incision was made to day in the 9th space below the angle of the Scapula, and 12 ounces of thick pus evacuated. On passing a finger into the pleural cavity a number of fibrinous bands were felt below incision. and several large fibrinous masses were discharged.

Pulse 98.

29th Slept well last night.

31st Tubes to day were bleached and on removing them there was a good deal

of discharge.
Pulse 92.

Feb 3rd Temperature has been coming down steadily. and patient is sweating much less
Pulse 84.

8th Tubes shortened, as they were causing some discomfort.

12th Temperature has been normal for a week. To get up in evening.

20th Tubes shortened. The dulness has cleared up rapidly since operation.

26th Tubes shortened, and one left out.

30th The remaining tube was left out today.

March 21st Patient was discharged today. Percussion and R.M. normal but the latter a little weak at the extreme base.

Case 11.

M. C. aet 18. Millworker.
This case only needs to be mentioned.
Patient was admitted on the 28th Jan. /92 with all the signs of marked pleural effusion which turned out on exploratory puncture to be purulent.
By aspiration 50 oz of pus were withdrawn. and a few days later patient went home refusing further treatment.

Case 12.

The following case was in my wards when I joined the hospital having been admitted a short time previously.

He was brought into the infirmary, one of several serious cases, the result of a horse and lorry having run away through the middle of a crowd on Magdalen Green.

At the time of his admission he was in a state of extreme collapse and in fact almost moribund and was with difficulty recuscitated by means of hypodermics of Ether &c.

He complained of nothing beyond the after effects of the shock for some days, when he developed a cough and pain in the right side of chest, quickly followed by signs of effusion which in a short time became very marked, with bulging of the intercostal spaces. There was no haem-optysis either at the time of the

accident or after.
Dyspnoea became most distressing accompanied by marked cyanosis. On exploratory puncture some dirty greenish foetid fluid was with difficulty got. the needle becoming blocked.
On following day, a free incision was made, and a very large quantity of fluid, similar to that obtained by the hypodermic needle, and containing large flocculent masses was forcibly evacuated. The cavity was drained in the usual way.
The boy was immediately much relieved, and did well from the time of the operation, and left the hospital with a normal chest, his general condition being infinitely improved.