P N E U M O N I A .

Richard J. Wylie MB. CM.

P N E U M O N I A

WITH SPECIAL REFERENCE TO CASES QUOTED .

Pneumonia is one of those diseases of which the name has undergone greater and greater specialisation as the science of medicine developed.-

Up to the time of Laennec and the invention of the Stethoscope the distinction between Pneumonia and Pleurisy does not seem to have been clearly defined; for though we find two diseases spoken of under the names of Peripneumonie and Pleuritis , it is not to be supposed that these corresponded exactly with our Pleurisy and Pneumonia, as may be understood when we find a bloody, bilious, or purulent sputum spoken of as one of the symptoms of Pleuritis.

Laennec with the Stethescope and after him Skoda were the first, on the true basis of physical examination, to accurately differentiate Pneumonia from the other affections of the chest; though it has been reserved for more recent observers to distinguish between its two forms the "lobular" and the "lobar".

As regards the aetiology of the disease it is generally recognised to be one from which no quarter of the globe is exempt, though its seat of election may be said to be the Temperate Zone, more especially those regions where extremes of temperature occur.- That an equable temperature does not however confer complete immunity is proved by numerous instances to the contrary, of which the Bermudas is one, where the disease is by no means uncommon.

On the whole its geographical curve

differs considerably from that of Catarrh or Bronchitis, which latter increases in frequency fairly uniformly from the tropics to higher latitudes.

As regards its prevalence in Europe there is one fact which admits of no doubt, and that is its relation to certain seasons of the year; being more prevalent in winter and spring; but even here our insular climate and that of the continent differ, since according to Juergensen in England and Ireland the maximum is from December to February, whereas March to May are the months of greatest prevalence in continental cities.

Of the 29 cases which I am able to quote, a proportionately larger number occured in March April and May than in any other months

thus approaching more to the figures of the Continent; and I know that it was the general opinion of the medical men of the town in which they occurred that it was in those months that they always looked for the largest number of cases.

These 29 cases all occurred during a period of one year in a limited district of the town of Middlesbrough, and four years before the town had been visited by a most severe and fatal epidemic of Pneumonia which formed the subject of a most interesting investigation by Dr. Ballard for the Local Government Board.- and when I state that these cases all occurred in one half of the practice of one out of 19 medical men in the town it may be inferred that the disease is largely endemic there in the sense that cholera

is said to be endemic in certain districts in the East; subject to periodical outburst of an epidemic character.- Even in 1881 years before the great epidemic the deathrate per 10,000 in Middlesbrough was

Males 25.0 Females 15.4

while that for the rest of England was

Males 10.9 Females 7.4

or less than half.-

In general the impression was left on my mind of a disease differing largely from the typical Pneumonia of textbooks, the ordinary Sthenic Pneumonia.

Of the 29 cases to be quoted the following table gives the number occurring in each month of the year:-

January	3
February	1

March	6
April	6
May	4
June	0
July	0
August	0
September	3
October	2
November	3
December	1

Those were all cases of Primary Croupous Pneumonia, cases secondary to such diseases as Typhoid, and as far as possible Influenza being excluded, though in some cases where the onset of Pneumonia and Influenza may have been contemporaneous, the distinction is difficult.

Many attempts have been made to explain

the greater prevalence of Pneumonia in some localities than in others; a high altitude with its rarified atmosphere has been said to predispose, but Ziemssen mentions the City of Mexico which stands 7489 feet above the sea, as being almost exempt from the disease and there are other instances. Middlesbrough on the other hand is almost on the level of the sea, and is built on low marshy land once flooded by the tide, where previously ague was a common complaint.-

In reference to the malarial character of the place it is interesting to note that some of the older writers, Grissenger in particular state that Pneumonia tends to assume an epidemic form in malarial districts, and Grissolle quotes several cases where Pneumonia has taken a remittent or intermittent course, and after reviewing

them he states " Il suit de ce qui precede, que la pneumonie peut se developer sous l'influence des causes qui produisent les fievres intermittentes".

In more recent times Dr Andrew Clark has given in detail in the Medical Times 1873 page 529 an interesting case of intermittent pneumonia with 9 distinct remissions marked by rigors; the neighbourhood in which the patients lived was supposed to be malarial.

One of my cases occurred in a man home on leave from India with typical Malaria preceding.

CASE I. B. C. AGE 32, LABOURER.

Had spent five years in the army in India where he had more than once suffered from fever. He was not conscious of any chill, but

woke up on the morning of November 15th, feeling very short of breath and with a troublesome cough with an expectoration containing blood. He immediately sent for me. He states that he has enjoyed excellent health since his return to England, and has always considered his chest quite sound. He has no pain , but a very flush look, and his breathing is rapid and shallow, 35 to the minute; pulse full and strong 95 per minute, temperature 101.2. There is fine crepitation at the base of the right lung, heart sounds normal. His expectoration is peculiar, considering the early stage of the disease; it is almost pure blood, venous in character and clotted. His spleen enlarged , & projects below the ribs where its lower border can be clearly defined. 16th. Consolidation of the right base

isfully established ; his temperature is 102.3; otherwise his condition remains much the same, the expectoration included. There is less dyspnaea than yesterday although the breathrate is slightly increased. The pulse is not of such high tension today. 17th. The disease does not seem to be extending; it at present reaches up to the angle of the scapula. Expectoration still haemorrhagic. Small doses of Ergot and Terpentine were given and seemed beneficial as the next day the sputum was only rusty. 18th. There is today a small amount of albumen in the urine. Herpes has broken out about the mouth. 19th. He complains today of slight dyspnaea and there is apparently a small collection of fluid at the base, the hitherto wellmarked signs of consolidation being muffled and at the extreme

base quite indistinct. He had rather a restless night with slight delirium. A diuretic was added to the mixture he was taking, and his temperature being 104.2, five grains of Phenacitin were ordered. This diminished the effusion, and the next day he expressed himself as better. There is no local extension of the disease, and during the afternoon his temperature on this the 6th day of illness fell from 103.8 to 99.6 with profuse perspiration. Resolution was accompanied by a very profuse green expectoration, rather ill smelling, but recovery was nevertheless rapid and uneventful.

Is it not possible that many of such xases are really malarial with pneumonic symptoms or malaria which has undergone a change of type subject to altered conditions of environment,

such as an ill drained town and an overcrowded population.

In connection with the effect of climate in inducing Pneumonia, that of Middlesbrough was somewhat uncommon, it was subject to rapid fluctuations of temperature, occurring almost daily. In the morning the wind was usually from the West or South-West, but about noon it began to veer round to the East, causing a rapid fall of temperature and generally bringing up a fine cold mist which was not a seafog, but seemed to spring from the marshlands along the river.

In connection with the action of cold winds in causing Pneumonia, some interesting experiments by Dr. Bernard are recorded in the Lancet of September the 1st 1877, by which he proved that hot or cold air if perfectly dry, was

cooled or warmed respectively in the trachea and bronchi before reaching the alveoli; but that air of the same temperature if moist, or if the mucous membrane of the trachea and bronchi were previously injured or diseased, did not become altered or regulated to the temperature of the alveoli, and entering unchanged set up small foci of Pneumonia. We thus see why Catarrh of the air passages by deterioration of the mucous membrane should be so predisposing to Pneumonia.

These experiments are also consistent with the prevaling idea regarding the noxiousness of cold and damp, but on the other hand would seem to exonerate the East wind from much that is laid to its charge , since it is considered a dry wind; but it is only dry relatively to other winds, being really as fully charged with

moisture as its low temperature allows, and is not dry like the cold air of Dr. Bernard's experiments.

In the same connection may be mentioned the fact recorded by Dr J. Reid in the Lancet Volume II; 77, page 186, that on the division of the vagi Pneumonia occurred, and Steiner of Halle produced the disease by division of the pulmonary branches alone. This is very likely due to paralysis of the cilia of the mucous membrane whereby foreign particles or saliva are allowed entrance to the alveoli, or it may be due to vasomotor paralysis whereby engorgement of the lung tissue occurs, since it was found that if no food were given the Pneumonia did not occur.

Dr. Lipari of Palermo found that the intratracheal injection of Frankels pneumococous

was harmless unless the subject had previously been exposed to cold for some time. Dr Ballard considered that the number of cases of Pneumonia occurring was largely dependant on the rainfall and the level of the subsoil water, the lower the subsoil water the more Pneumonia, but this seems inconsistent with the almost complete disappearance of Pneumonia during the dryest months of summer.

Age is an important factor in the consideration of Pneumonia. The age of greatest incidence according to various tables seems to be from 20 to 30, but the mortality increases in direct ration with the age. the 29 cases I am able to quote do not quite tally with the above statement, the number for each decade being as follows:

1 to 10 years	10 to 20 years	20 to 30 years
3	7	4
30 to 40 years	40 to 50 years	50 to 60 years
5	5	1
60 to 70 years	70 to 80 years	80 to 90 years
1	2	1

Of these the mortality was:

10 to 20 years	20 to 30 years	30 to 40 years
2	2	0
40 to 50 years	50 to 60 years	60 to 70 years
1	0	1
70 to 80 years	80 to 90 years	
1	1	

Of the 29 cases , 6 were women of whom 3 died, which bears out the generally recognised fact, that fewer women are attacked, but that it is more fatal to them. One of these women was pregnant . Case 14.

Of these 29 cases the mortality was 27.6 per cent, a very high figure, but not so

much when it is considered that it was taken from the lowest class of the population a large number of whom were habitual drunkards , and when the peculiar form of the disease as seen in Middlesbrough is taken into account. That the disease is peculiarly fatal there may be gathered from the fact that in 1881 the mortality per 10,000 of the population from Pneumonia was in all

England and Wales	Middlesbrough
18.3	40.4

Many hospitals show statistics as high as 20%. At the London hospital in 1875 it was just under 24%; at Westminster from 1884 to 1888 it was 20.9%.

In trying to discover some cause or causes for the greater prevalence and virulence

of Pneumonia in Middlesbrough, there were certainly circumstances existing which might well be considered as such.

The drainage for one thing was very defective, the fall was deficient and in some cases the subsidiary sewers were only segmental tiles put together without cement; also in nearly all the houses in the district in which I worked, and from which these cases were drawn, the kitchen sink had direct communication with the drain through a gully trap which as often as not was choked with filth and was generally insufficiently flushed.

The intimate connection netween sewer gas poisoning and Pneumonia has been proved in a number of cases, more especially in the case of epidemic outbreaks that in Middlesbrough not

excepted, and in regard to sporatic cases there are similar records; one very convincing one being that mentioned by Dr. Bradley before the Cambridge Bench of the British Medical Association, when he himself suffered from Pneumonia, and at the same time two other members of his family had conjunctivitis, and a short time previously three of them had had tonsillitis. On investigation being made distinct sewer pollution was found. Medical literature contains many such cases. Next in importance to sewer gas poisening in influencing the character and progress of Pneumonia, especially of what may be called the Pythogenic form, is overcrowding; and in this respect it is remarable to notice the resemblance between Pneumonia and Typhus, a disease notoriously influenced by overcrowding;

and this resemblance is very noticeable in the curve of the two diseases as traced over a number of years in the accompanying diagram.

In addition to inducing a particularly virulent form of Pneumonia, overcrowding also seems frequently to cause it to become infectious. There was an outbreak in the Mediterranean Fleet in 1860 which was distinctly traceable to this cause, and ceased on its removal, and there have been others recorded as occurring in prisons barracks, and hospitals. In the March number of the Medical Magazine 1886 the writer of the article on the "Sanitory State of the German Army" adverting to the prevalence of Pneumonia in the armies of Germany and France and the alleged infectious nature of the disease, alludes to his own experience of this socalled infectious Pneumonia during the war in South-

Afghanistan. Attendants on the sick were freely attacked and the general opinion then was , that the malady was mest infectious. The men were greatly overcrowded, and every aperture was closed to keep out the cold, which was extreme, so that the atmosphere in which they lived was very foul. The disease rapidly spread, and under these conditions no doubt manifested infectious property; but the writer adds that , given pure air and free ventilation, he is convinced there is no danger of the disease spreading by reason of propinquity alone from the sick to the healthy. There is no doubt that overcrowding and foul air are very powerful predisponents, at any rate, to attacks of Pneumonia in winter and eraly spring, especially amongst those who have previously suffered from malarious disease.

The lungs in such subjects become congested, inflamed, and hepatised with almost the ease and rapidity with which the spleen swells in attacks of ague. This has been the experience of medical officers serving with troops in India and in campaigns in that country; The disease may spread in foul and unventilated tents and buildings with the apparent rapidity of Typhus.

In the whole of Middlesbrough the number of inmates per house was very high.

In investigating the diseasesof any particular town the nature of its chief industry is always worth considering. In the case of Middlesbrough I think it was largely responsible for the disease in question. Middlesbrough exists through and for its iron smelting; and exceedingly unhealthy industry. The furnaces are all situated down in the marshes , in a most exposed

situation, and the men are exposed to violent alternations of temperature being alternately rosted before the furnaces or chilled through by the bitter wind which blows through the works, which are simply covered in sheds without any walls. The men worked in twelve hour shifts, & I have known them on occasion to be kept on for two or even three shifts when hands were short.

In addition to all this there is the question of the inhalation of slagdust. Slag is the refuse from the furnaces, and at the time of the epidemic was being crushed by a new process and converted into a very fine powder, and its dissemmination was believed by many to be the cause of the outbreak. It is a remarkable fact that at the very time that Dr. Ballard was investigating the Middlesbrough outbreak he

received notice of a similar one having taken place among the ironworkers of Nantes, where this new process was being applied to the slag. It is also curious that one of the severest epidemics of the disease occurred in 1878 at Scotton in Lancashire, and it attacked mostly those working at the iron smelting works.

As the result of his investigation Dr. Ballard was not inclined to consider the inhalation of this dust as the direct cause of the disease, though admitting its power to predispose the lung to it by irritation set up, for as I found myself, its inhalation set up intense irritation of the nose, larynx and bronchi. In this connection I was told by a medical man practising amongst the neighbouring Cleveland miners, that wounds contracted by them and con-

taminated by the iron pyrites were peculiarly difficult to heal and were liable to suppurate badly. It is possible that in charging the furnaces with this ore the dust may be inhaled and have a distructive effect on the mucous membrane or its cilia, thus bringing about the condition, which Dr. Bernand induced artificially in his experiments which I have already quoted, in which he found that air entering the lung through damaged airpassages did not have its temperature regulated as occurs if the parts are in a normal condition.

INFECTIOUS PNEUMONIA: There is strong evidence in favour of the view that under certain conditions Pneumonia becomes contagious. Hitherto it has occurred almost exclusively in the case of the pythogenic form as occurring in epidemics, and in all such cases it is very difficult to

assert that the disease is communicated from one person to another and is not really traceable to community of origin such as poisening by sewer gas, or the sonsumption of food containing the microbe of the disease, as was proved to be the case in the Middlesbrough outbreak. There were one or two cases reported by Dr. Ballard in the epidemic which pointed strongly to contagion being transmitted, but unless distinct infection could be traced in the case of a sporadic instance of the disease it is very doubtful whether the objection I have stated would not hold good, and even then a possible common origin would have to be excluded. I have been able to find record of only one such case. In the Lancet of November the 13th 1881 a Dr. Daly published an account of six cases occurring in rapid succession in one house; four children

the mother and grandmother, the lastnamed having come from a distance to help in nursing the children. Now in this case the sanatory conditions of the house were particularly enquired into and found perfect; no other common cause could be found and there were no other cases in the neighbourhood before or after.

It is becoming more and more recognised that Pneumonia is a disease associated with the presence of a specific organism, the complete establishment of which fact would be difficult to reconcile with the continued exclusion of this disease from the class of specific fevers; possibly it may however be found to be more of the nature of Erysipelas and Puerperal fever, whose organism seems capable of producing either disease. This may possibly account for the two

forms of Pneumonia , the simple or sthenic and the typhoid or pythogenic, epidemics being always of the latter type.

The researches of both Frankel and Friedlaender seem to establish a causal connection between a special micro-organism and Pneumonia, but since the same micro-organism has been also found in the inflammatory products of Pleurisy, Pericarditis, Peritonitis, Meningitis and Nephritis, and is even said by Pasteur to have been isolated by him from normal Saliva its presence in the sputum alone cannot be considered diagnostic, and as I was unable to procure any postmortem examinations I am unable to say if it existed in the lung or not.

In connection with the epidemic of Pneumonia in Middlesbrough, Dr Klein isolated

from specimens of lung juice sent him by Dr. Ballard, a specific dumb-bell baccillus which was undoubtedly aetiologically related to the disease and which he named the Bacillus Pneumoniae. This bacillus when inoculated into guinea-pigs or mice caused a rapidly fatal pneumonia and the lung-juice of these animals contained the bacillus in question. The same results were attained by feeding some guinea-pigs with samples of beacon which Dr. Ballard suspected were concerned in the propagation of the disease. In none of these cases however was Dr. Knlein able to detect either Friedlaender's bacillus or Diplococcus of Frankel or Weichselbaum. In conclusion it may be stated that the balance of opinion seems to be in favour of Pneumonia being a specific fever due to the presence of a micro-

organism which yet remains completely to isolate, also that the disease occurs either epidemically endemically or in a sporatic form; that the healthy lung is generally able to resist the action of the bacillus, but that any injury to the lung or more especially to the cilia and mucous membrane of the trachea or bronchi, such as special conditions of temperature and moisture irritating dusts, or catarrh, or anything tending to lower the general vitality such as the presence of disease in other organs, exhaustion or alcoholism, perpares the way for the onslaught of the bacillus. That on the other hand the bacillus itself becomes under certain conditions so altered and increased in virulence that without the existence of any predisposing cause it is able to attack even healthy individuals,

and in such numbers as to constitute an epidemic, and assume infectious properties. These conditions seem to be chiefly, defective sanatory arrangements, overcrowding, and possibly other as yet imperfectly understood, but connected in some way with temperature and rainfall. In the above condition Pneumonia only follows the same law as Typhoid and Cholera and the most fevers, since the healthy body is probably frequently in contact with their germs which it is able to resist in ordinary cases, but were the bodily health is affected or the microbe possesses such increased virulence as to produce an epidemic then it succumbs.

CLINICAL HISTORY: Before considering the ~~cause~~ course and symptoms of Pneumonia, it is interesting to note the partiality which the diease

displays for the right lung; the proportion varies with different observers, but all are agreed in the greater prevalence of Pneumonia on the right side. Of the 29 cases noted by me, 16 were right sided, 10 occurred on the left and three were cases of double Pneumonia. Juergensen's data for some thousands of cases was

Right lung	Left lung	Double
3.580	2.548	.538

The difference seems largely caused by nearly double as many cases of right Apex Pneumonia occurring as of Left Apex; at the bases the numbers are nearly equal in his cases.

Pneumonia occurring in the middle lobe of the right lung is proved by statistics to be far more common than I fancy is generally realised. The majority of such cases occur in children , and it is in these cases that that

curious late development of physical signs is seen, the process of resolution even being sometimes well advanced before they make their appearance.

Juergensen mentions 118 cases out of a total of 6500 in which this lobe alone was affected, and Beach out of a very similar total number of cases had 124 occurring in this lobe alone. It is usually not until consolidation has extended to the surface of the lung that the physical signs, bronchophony and vocal ressonance especially, in these cases declare themselves, and then often with a surprising intensity, owing doubtless to the consolidation in these cases surrounding the larger bronchi, and the voice being brought more directly to the ear than is the case when consolidation occurs at

TEMPERATURE CHART by Mr Geo. Chas. COLES, M.R.C.S.

NAME.	RESIDENCE.	AGE.	SEX.	OCCUPATION.
Case II		6	m	

DISEASE. Pneumonia simulating Meningitis

18 DATES OF OBSERVATIONS

	Jan. 27th	28th	29th	30th	31st	1st	2nd	3rd	4th	5th
Pulse, per minute.	100	104		120	115	96				
Respirations per minute.		30	36	34		25		20		
Urine Ozs.	No	albu								
Spec. Grav.										

REMARKS.

ENT. STA. HALL.

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the base.

In the following two cases, the Pneumonia presented the above characters, one of the, in addition presenting the features of so-called cerebral Pneumonia, to such an extent as to lead for a time to a diagnosis of Meningitis.

CASE II: PNEUMONIA SIMULATING MENINGITIS: I was called in to see this child on the 27th of January. His mother told me that the previous day he had seemed quite well, but that in the evening he became feverish and complained of his head, and that later on he had a severe attack of vomating.

I found a boy of 6 years old lying in his mother's lap, pale and very drowsy, occasionally raising his hand to his head as if

in pain. If roused he would utter a peevish cry, open his eyes for a moment and then dose again: his temperature was 102, his pulse 100, there was no diarrhaea, nor anything to cause suspicion of any disease in the abdomen. Physical examination revealed nothing abnormal in the chest, except a rate of breathing slightly more rapid than normal. His mother stated that he occasionally shrieked out loudly. There was no history of any ear symptoms, such as the one so common amongst the children of the porr of a discharge from the ear; no tenderness over the mastoid region, nor any bulging of the tympanum. There was no strabismus nor photophobia no vomating beyond the first attack; There was no retraction of the head nor stiffness of the neck; nor was there any rash or other indication of any of the

specific fevers. In view of the doubtfulness of the diagnosis simple remedies seemed the safest course until the disease should declare itself, a saline mixture with some bromide was ordered, and ice to the head, and tepid sponging three times a day. There was no albumen in the urine, 28th. His condition is much the same. His mother says he passed a very restless night. His temperature today is only 100, his breathing 30 per minute. He takes a fair amount of liquid nourishment, but is still very drowsy. In the evening his temperature was again 102, and the next afternoon 105, when his pulse was 120 and the breathrate 36, no albumen in the urine. I began to feel sure that this was going to turn out a case of Pneumonia . altheugh no distinct physical signs were apparent. 30th. His temperature

and pulse remain high, he is not at all drowsy today, but has a slight cough which causes him pain in the right side. Towards evening he became slightly delirious, and this continued all the next day, his temperature on the afternoon of the 31st . being 105. 1st of February: This morning he is much better, having evidently passed the crisis as his temperature has come down to 99 and the skin from being dry and hot is cool and moist. On examination of the chest there are rales indicative of a lung undergoing resolution, and dullness over the centre of the right lung. The diagnosis was thus cleared up, the case evidently being one of Pneumonia attacking the root of the lung and only gradually working its way to the surface of the middle lobe. Convalescence was rapid, and no trace of

TEMPERATURE CHART by Mr. Geo. Chas. COLES, M.R.C.S.

NAME.	RESIDENCE.	AGE.	SEX.	OCCUPATION.
Case III.		8.	m.	

DISEASE. Cerebral Pneumonia

18 ..... DATES OF OBSERVATIONS

April 21st 22nd 23rd 24th 25th 26th 27th

Cent.	Fahr.	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
41°	106																																				
	105																																				
40°	104																																				
	103																																				
39°	102																																				
	101																																				
38°	100																																				
	99																																				
37°																																					
NORMAL	98																																				
	97																																				
36°	96																																				

Pulse, per minute.		160		140																																	
Respirations per minute.						42																															
Urine	*Ozs.*																																				
	Spec. Grav.																																				

REMARKS.

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injury remained.

CASE III: This was the case of a boy aged 8, in which there was strong family history of Phthisis, and he himself had been in delicate health for 2 years, always contracting catarrhs and once a severe attack of bronchitis. The day before I saw him first he had an attack of convulsion, after which he was very drowsy for the rest of theday, but the next morning woke up crying with pain in the abdomen. I have found that the pleuritic pain which accompanies the onset of Pneumonia, is in the case of children nearly always referred to the abdomen on the corresponding side and not the thorax.

When I first saw him he presented a very phthisical appearance, a hectic flush on the cheeks, bright eyes and intelligent look of

a certain class of consumtive, quite different from the usual aspect of a child with Pneumonia, when the generally dusky flush on the face, the slightly yellow conjunctiva and evident pain on the least movement are fairly diagnostic. The pain in his case had already diminished somewhat. On examination of the chest I could find no distinct dullness anywhere unless a certain want of resiliency about the angle of the scapula on the right side could be interpreted as such, but in this same spot there was bronchophony almost amounting to aegophony. This apparently contradictory combination i.e. the absence of one and presence of another of two symptoms which are supposed in Pneumonia to be associated is not rare in the case of children. His tongue was furred and the skin hot and dry, his

temperature being 103, his pulse 100, breathing 28. April 22nd. Dullness pretty distinct today over the region where yesterday there was bronchophony and is extending into the axillary region, the pulse is 100, temperature 103.8. There is a short dry cough which he tries to suppress as much as possible. Temperature in the evening 104.2. 23rd. Today he has an outbreak of herpes all round the mouth. The pain is slightly less but the cough still remains as is always the case with children of his age. There is no expectoration. He passed a very restless night with slight delirium. His temperature today is 105. There is no extension of consolidation but all the signs of it are clearer and more distinctly marked. There has been no albumen in the urine on any day, and as a rule

I have failed to find it in the case of children. In the evening when I saw him he was worse than I had seen him; a very dusky flush on his face the breathing 42 to the minute, and unconscious till roused. During the night however crisis set in, and he made an uninterrupted recovery.

Pneumonia is by preference a unilateral affection, and attacks in the greater number of cases the base rather than the Apex. No adequate explanation has ever been offered for either of these facts, the latter of which may possibly be due to the circulation at the base being less active than elsewhere in the lung, since we know it to be the seat of election of hypostatic congestion.

Of the cases collected in this paper, 19 were Pneumonia of the base, 8 of the Apex and

2 of the middle lobe of the right lung.

In regard to the clinical history of Pneumonia, the invasion is nearly always sudden, marked by rigors, or in the case of children by vomiting, diarrhaea or convulsions. The rigors are seldom repeated and the reverse would be an indication to us to reconsider our diagnosis; that it is not always so however is borne out by a remarkable case related by Dr. Andrew Clarke in which 13 rigors occurred in 20 days, the Pneumonia running a remittent course. Repeated rigors may be an indication of some complication such as Endocarditis, Pericarditis or Empyema, of which latter I had one instance which I quote below. Rigors are less common in children than in adults, and are usually absent in Pneumonia, which is secondary to other diseases, influenza

TEMPERATURE CHART by Mr Geo. Chas. COLES, M.R.C.S.

NAME.	RESIDENCE.	AGE.	SEX.	OCCUPATION.
Case IV		33.	F	

DISEASE. Pneumonia complicated with Emphysema

18 Dec DATES OF OBSERVATIONS

		28	29	30	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
		AM PM	AM PM	AM PM	AM PM	AM PM	AM PM	AM PM	AM PM	AM PM	AM PM	AM PM	AM PM	AM PM	AM PM	AM PM	AM PM	AM PM	AM PM	AM PM	AM PM	AM PM
Pulse. per minute.		98	110		124	140	132	130	125		128	120	103			160						
Respirations per minute.		28	35		22	40	44	54		34	43	25					26					
Urine	Ozs.																					
	Spec. Grav.																					

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not excepted. The temperature usually rises with the rigors , and pain and cough make their appearance soon after.

CASE IV: PNEUMONIA COMPLICATED BY EMPYEMA: (Mrs V.) I was called in to see this woman on November 28th. She was a strong fresh looking woman of 33. She complained of having received a chill two days before, and yesterday she had a rigor. Today there is pain with a slight cough. The pain is in the left inframammary region, and is worst on coughing or taking a deep breath. She says that she had rheumatic fever badly four years ago, and that her medical attendant then told her, that it had left her heart week. On examination there is a slight mitral regurgitant murmur, but there is no evidence or history of want of compensation.

There is well-marked friction sound in the axillary region but no crepitation or other indication of Pneumonia. The next day she expressed herself somewhat relieved of the pain and she had passed a good night. The cough is however frequent and troublesome with a scanty viscid sputum, without however any rusty tinge. Her temperature is 102.6, respiration 35. Today over the base of the left lung there are all the signs of a patch of consolidation, extending to about halfway between the base of the lung and the angle of the scapula. There is hyperresonnance above the level of dullness. The skin is less pungently hot, but the tongue is very brown and dry. There is no albumen in the urine, which however shows an abondant deposit of urates. In the evening her temperature rose to

over 105. 30th. Her condition is much the same except that the dullness now extends to the spine of the scapula. She complains of occasional giddiness and attacks of palpitation, which is probably the effect of an increased pulserate on incompetent valves, for the pulse today is 120, the sputum today has the characteristic rusty tinge, but is very scanty. She passed a very restless night, diarrhaea having been very troublesome. December 1st. On this the 5th day of illness, there is a considerable amount of albumen in the urine. Temperature in the morning under 103, in the evening 104.6, pulse 126. Dyspnaea is very noticeable today, which is not as a rule a prominent symptom in Pneumonia, much as one might expect it to be. The respiration is from 22 to 27 per minute. The disease

has now extended over the whole lung. The diarrhaea ceased with the administration of one or two lead and opium pills, a stimulant mixture with digitatis being the only other medicine. The pain in the side had ceased and there is also very little cough; the heart's apex is displaced to the line of the sternum. The next day she was worse, the dyspnaea had increased and there is evidently fluid at the base, which is causing it; vocal resonance and the breath-sound being absent, whereas above the upper level of the fluid they appear exagerated. She also had a well-marked rigor in the afternoon. Respiration 43. Dec. 3rd. Her temperature this morning is only 101, and she seems to have had a slight crisis, having perspired profusely during the night. On examination of the chest it seems as

of resolution were commencing while fluid still remains, for in the upper part of the lung distinct though feeble rales are to be heard, but nothing at all from the spine of the scapula downwards. Her pulse this morning is 110 in the evening 130, and about 4 o'clock she had another rigor. It seems as if there had been a crisis, as far as the pneumonic process is concerned; while the fluid in the chest has probably become purulent. I determined to puncture the chest in the morning. This was done, when about a pint and a half of very offensive pus came away, and under chloroform I resected a small piece of rib and inserted a large drainage tube, washing out the cavity with a weak solution of Condy's Fluid. She was much relieved and though her temperature rose at night to 104.5 , it came

down considerably the next morning, when the dyspnaea had also disappeared, but the respiration is still rapid, being 36. The heart's apex has resumed its normal position and there is no more palpitation. The wound is discharging very freely. Dec. 6th. Today in dressing the wound the drainage tube was unfortunately allowed to slip into the cavity and could not be found again and possibly in consequence the temperature rose to 104 in the evening. The next morning with the help of a long pair of forceps it was luckily ceased and properly secured. Resolution is almost complete in the lung; the pleura however is much thickened, and there is still considerable discharge. Everything however went on well, and although the temperature did not touch the normal till the 18th day she eventually made

a complete recovery without any subsequent retraction of the ribs.

Pleurisy with effusion especially Empyema is more usually a sequela than a complication of Pneumonia, but when it is contemporaneous, it almost always delays crisis or as in this case recovery is by lysis.

Pain in Pneumonia is almost always present from the commencement; in the elderly people it is often very slight, not so localised and may be very late in making its appearance or be absent altogether. In children it is not always referable to the spot where the pleurisy which causes it is situated, but is frequently located in the abdomen, usually in the iliac region of the same side. In an ordinary case of Pneumonia whether of the base or apex the pain

is usually situated in the inflamammary region, though why the pleurisy to which it is due should be more intense at this spot it is - difficult to say. It is usual after death to find a localised patch of pleurisy in this situation; possibly the two pleural surfaces come more into contact at this spot, though in the recumbant position it should not be so. The severity of the pain is no criterion of the severity of the Pneumonia nor of its prognosis. Concurrently with the onset of pain there is usually the development of more or less cough of a short hacking nature which the patient tries to suppress as much as possible on account of the increase of pain to which it gives rise. In some cases it is absent altogether, and may lead to an examination of the chest being omitted, Where there is no other prominent symptom of

TEMPERATURE CHART by Mr Geo. Chas. COLES, M.R.C.S.

NAME.	RESIDENCE.	AGE.	SEX.	OCCUPATION.
Case V.		40.	M.	

DISEASE. Pneumonia following Injury

18 ..... DATES OF OBSERVATIONS

May 5th 6th 7th 8th 9th 10th 11th

Cent.	Fahr.	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
41°	106°																																		
	105°																																		
40°	104°																																		
	103°																																		
39°	102°																																		
	101°																																		
38°	100°																																		
	99°																																		
37°																																			
NORMAL	98°																																		
	97°																																		
36°	96°																																		

Died

Pulse, per minute.		96		140		128																													
Respirations per minute.				40																															
Urine	Ozs.																																		
	Spec. Grav.																																		

REMARKS.

ENT. STA. HALL.

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lung-affection, as happened in the following case, where Pneumonia complicating an injury was overlooked.

CASE V: This man fell from a scaffold 5 days before I saw him, falling on his right hip. He was taken home to his lodging in a cart, and made no complaint of feeling chilled either then or when he was removed 4 days after to his own house when he first came under my care. He was in bed and unable to stand on account of the pain in his hip, but there was no fracture He made no complaint of any sort beyond the pain in the hip and some constipation; his tongue was very coated. The next day however I noticed the rapidy of his breathing which was 36 and his temperature I found was 104 but no cough or pain. I then examined him thoroughly and found

consolidation of the base of the right lung which had evidently been in existence two or three days. Treatment was of course directed to this. The next day he was worse, his pulse running up to 140 although his temperature was only 101. In the evening he was delirious, and this continued through the next day on the evening of which he died.

Whether this was one of those cases which some maintain are possible , of Pneumonia caused by injury or whether it was due to a chill caught at the time or subsequently I can not say. If he had not been a very temperate man I should have considered the first possible, for in the case of chronic drunkards I believe that a severe injury may induce Pneumonia, as another case which I quote furtheron seems to show.

In reference to the question of the connection between bodily injury and Pneumonia it seems to be one of coincidence rather than causation, there usually being a history of chill contemporaneously or immediately before or after the injury. It seems quite possible in the light of the undoubted fact of exhaustion and lowered vitality predisposing to Pneumonia that the shock of a severe injury of a fall such as occurred in the last mentioned case may act as such predisposing cause. In the following case there was concomitent drunkeness and possibly also exposure and the termination was fatal.

CASE VI: (G.F.) This man got very drunk on Saturday night, May 2nd, and on his way home fell heavily cutting his head over the left

temple on the curb stone. He did not feel well the following day, but on Monday was able to resume work, but had to leave at midday , and at night was seized with rigors and vomited twice. The next day, the 3rd of illness I was sent for. He had a cut about 2 inches long with contused edges & exposing the bone. It was in a very septic condition and was causing him a good deal of pain. He also had pain over the apex of the left lung with a short dry cough and rapid respiration. Temperature 104, pulse 96. There is consolidation of the left apex with all the usual physical signs, and also a well marked cracked pot sound. Terpentine Stupes were ordered for the chest with a mixture, internally of Ammonia and Digitalis, and the wound was thoroughly cleansed and dressed. Brandy every five hours.

The next day he was worse, although there is no local extension of the disease, and his temperature is rather lower, but his pulse and breathing as well as the sound on the chest were both increased. His tongue was dry and brown, and he will take very little nourishment. In the night he had been very delirious, but today is in a semistupor. There is alsmost no expectoration and it is not rusty. The heart sounds are very feeble, and the area of cardiac dullness seems in excess of normal, and I think there is dilatation although there are no other signs of it. Strychnine added to his mixture. May 7th. Temperature 101.8, pulse 128. Low muttering delirium at times violent, complains of pain in the head; local lesion not extended, cough frequent but dry and painless. Incessant

hiccoughing has set in, and food caused vomiting during the night. All the day he has been fed with enemata , but he was evidently sinking, and though he lingered through the next day, he died at night, death being more from cardiac failure than the virulence of the disease.

The sputum in Pneumonia usually first appears about the second day, but is sometimes absent altogether. It is at first slight and viscid, but in a day or two assumes the characteristic rusty tinge; this however is sometimes absent or is delayed, more especially in cases complicated with or secondary to bronchitis, when the expectoration is from the first profuse and muco-purulent only assuming the pneumonic character later. Prune-juice sputum is usually an indication of the Pneumonia being of a severe

type. Occasionally the expectoration becomes hemorrhagic, usually in cases complicated by some form of heart-disease, and occurs mostly in elderly subjects, being nearly always fatal in their termination. (Vide Case XI.)

In Pneumonia complicated with jaundice the sputum often has an icteric tinge, the viscidity of the pneumonic sputum is one of its chief characteristics, and one of the most troublesome; for the patient is often quite exhausted by his efforts to expel it. The viscidity may be diminished considerably by the administration of alkalies, but is increased by quinine. The administration of alkalies in small quantities in the first stages is therefore desirable, & quinine should only be given in small tonic doses if necessary in the later stages, and not

in large antipyritic doses. Whether there is any connection between the above and the fact that the sputum of Pneumonia contains a large quantity of salts, and more especially chloride I cannot say. If the viscidity be due to the excess of salts it is difficult to see how the administration of such can diminish it.

?? Perhaps the most idiopathic symptom of Pneumonia is the accelerated respiration, or rather the altered ratio between the pulse and respiration. In bronchitis the normal ratio is little disturbed if at all, and in pleurisy though the breathing is rapid , it is never so to the degree that it reaches in Pneumonia.

That the greatly increased rate of breathing is not due to the pain of the pleurisy which always accompanies Pneumonia, is proved

partly by the abovementioned fact, that in simple pleurisy such increase is not seen, and also by the fact that on the subsidence of the pleuritic pain after the first few days rapid breathing still continues, and only diminished with the onset of improvement in the state of the lung itself. This rapid breathing is not to be considered as an indication necessarily of increasing dyspnaea for in many of the worst cases with a breathrate of 60 or 70 per minute, the patient is unconscious of any difficulty in his respiration, and in no case have I ever observed orthopnœa. Nevertheless this increased rythm is not to be underestimated; it is a sign of importance and has its bearing on the course and prognosis of the case. In the majority of cases the breathing increases in rapidity

with each extension of the inflammatory process; and in combination with a slow pulse, rapid and weak, and a low temperature is of evil import, signifying a large area of lung affected with a diminished vitality of the patient. This combination is most commonly seen in patients given to alcoholic excess, or when the virus of Pneumonia possesses toxic powers greater than usual as in epidemics and cases of socalled pythogenic Pneumonia.

In most cases of Pneumonia the disease is already well-established before we are called in , the lung having already reached the stage of consolidation, the watching of the development of physical signs from the commencement being thus denied us.

Crepitation of a fine kind is usually

the first definite sign, heard over a limited area only; but sometimes even before this a harsher breath-sound than normal, or it may be its partial or complete suppression enable us to foretell to a certain extent the subsequent inflammation; and this same alteration of the respiratory murmur is as might be expected often to be heard at the circumference of an already consolidated patch, indicating an extension of the disease. In all bronchitic cases this fine crepitation is often absent or is supplanted by sonorous or sibilant rales.

On the second or third day pleuritic friction can usually be heard in the inframammary or axillary region; and it may continue during the whole course of the disease, but more commonly disappears when the stage of consolidation

is reached, or on the effusion of lymph into the pleura. Before actual dullness on percussion can be made out, a tympanitic note is often present. As consolidation becomes complete crepitation disappears, and with dullness on percussion we have increased vocal fremitous and resonance and wellmarked bronchophony, sometimes aegophony, and tubular or bronchial breathing, at the same time that there is diminished expansion of the chest-wall. Sometimes after consolidation moist dry rales may be heard which seem to be conveyed to the ear with increased intensity. This is due to bronchial secretion or thickened bronchi, occurring usually in chronic bronchitic patients, being caused by consolidated lung tissue which of course conveys the sound better than healthy lung.

Sometimes again there may even be cavernous respiration or a tympanitic note giving rise perhaps to a false diagnosis of the existence of cavity; this is probably due to islets of sound-tissue being surrounded by consolidation, or if occurring late in the case to a rapid local resolution. On children a tympanitic note is sometimes found in the upper part of lung whose base is solid, generally just under the cavity.

Very rarely sound of any sort is absent, a condition supposed to be due to the blocking of the bronchus on that side, but that this cannot always be the case is prved by nine cases quoted by Grisolle, in which the phenomenon was observed, but no obstruction could be found post mortem.

That before the signs of consolidation can be made out the lung must be solid from the point of origin to the surface, is proved by the fact, that when the disease commences deep down about the root of the lung, and sound tissue intervenes between it and the surface of the lung, physical signs are nearly always delayed till the consolidation has extended to the surface. The unaffected lung in cases of unilateral Pneumonia generally takes on compensatory action, as is evidenced by increased movement and exaggerated and often puerile breathing.

Resolution is marked by the reappearance of fine crepitation, "crepitus redux," followed by the disappearance of the physical signs of consolidation and the appearance

of abundant moist rales. In children in whom the process of resolution is often extremely rapid this sequence is not always observed, both crepitation and moist rales being often absent, bronchophony passing by almost insensible stages into rough exaggerated and then normal breathing. Though convalescence from an uncomplicated of Pneumonia is usually rapid the signs of the disease are sometimes very slow in disappearing , and weeks may elapse before all dullness has departed; this may be due to thickened pleura. In cases about to die there is shortly before death often abundant moist crepitation to be heard all over the lung as if the tissues were undergoing rapid resolution, but it is probably due to pulmonary oedema.-

THE PULSE: This in Pneumonia is of course accelerated as in all febrile conditions. It is as a rule in cases of sthenic pneumonia full and bounding at least in the first stages, in alcoholic subjects however it is apt to be flabby and compressible, and even in healthy subjects after about the third day it becomes much softer and may even be dicrotic. In elderly people it is often not increased much in frequency above the normal, but in chidren may be so rapid as to be uncountable. But it is in its altered ration to the breathrate and sometimes to the temperature that it is most characteristic, and can even enable us to diagnose Pneumonia before the appearance of definite physical signs. The normal ration of respirations to heartbeats being about 1 to $4\frac{1}{2}$ is in Pneumonia often altered to as much 1 to 2.

The actual rate varies between 90 and 140 in adults , to even 200 in children. A rapid pulse 120 or more, with a low or even falling temperature is a sign of bad augury, seen mostly in subjects of chronic intemperance or sometimes in the more typhoid forms of Pneumonia, and indicates a failure of vital power in the cardiac muscle, calling for abundant stimulation.

Cardiac failure is in most cases the mechanical result of engorgement of the pulmonary vessels calling for increased effort and is generally seen in cases where a large extent of lung tissue is diseased; but occasionally occurs when there is only a very small patch of consolidation; in such cases when not due to alcoholic excess or heart disease its explanation is probably to be found in the

TEMPERATURE CHART by Mr. Geo. Chas. COLES, M.R.C.S.

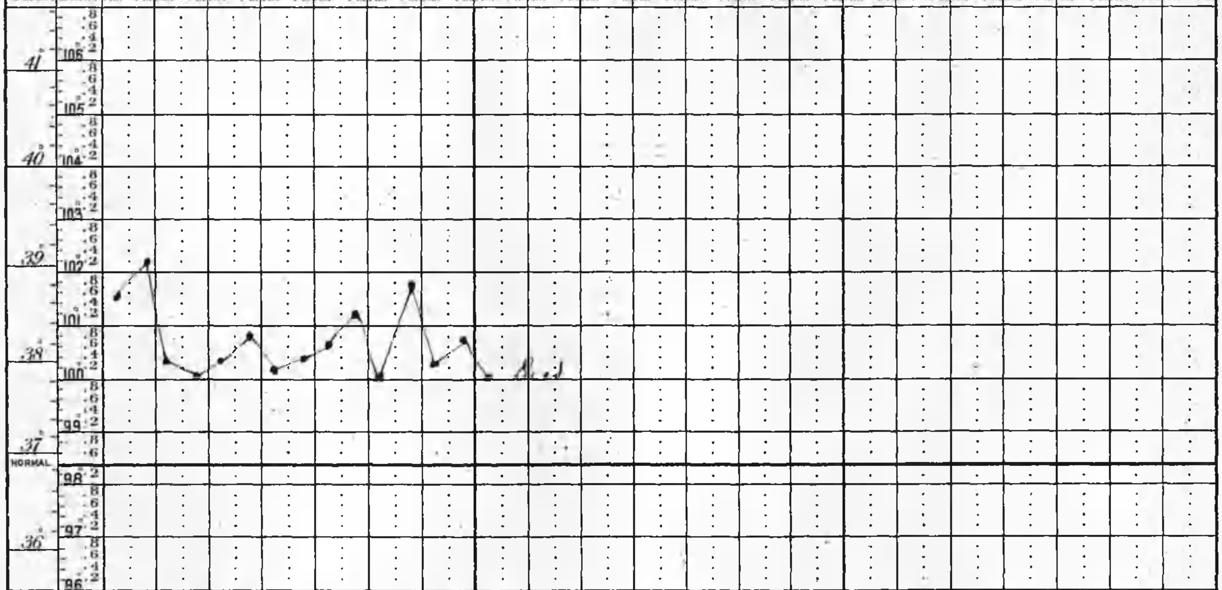
NAME.	RESIDENCE.	AGE.	SEX.	OCCUPATION.
Case VII J.C.		33.	m.	[illegible]

DISEASE. Pneumonia of an Asthenic Type

18

DATES OF OBSERVATIONS

March	29	30	31	1	2	3	4	5	6	7	8	9	10	11							
Cent. Fahr.	AM : PM	AM : PM	AM : PM	AM : PM	AM : PM	AM : PM	AM : PM	AM : PM	AM : PM	AM : PM	AM : PM	AM : PM	AM : PM	AM : PM	AM : PM	AM : PM	AM : PM	AM : PM	AM : PM	AM : PM	AM : PM



	29	30	31	1	2	3	4
Pulse, per minute.	100	94	108	115		120	146
Respirations per minute.	24		[illegible]	50	44		60
Urine Ozs. / Spec. Grav.	Albumen						

REMARKS.

ENT. STA. HALL.

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toxic effect of the virus of the disease on the nervous system. The following case is one of cardiac failure , the result of alcoholic excess causing a rapid pulse with a low temperature where judging from the disease alone a favorable prognosis might safely have been given.

CASE VII: (T.C. furnaceman) : This man, age 33, was attacked on the 27th of March with rigors and severe vomiting in returning from work and this was followed by severe headache for the rest of the night. I saw him the next morning, when I found his temperature to be 101.4 his pulse 100, soft and almost dicrotous . His face was not at all flushed, but of an unwholesome waxy appearance, tongue quite clean, and the urine on examination was found to contain a little albumen. His breathing is 24 per

minute, and there is severe pain on the right side of the chest , where some fine crepitation is to be heard over the apex. He confessed to syphilis and I knew him to be a chronic drunkard. He was put on a liberal allowance of brandy, a stimulant mixture and quinine in tonic doses. In the evening his temperature was only slightly higher, but there is now a little cough.

29th. He has passed a restless night during which he perspired profusely and this continued more or less up to the day of his death. His temperature is only 100.5 and the pulse 94. There is dullness with tracheal breathing over the right apex down to the third rib, the rest of the lung and that of the opposite side are healthy. There is an increased quantity of albumen in his urine but it is questionable

in his case whether there is not old standing mephritis. 31st. His condition today is much the same but he shows signs of great weakness. He seems to be unable to move himself at all and the least exercion causes faintness. There are no signs of any valvular lesion; the pulse is very weak and at times dicrotous; there is the cough of Pneumonia but the expectoration is rather more profuse than usual ; it is slightly tinged. His temperature is only just over 100, and with the pulse of 118 he seems to be approaching a dangerous condition. The consolidation has not spread and only occupies a small patch at the apex, not sufficient to warrant the prostration he shows. There is also considerable lividity of the lips, in consequence of which 10 minim doses of Digitalis were added to his mixture and he is allowed as much brandy as he

can take. 1st April. The same. Temperature 100.3, pulse 115; there is some aedema of the feet. 2nd. Passed a very restless night, low muttering delirium, expectoration prune-juice, He can only with difficulty be made to take any nourishment. He has vomited twice and there is slight diarrhaea. The tongue has from the beginning been quite free from any furring and continues so. 3rd. He is obviously sinking. His pulse is 150 and dicrotous. He is only conscious when roused. Perspiration still continues, being worseat night, and is both a sign and a cause of weakness. He continued in this state all the next day and died about midday on the 5th.

In addition for the reasons for which this case is quoted, it was also uncommon on

account of the condition of the tongue. The tongue is almost always considerably furred in Pneumonia, indication of the deranged condition of the alimentary canal, and this is the only case in which I have seen it otherwise. Vomiting in Pneumonia is as a rule only seen at the commencement of an attack, & is to be looked upon more as a nervous explosion than as indication of any digestive derangement. It is most common in children in whom it takes the place of a rigor. It may be due to some sympathy between the pulmonary and gastric branches of the pneumogastric.

DELIRIUM: is rather common in Pneumonia appearing usually late in its course. In alcoholic subjects it often takes the form of delirium tremens.

Pneumonia is one of those diseases characterised often by the presence of albumen in the urine. Its appearance seems to bear more relation to that in Diphtheria than Scarlatina Fever being apparently functional rather than organic, no symptoms of acute nephritis being present, nor has chronic renal disease ever been traced to a previous Pneumonia .

In ten of my cases albumen appeared in the urine some time between the second and seventh days. Six of them died. In one or two cases search was omitted. Albumen in the urine has been considered by many authors to warrant an unfavorable prognosis, but the balance of modern opinion seems averse to consider the presence of albumen and a fatal result as cause and effect. Nevertheless it is curious that almost all fatal cases show albumen at some period in the course of the disease, its

appearance being probably due to the intensity of the virus, and in this connection it is interesting to note that it is common in those forms of Pneumonia due to a pythogenic origin, and this increases its resemblance to diphtheritic albuminuria which is often most marked in those cases where the virus is so toxic as to produce a fatal result with little or no local lesion.

TEMPERATURE: This in Pneumonia as a rule is uniform to type; rising rapidly on the first day, it continues high during the whole course of the disease at a point somewhere between 103 and 105, with morning and evening fluctuations. The termination in a typical case is by crisis when it falls not less rapidly than it rose, in one night often coming down 5 or 6 degrees. In some cases on the 4th or 5th day

there is a pseudocrisis, the temperature falling a degree or two, only to rise again at once to its former height. Temperatures of 109 and 110 have been recorded, the highest after which recovery ensued being 107. The height of the temperature is no criterion of the severity or dangerous character of the disease. Death oftem occurs especially in cases of chronic drunkards or cases complicated with heartdisease, where the temperature has never reached 102. The comparatively uniform and typical course taken by the temperature in Pneumonia is one of the chief arguments advanced in favour of its being classed amongst specific diseases such as Erysipelas and Typhoid, to the former of which its bears further resemblance in the length of its duration .

TEMPERATURE CHART by Mr Geo. Chas. COLES, M.R.C.S.

NAME.	RESIDENCE.	AGE.	SEX.	OCCUPATION.
Case VIII		43	M	Blacksmith

DISEASE. Pneumonic terminating by Lysis

18 ..... DATES OF OBSERVATIONS March / April

March	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8
Cent. / Fahr.	AM PM	AM PM	AM PM	AM PM	AM PM	AM PM	AM PM	AM PM	AM PM	AM PM	AM PM	AM PM	AM PM	AM PM	AM PM	AM PM	AM PM	AM PM	AM PM	AM PM	AM PM
Pulse, per minute.		105		100	106		120	120	115	112											
Respirations per minute.		32	32			42		44	32												
Urine. Ozs.																					
Spec. Grav.																					

REMARKS.

ENT. STA. HALL.

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Sometimes the temperature subsides by lysis, indeed the report of the collective investigation on Pneumonia gives that as the commonest termination of the two in the proportion of 4 to 3 . I cannot say I found it so, In only one of my cases was it so and only one typically so.

CASE VIII: PNEUMONIA, TERMINATION BY LYSIS: (F.Hall, blacksmith, age 43). A small wiry man, total abstainer. He is not conscious of any chill, but his work renders him very liable to contract one, as he has frequently to leave the heat of the forge to attend to work outside. His house is one of the most low lying in the town. He had a rigor on March 20th, but feeling ill sent for me. Beyond a temperature of 100 and some supra-

mammary pain which was not excessive. I could discover nothing. The next day , March 21st there was fine crepitation over the left apex, but only on deep inspiration; his breathing was rapid and short and his temperature has jumped to 104; pulse full and bounding 105; skin harsh and dry; tongue coated but moist. There is no pain except on deep inspiration, and this is usually the case in apex pneumonia, presumably because of the lesser degree of mobility of the chest wall there compared with the lower half. In the course of the next three days the disease had fully declared itself and extended over the whole of the left lung. There are numerous harsh, dry, rather course rales to be heard with great clearness, and on enquiry I find that the patient has suffered slightly in the past from

asthma, these presumably are the rales natural to that affection conducted with increased intensity through the solidified lung. On March 25th, the 8th day of illness the disease appeared to have reached its height in the left lung, and I was expecting crisis, when on the 26th it became evident that the base of the right lung was involved, and this without any distinct indication thereof in the temperature chart such as is usual. There is more marked dyspnaea & oppression today, and for the first time there is albumen in the urine, but with the fresh inflammation there is no fresh access of pleuritic pain; his face is only slightly dusky; There is a characteristic sputum which had become somewhat scantier until the fresh outbreak in the right lung. There has been no delirium so far

resp. 42, pulse 120 fairly strong. The next day he seemed no worse and the disease has not spread beyond the base of the right lung. He takes nourishment well. His temp. on the 28th touched 105, but from this point gradually fell by almost artificially graduated stages with a correspondingly gradual resolution of lung tissue; it was not till the 20th day of illness however that a normal temperature was reached. Convalescence was very slow but both lungs eventually cleared up completely.

True crisis is usually marked by profuse perspiration , sometimes by diarrhaea, and always by a marked change in the appearance of the face, the intense expression of discomfort giving place to one of relief; the pulse and respirations decrease in rapidity and the patient

falls into a refreshing sleep.

Statistics from numerous observers have quite fixed the 7th day as the one on which crisis most frequently occurs, but in children it is more often the 5th day. Crisis is usually absent in cases complicated with bronchitis, pleurisy or pericarditis.

Resolution presumably commences with crisis, but it is usually not till a day or two later that it can be determined by auscultation or percussion; sometimes the physical signs of resolution are the first comfirmation we have of our diagnosis being correct. Resolution is sometimes delayed or may be incomplete , the disease passing very gradually into the chronic fibroid form, or even into acute phthisis. In children resolution is often exceedingly rapid,

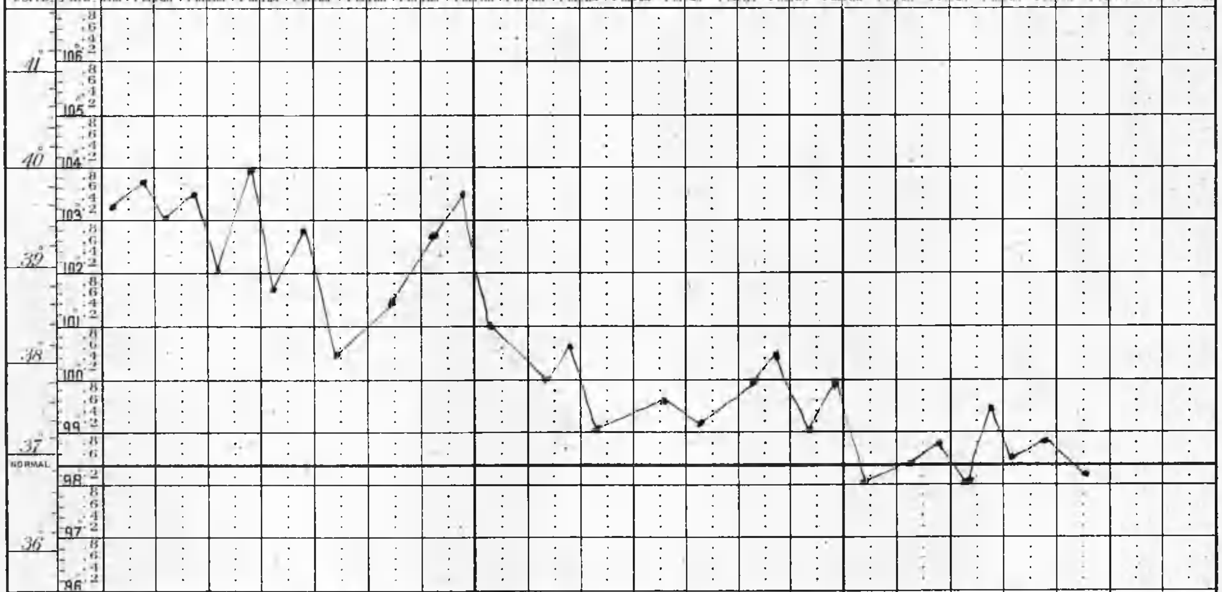
TEMPERATURE CHART by Mr. Geo. Chas. COLES, M.R.C.S.

NAME. Case IX | RESIDENCE. | AGE. 48 | SEX. m. | OCCUPATION.

DISEASE.

18 April — DATES OF OBSERVATIONS

March 28	29	30	31	April 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
AM . PM	AM . PM	AM . PM	AM . PM	AM . PM	AM . PM	AM . PM	AM . PM	AM . PM	AM . PM	AM . PM	AM . PM	AM . PM	AM . PM	AM . PM	AM . PM	AM . PM	AM . PM	AM . PM	AM . PM	AM . PM



	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Pulse per minute.	112	110		110	104	112															
Respirations per minute.		36	42	42																	
Urine Ozs. / Spec. Grav.																					

REMARKS.

ENT. STA. HALL.

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without giving rise to any physical sign. The following case illustrates incomplete resolution running into phthisis; it was also complicated with pleurisy with effusion.

CASE IX: (R.M.H. 48): On March 25th this man , a head-furnace man of abstenious habits, though in his youth he had been an excessive drinker got a chill on his way on his way home from work, and had a violent rigor in the evening; he spent the next day in bed feeling feverish and did not send for me until the 27th. He is a strong healthy looking man, thin but muscular, and says he has had almost no previous illness. He complains of violent pain in the side with cough and severe headache; there is no expectoration. There is fine crepitation over a limited area in the axillary region on the

right side with which a rougher note of friction is associated, but no evidence of consolidation at present. Temp. 103.5 pulse 112. As the pain was evidently very acute he was given an injection of a quarter of a grain of morphia which I have found useful and without injurious effect if limited to the first day or two of the disease; for the pain in Pneumonia is often excruciating, and exhausts the patient to such an extent as to render him less able to withstand the subsequent trial. The next morning the pain was less acute , but cough is more troublesome, and the sputum is of greenish tinge. Temp. 103 resp. 36. There is consolidation of the right base . The next day his condition was unaltered except that that night his temperature was 104. 31st. The dullness today extends to the spine of

the scapula, and there is evidently some effusion which is causing dyspnaea; temp. 101.6. 1st April. He has passed a restless night, cough being very troublesome. The effusion is increasing in the pleura, obliterating the signs of consolidation, which however are very well marked above the margin of the fluid. There is today an herpetic erruption on the lips; he is also much troubled with diarrhaea which may be due to the fall of temperature, that took place during the night. His temperature today being only 100.5; the breathrate and pulse remaining however very rapid. He passed a fairly comfortable day and the next day also, but on the 3rd April there were signs of consolidation at the base of the other lung for which I was prepared by the gradually rising temperature.

There is considerable dyspnaea and a dusky look about the lips and cheeks. The effusion on the right side has not increased in the last 2 days, but remains about the level of the angle of the scapula; it has caused however slight displacement of the heart's apex to the left. The cardiac pulsations are very weak and he is much prostrated; there is low muttering delirium. In the afternoon I drew off 16 ounces of fluid with an aspirator to his great relief. His allowance of stimulant is increased and he is taking a strong diuretic mixture. He passed a quiet night sleeping well without any delirium and in the morning his temperature was lower and continued so all day. On the 6th resolution had begun to set in and there was no return of the fluid. The temperature only fell however very gradually

and did not touch the normal till the 11th day.

Convalescence was very slow, considerable thickening of the pleura on the right side remaining, resolution never being quite complete while he remained under my charge, a muco-purulent expectoration persisting. With the help of codliver oil and iron he managed to get strong enough to resume work, about which time I left town. Happening some months after to return, I called on him and examined his chest thoroughly. He told me that he had recovered fairly well, especially after a few weeks at a seaside convalescent home, but he complained about being much troubled by attacks of dyspnaea and a feeling of constriction in the chest, with occasional dragging pains in the right side. He sleeps and eats well, had no nightsweats,

but on waking in the morning he is much troubled with a dry paroxysmal cough which continues till after breakfast when it is usually relieved by copious expectoration of a lumpy tenacious sputum, sometimes streaked with blood. Over the right apex the respiration is dry and ampforic, weak and bronchophonic down to the base with occasional moist rales, no dullness on percussion. In the upper axillary region there is pectoriloquy, behind there is rough blowing respiration with increased vocal fremetous. On the left side exaggerated vesicular murmur ., but nothing else abnormal.

Pneumonia is occasionally complicated with other diseases besides pleurisy which is the most common; such as pericarditis and bronchitis. Of the former I saw no cases at this

TEMPERATURE CHART by Mr Geo. Chas. COLES, M.R.C.S.

NAME. Case X. RESIDENCE. AGE. 63 SEX. M. OCCUPATION. Shopkeeper

DISEASE. Pneumonia occurring in a Chronic Bronchitis + Asthmatic Subject

18 March DATES OF OBSERVATIONS

	21.	25	26	27	28	29	2	3
Cent.	Fahr.	AM PM	AM PM	AM PM	AM PM	AM PM	AM PM	AM PM
41°	106							
	105							
40°	104							
	103							
39°	102							
	101							Died.
38°	100							
	99							
37°								
NORMAL	98							
	97							
36°	96							
Pulse, per minute.		84	100		120	120	135	
Respirations per minute.			24	28	32	40		
Urine	Ozs.							
	Spec. Grav.							

REMARKS.

ENT. STA. HALL.

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time, but there was one rather typical case of Pneumonia occurring in an old bronchitic and asthmatic subject. It was not a case of Pneumonia supervening on a more or less acute bronchitis, but Pneumonia occurring at a time when the bronchitis was quite quiescent, and running a typically pneumonic course.

CASE X: (J.C. age 63.) : I was called in to see this man on the Sunday following the Friday on which he considered he had caught a chill. He was a nervous excitable man who for 15 years had been a sufferer from asthma and chronic bronchitis although for some month previous to this attack he had enjoyed very good health.

He complained of sore throat and cough with considerable expectoration; his temperature was 101.5 pulse 85; skin moist;

tongue fairly clean.

On examination of the chest there was nothing to be detected beyond the asthmatical wheezing that I had frequently heard in his chest before, and a few scattered dry rales. His chest was in shape a typically asthmatic one Freb. 26th. He complained of having been unable to sleep owing to incessant cough which however is accompanied by no pain. His temperature has risen to 103 and his breathing is more rapid 25 per minute. I suspected Pneumonia but a careful examination of the chest revealed no signs of it. The urine this day , the 4th of the disease, contained albumen, In the evening his temperature had risen to over 104; the sputum although very profuse and bronchitic was slightly blood tinged. In addition to a tonic expectorant

mixture containing Digitalis and Nux Vomica he was receiving an ounce of brandy every 3 hours.

27th. He expressed himself as feeling better, his temperature is a little lower , but the pulse and breathrate continue high; his face presented a very dusky appearance and the sputum is more scanty and viscid and distinctly rusty. He today for the first time complained of a sharp pain below the right scapula, but there is nothing to be heard but the bronchial rales previously mentioned which are perhaps slightly increased.

28th. He is much weaker, delirious at times, the breathing very laboured and hurried and the expression of the face very anxious; he said he felt he should not recover. At last today there are definite signs of consolidation

over the lower part of the scapula, very localised and most probably indicating Pneumonia having its origin at the root of the lung. The heart-sounds are very feeble and there are indications of dilatation of the right side of the heart, which is not unexpected in a case with such a past history of lung disease.

March 1st. He is today only semi-conscious the face deeply cyanosed, dyspnaea excessive; his temperature in the evening reached its highest point. The next day he is entirely unconscious and died on the morning of the 3rd.

Pleurisy is an almost invariable complication of Pneumonia; usually there is only a small patch of it, but still sufficient to give rise to the excruciating pain so common

in Pneumonia; often however it is more general and the effusion which accompanies it may occur so rapidly and extensively as to mask the physical signs of Pneumonia and lead to errors in diagnosis, and in children it not uncommonly developes into Empyema; but on the whole empyema seems commoner as a sequele than as a complication in Pneumonia. In case IV however it occurred more or less contemporaneously.

Pericarditis is an occasional and dangerous complication, but it was not present in any of my cases; although seeing how often it is only discovered to have been present , at the post mortem examination, it is impossible to be certain on this point.

Chronic Endocarditis may of course be present as a preexisting complication in the

form of one or other of the varieies of valvular disease, and its presence is of the gravest importance , since so much depends on the vitality of the heart at the critical stage, when the persistent high temperature is so liable to induce myocardial degeneration causing cardiac failure and consequent engorgement of uninflamed areas of lung tissue, as in the following case.

CASE XI: (Age 73) Late in the evening of May 10th I was called in to see this old man a labourer at the ironworks. He states that he had not felt well for a week, and had been doctoring himself with emetics and purgatives to get rid of the slag dust which seemed to be blocking his chest. The night before I saw him he had been seized with rigors and vomiting about 1 a.m., followed by a stitch in the right

side.

I found him propped up in bed as he said this position eased his breathing. His face at the best of times had a cyanosed appearance but as he had not before fallen under my hands I did not know, whether it was due to any cardiac conditions. His tongue is slightly furred but with a raw appearance at the edges. He has had no vomiting since the first onset of the disease, but he has frequent cough with a profuse expectoration, which causes pain in the right side under the angle of the scapula.

On examination of the chest there is a small area at the base of the right lung which exhibits a harsh breath-sound with rather coarse crepitation. His temperature was 102. On examination of the heart there is evidence of mitral

and slight aortic incompetence. He says he twice had rheumatic fever when a younger man, and has suffered for years from cardiac dyspnaea with occasional attacks of aedema of the legs. His pulse is very weak and dicrotic.

He was put upon a stimulant mixture of ammonia, Digitalis and Strychnine.

The next day he was much worse, his face is livid, his tongue brown and the orthopnaea very distressing. T here is a very profuse prune-juice expectoration, and at times pure blood. The pulse is very flabby. There is an extensive area of consolidation at the base of the right lung. His pulse is 140, his temperature only 100, and in the evening 101.6. There is aedema of the feet and ankles and also in the uninflamed area of the right lung & the whole

left lung. He has taken no nourishment and is half unconscious only rousing when spoken to. He lingered through the next day in a comatose dying at night. His temperature never having been above 102, but this in combination with a high pulse rate is rather common in such cases. I seems as if the heart was to feeble to feel the effects of the virus.

Of Jaundice as a complication I had two rather striking examples. Cases of this nature are not to be confused with the bilious Pneumonia of the older authors, which was a gastro-intestinal or typhoid form of Pneumonia, nor were these cases simply Pneumonia with some icteric tinge, but they were cases in which bile appeared in both the stools and the urine, thus showing that it was not the obstructive

form, but due to intense blood intoxication. In fact the term complication to express the relation of the Jaundice to the main disease hardly seems to ascribe sufficient importance to the Jaundice which in both these cases was present from the very outset and continued intense to the end. The fact of its occurrence has indeed received scant notice from most authors of text books, and its cause seems to be little understood.

It is said to be more common in right sided Pneumonia and has in consequence been ascribed to extension of inflammation by contiguity, but in this case why should it occur so frequently as it does? and in Apex Pneumonia? That it is not a Jaundice due to obstruction perhaps catarrhal & due to the same chill that

caused the pulmonary inflammation, is proved by the presence of bile in the stools.

Others again have ascribed it to a deficient oxygenation of the blood owing to impaired lung tissue, but then how explain its absence in countless cases of double pneumonia, and its frequent presence when only a small patch in one lung is affected?

A more probable explanation seems to me to be that it is of the same nature as that seen occasionally in such specific fevers as typhoid, typhus and scarlatina, and frequently in such as yellow fever and malaria; and to be due to an intense dose of the virus causing derangement in the metamorphosis of the blood that occurs in the liver, the local effect being really secondary, just as in Diphtheria the virus

may be of such a toxic nature as to cause death with very little or no local lesion; and this seems to be borne out by the fact that in all those specific fevers mentioned Jaundice is as serious a complication as in Pneumonia.

In some cases of death after Pneumonia with Jaundice, the liver has been found in a state of acute yellow atrophy , in others it has been of the nutmeg variety showing intense congestion. Further in support of the deranged metamorphosis theory is the fact that in almost all the cases there is unusually abundant deposit of albumen in the urine with a deficiency in the urea excretedwhile lencin&tyrosin have been found post mortem in the liver tissue, and urea in the blood and cerebral fluid. In both my cases the prominence of brain symptoms i.e. delirium

TEMPERATURE CHART by Mr Geo. Chas. COLES, M.R.C.S.

NAME.	RESIDENCE.	AGE.	SEX.	OCCUPATION.
Case XII		17	m	

DISEASE. Pneumonia complicated with Jaundice

18

DATES OF OBSERVATIONS

Sept.	23	24	25	26	27	28	29	30	31	2	3	4	5	6
Cent. / Fahr.	AM PM	AM PM	AM PM	AM PM	AM PM	AM PM	AM PM	AM PM	AM PM	AM PM	AM PM	AM PM	AM PM	AM PM
41° 106														
105														
40° 104														
103														
39° 102														
101														
38° 100														
99														
37°														
NORMAL 98														
97														
36° 96														
Pulse per minute	100	120	130	140	140		136							
Respirations per minute	28		44		48	60	48							
Urine Ozs.	—	Albumen	—	—	—	—	—	—	—	—	—	—	—	—
Spec. Grav.														

Bile

REMARKS.

ENT. STA. HALL.

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made me wonder, if the jaundice might be due to vasomotor changes induced by the action of the poison on the vasomotor motor. Nerves

CASE XII: I was called in on Sept. 23rd to see a lad of 17 who had been taken suddenly ill. The previous day he had caught a chill by lying on the grass after getting violently heated at football .

Patient is a sallow overgrown lad, but has always been healthy; he is a total abstainer.

He had a rigor the night vefore which was followed by vomiting.

At present he complains of intense pain in the right inframammary region, headache and vomiting, no cough. There is diarrhaea with dark bilious stools, and the vomited matter is chiefly bile. He is very restless, tossing about

in bed with occasional slight delirium. His breathing is rapid , 30 per minute , temp. 103.6 On palpation there is tenderness over the seat of pain and the lower border of the liver can be felt. There is nothing to be noted on the chest on either side. He was ordered quinine in 5 grain doses and a Bismuth mixture to stop the vomiting and diarrhaea. 24th. He passed a very restless night. Vomiting and diarrhaea still continue and there is now marked jaundice all over the body. The urine deposits a considerable quantity of albumen and gives the reaction for bile pigment; temp. 103, pulse 130, small compressible. There is great prostration and muttering delirium. Alcohol was ordered one ounce every four hours. There is not so much pain and tenderness over the liver. On examina-

tion of the chest there is fine crepitation at the right base but no distinct consolidation. 25th . There is today for the first time slight cough with a rusty coloured sputum, and the base of the lung presents all the signs of a patch of Pneumonia with some friction sound as well. The diarrhaea has ceased and he has only vomited once since yesterday.The skin shows intense discoloration. Patient lies in a very prostrate condition and can hardly be persuaded to take any nourishment. As the diarrhaea had ceased rectal feeding was tried, but seemed to be the cause of a return of diarrhaea and had consequently to be stopped. 27th. Vomiting and diarrhaea have returned causing intense prostration. The face is almost livid from the jaundice and capillary venous congestion. Breathing is

quick and shallow, 48 per minute, cough slight. Sputum more profuse and tending towards the prune-juice form.

He remains in much the same condition for the next two days. His temperature on the night of the 29th fell to 102.2 only to rise again just before his death on the 30th to 105. He was quite unconscious for the last 48 hours. It was unfortunate that no post mortem could be obtained of this somewhat unusual case.

CASE XIII: This case was different only in that it occurred in an older man who was a confirmed inebriate, and that the pneumonia made itself manifest earlier, the jaundice developing more gradually although present from the very outset.

The patient was a large florid man

aged 42, a railway porter. Two days before I saw him he had got very wet, and the next day was seized with rigors while at work, and had to be carried home. He presented all the appearance of a man with Pneumonia commencing. Dorsal decubitus, rapid breathing, suffused face with anxious expression. His temperature was only 100.5 however, and in fact during the whole course of his illness was never high from a pneumonia point of view. Pulse 100. He had a slight cough occasionaing some pain, but was free from pain otherwise. There was a slight icteric tinge over the whole body. The base of the lung presented some fine crepitation, and a jerky exaggerated breath-sound such as is to be heard in some cases of incipient Phthisis. The next day consolidation was evident at the base

of the left lung. The Jaundice is more marked. There is considerable nausea and vomiting of a bilious fluid. Both the stools and urine contain bile. No albumen in the urine nor subsequently. Temp. 102. He was ordered Nitromuriatic Acid & Liq. Strych, with an expectorant mixture. 4th day. Diarrhaea is troublesome apparently due to the excess of bile excreted. 2 grains of calomel were given which caused great improvement. His condition remained much the same till crisis on the 6th day. His temperature never went above 102 and he never had any dangerous symptoms. It was curious that a case with the past history of this one should have recovered, and the last one have died. In neither did the consolidation extend at all, remaining limited to the extreme base.

The frequency with which Nephritis is discovered post mortem in case of Pneumonia is open to the interpretation that kidney disease may predispose to Pneumonia, and this seems to be the opinion of most modern observers, and that the association is a peculaiarly fatal on is undoubted. In many cases this is enhanced by the fact of the nephritis of the chronic form being due to alcoholic intemperance which itself has a most adverse bearing on the prognosis of any case of Pneumonia.

Pneumonia being a disease of early adult life it might be expected that it would be associated rather with the tubal than the granular degenerative form, and there have been cases recorded when Pneumonia and acute nephritis have existed together but it is very uncommon.

Albuminuria being itself a symptom of Pneumonia may often lead to the overlooking of the co-existent renal disease, but the presence of tube casts would point to the fact of there being nephritis of the acute form present, while an enquiry into the patient's history more immediately preceding the onset of Pneumonia will generally elicit sufficient information to enable us to attach its correct importance to the albuminuria.

At the same time the crepitation of oedema due to renal disease or the subsequent hypostatic consolidation must not be mistaken for that due to Pneumonia.

Thecomplication of Pneumonia with Pregnancy is a peculiarly fatal one , and even if the woman survives, abortion is almost sure to

TEMPERATURE CHART by Mr Geo. Chas. COLES, M.R.C.S.

NAME.	RESIDENCE.	AGE.	SEX.	OCCUPATION.
Case XIV		32	F.	

DISEASE. Pneumonia complicated by Pregnancy.

18 December DATES OF OBSERVATIONS

Nov.	28	29	30	1	2	3	4

Cent. Fahr. 41° 106 · 40° 104 · 39° 102 · 38° 100 · 37° 99 · NORMAL 98.2 · 36° 97 · 96

Died

Hæmorrhage

Pulse. per minute.	100	115					
Respirations per minute.		48		80			
Urine Ozs.							
Spec. Grav.							

REMARKS.

ENT. STA. HALL.

Published by T. Brettell & Co. 51 Rupert Street, London W.

occur. In the following case the Pneumonia invaded both lungs and proved fatal.

CASE XIV: (Mrs S. age 32) married and having 2 children, was taken ill on Nov. 26th . I saw her first on the 28th. The drains in the house were in a very bad condition, and the patient had been suffering from a sore throat for a week, and this was not the only case I had in which there seemed to be a distinct causative connection between the occurrence of sewer gas in the house and the onset of Pneumonia. She was a pale anaemic looking woman, with a slight venous hum in the neck. She complained of severe headache and pain in the left side situated in the iliac region. There is no cough or expectoration. The pupils appear dilated and the tongue is very brown. There is also some oedema of both feet, and the urine contains a

considerable quantity of albumen. Her temperature was 103 , her pulse 100. There is harsh bronchial breathing and some rales just below the angle of the scapula. In this case in view of the anaemia present I prescribed Iron and Digitalis, with 2 grain dose of quinine in powder to be taken alternately.

29th. She was much worse today. Great dyspnaea and pain in the side, distinct consolidation at left base. Some cough with typical sputum. Temp. 105. Tongue very typhoidal in character as also the stools of which there are three of four in the day.

30th. She has passed a very restless night being troubled with severe vomiting. Bowels still very relaxed. A mixture containing Bismuth was given, which relieved both these

symptoms in the course of 24 hours. The consolidation now occupies nearly the right whole lung and there is crepitation at the base of the left lung; great prostration.

Dec. 31st. She has been delirious all night and this morning although there is a fall of temperature she is much worse. Face very cyanosed Resp. 50. The urine is full of albumen. The base of the right lung is now solid. In the afternoon she aborted after which her temperature fell 2 degrees only to rise again, and she died early on the morning of the 4th December having been unconscious for 8 hours before death.

Pneumonia in children presents many features differing from that in adults and on the other hand is often lacking in those most typical in that form. Even the lobar pneumonia in

children seems to partake more of the catarrhal than the fibrinous variety, but still there is no difficulty in distinguishing the acute pneumonia analogous to the adult type, from the broncho-pneumonia so common in child life.

It is in children that one so often meets with pneumonia beginning about the root of the lung more especially on the right side, which cases often do not develop any physical signs until comparatively late , namely till consolidation reaches the surface of the lung. (Vide Case IV), and even in a case of basal pneumonia so much reliance cannot be placed on the physical signs, as one would expect. They are much more variable than in the adult, sometimes being present one day and absent the next.

Apical pneumonia is peculiarly liable

to be of the cerebral type one case of which I have already related (CaseIII) In children the onset of Pneumonia is generally heralded by convulsions or vomiting or diarrhaea, and more rarely by rigors. The disease runs a very definite course and crisis occurs usually earlier than in adults i.e. about the 5th day, and in contradistinction to broncho-pneumonia generally warrants a very favourable prognosis. There is usually little or no expectoration and resolution is often extremely rapid.

Dullness on percussion is sometimes absent even when auscultation reveals consolidation, and on the other hand there may be dullness and yet a complete absence or only a muffled vesicular murmur, ~~such~~ the simulating pleurisy from which it has to be distinguished by the condition

of the pulse, temperature and other signs. The child's chest in a healthy condition presents so much elasticity on auscultation that its absence is often as useful a guide to diagnosis as dullness itself.

In children also the vesicular murmur more readily takes on an exaggerated action, and bronchial breathing of a modified type may be found over healthy lung, due to the compensatory action necessitated by fluid compressing the base, and this may give rise to an unfounded suspicion of pneumonia.

In children pneumonia uncomplicated by empyema rarely passes into the fibroid form or into phthisis, but it is otherwise if empyema have been present, which of course alters the course of the temperature and other symptoms

and prolongs convalescence, even if it is not fatal. In addition to Case II, simulating Meningitis, the following six cases occurred in children amongst the 29 quoted:

CASE XV: Presented nothing uncommon in its course and was only worthy of remark for being very probably due to sewer gas poisening, since the mother of the child was at the same time suffering from sore throat undoubtedly due to this cause. Another child a few days later had a superficial abcess over the knee joint for which no cause could be assigned.

Ernest B. had been ailing for some days, was on Feb. 2nd seized with pretty severe vomiting and headache and his mother noticed that his breathing was quick and hurried, and some hours afterwards he began to complain of severe pain in the right side. He was ill all

the next day and on the 4th I was sent for. I found him obviously in the first stage of pneumonia; flushed anxious face, eyebrows drawn with pain, lying on his back and crying if moved, refusing even to answer questions on account of the agony caused. Breathing shallow and rapid with dilating nostrils, a small patch of herpes on the lip. (This last appears a more constant sign in children than in adults.) His temperature was 103. It was with difficulty an examination could be made on account of the pain caused, but there was no doubt of existence of consolidation extending halfway up the base of the right lung. He was ordered compresses wrung out of iced water to relieve the pain and a simple saline mixture. The mother at the same time consulted me regarding a sore throat which

she had had for ten days. It was a tonsillitis of a subacute form, and of an appearance that led me at once to make enquiries regarding any possible sewer gas escape and found that they had noticed a smell from a sink in the kitchen which was their living room. The next day I got the sanitary inspector to examine the drain and traps, and he found themevery defective and allowing a large leakage of gas into the house. This was removed and the mother's throat improved rapidly, but two days afterwards another boy developed the abcess mentioned above, and as he had been suffering from malaria for some days I thought it not improbable that this also might be traced to sewer gas poisening.- The boy with pneumonia had a sharp attack, but never presented any dangerous symptoms &

TEMPERATURE CHART by Mr Geo. Chas. COLES, M.R.C.S.

NAME.	RESIDENCE.	AGE.	SEX.	OCCUPATION.
Case XVI		11.	F.	

DISEASE. Pneumonia

18 ..... DATES OF OBSERVATIONS

April	7.	8	9	10	11	12	13

Cent. | Fahr. | AM. PM. | AM. PM. | AM. PM. | AM. PM. | AM. PM. | AM. PM. | AM. PM.

41° 106 · 8 · 6 · 4 · 2
105 · 8 · 6 · 4 · 2
40° 104 · 8 · 6 · 4 · 2
103 · 8 · 6 · 4 · 2
39° 102 · 8 · 6 · 4 · 2
101 · 8 · 6 · 4 · 2
38° 100 · 8 · 6 · 4 · 2
99 · 8 · 6 · 4 · 2
37° NORMAL 98 · 8 · 6 · 2
97 · 8 · 6 · 4 · 2
36° 96 · 8 · 6 · 4 · 2

Obd

Pulse. per minute.	150		172	180			
Respirations per minute.		36	50	—			
Urine Ozs.							
Spec. Grav.							

REMARKS.

ENT. STA. HALL.

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crisis occurred on the 6th day of illness.

CASE XVI: This was the only fatal case amongst children that I had., a case of pneumonia of the right apex occurring in a delicate child, one of a strumous family, one of them having had a leg removed for strumous synovitis; she herself had on more than one occasion had bronchitis. I saw her first on the 7th April, probably the third day of illness , but as there had been no definite symptom of onset such as rigor or vomiting, but only malaise for two days previously it was not possible to fix the date accurately. She had consolidation of the right apex limited in extend, but judging from the harshness and bronchial character of the vesicular murmur at the edges of the consolidation, inclined to spread.

She seemed very prostrate , the pulse being already early in the disease very weak and rapid 150 per minute, the temperature was nearly 104 and as will be seen in the chart was exceedingly high during the whole course of the illness, touching 106 on one occasion. There is no trace of albumen in the urine. April 8th. Temp. today 105.6 in the afternoon; muttering delirium; frequent cough without expectoration; dilated pupils, and she occasionally cried out with pain in the forehead. Cold baths were tried when the temperature got over 105, giving temporarily relief and reducing the temperature, on the first occasion to 103 , and after the second to 103.8. Consolidation extends to the 5th rib in front. 9th. Temperature continues high, and despite cold baths and the use of phenacitin no permanent reduction could be obtained, and

the persistent high temperature is rapidly exhausting her. The local inflammation not being sufficiently extensive to account for her condition. The consolidation was today found to extend as far as the spine of the scapula behind and in front to be at the same level as yesterday; there is intense pleurile breathing below the level of dullness. The tongue today is very dry, brown and typhoid looking, and there is sordes on the teeth. The child lies in a semiconscious condition with the eyes half shut and the eyeballs turned up, a sign of great prostration in the illness of children; face and lips blue and livid. The next day the temperature reached the highest point I have ever seen in pneumonia. The patient is only conscious enough to swallow a little liquid nourishment.

Somewhat to my surprise she lived through the whole of the next day and part of the third, the temperature falling slightly just before death.

This was one of those cases where the intensity of the virus seemed to poison the vital centres without producing any great extent of local mischief, a condition similar to that often found in cases of Diphtheria

CASE XVII: I saw this child first on the 22nd of May, a boy aged 8 . Between the first and third years of his life he had frequently had convulsions; latterly for some months he has had a chronic discharge from the right ear which is present now, and he frequently complains of headache. The evening previous to my seeing him he suddenly became very white and

faint, and complaint of feeling cold. He was put to bed but did not sleep, perspiring all night. When I saw him, his temperature was 102.6 pulse 120, resp. 35, complains of headache. There is a perforation of the right tympanum, and the symptoms pointed rather to some aural or meningeal mischief, but his rapid respiration and flushed look led me to examine the chest when I discovered a patch of commencing consolidation at the left apex. There was a strong phthisical tendency in the family, and I still thought that the chief affection might be cerebral, and this a patch of tubercular consolidation, although it had more the character of pneumonia, there being no associated moist rales, as is usual in phthisical consolidation; on the other hand the child was completely

conscious, there was no apathy or stupor, no meningeal cry , no vomiting or retraction of the head and no convulsions, so I determined to treat it as a case of pneumonia. The ear was syringed out and some boracic powder blown in, and a mild stimulant and expectorant mixture was prescribed, with ice locally to the chest. In the evening his temperature ran up to 104. 23rd. The consolidation is spreading proving its pneumonic character; there is some cough which is painful but the pain in the head has disappeared, resp. between 40 and 50, temp. 103.2. 24th. Condition much the same, the inflammation has only extended slightly; there is no pain , the tongue is however very brown and dry. Towards evening he became slightly delirious and restless , but later on perspired freely, so that when seen

on the 25th his temperature was only 101. It rose again at night however to fall in true crisis by the next morning to 99.6. He recovered well but it was months before the discharge from the ear ceased, and the perforation completely closed.

CASE XVIII: (Ernest B. age 13, works at furnace). This case presented no unusual features; the patient a boy of 13 helped his father at the furnace doing light work but being exposed to the same extremes of heat and cold as the adult men, extremes which I have spoken of as strongly predisposing to Pneumonia. He lived in a filthy den in the lowest part of the town. When I first saw him he had been ill three days with the usual symptoms and there was consolidation extending three quarters of the way up the

left lung. His tongue was dry and brown; his resp. 50, temp. 104.3. He was in agony with pleuritic pain an unusual occurrence when the disease is well established. Ice gave no relief nor a suters coil, but the application of four leeches followed by fomentation rendered it bearable, but it persisted all through the case till resolution set in.

The next day, the fifth of illness, he was very prostrate. Herpes has broken out round the mouth, there is the usual cough with a scanty uncoloured sputum . The tongue is very brown dry and cracked; resp. 60 but not painful; but cough is still intensely painful. He will take very little nourishment; at times is unconscious or dozes uncomfortably waking up with a start which gives him agony on account of the pleuritic

pain. There is no evidence of fluid as far as can be judged by an examination when on his side.

On the evening of the 6th day his temperature was 103.8, but crisis set in naturally and profuse perspiration, and a rather severe diarrhaea brought his temperature to 99.4 the next morning leaving him very prostrate.

CASE XIX: (girl aged 12)

Her mother says she had been feeling poorly for 4 or 5 days; on the 6th day which was the 16th September she had a shivering fit and the next day she vomited several times and had some diarrhaea . I saw her first on the 16th. She had a little cough without pain , but no prominent symptoms befoynd diarrhaea and one attack of vomiting. The tongue is dry and raw looking, no furring. Temp. 100, pulse 100. No tenderness

hardness nor swelling in the abdomen; nevertheless somehow the symptoms seemed to point to the abdomen and examination of the chest was omitted. The next day her whole aspect was changed and the presence of a sharp painful cough with a slight rusty sputum made the diagnosis obvious. Temp. 102. The diarrhaea to which treatment had been directed has ceased.
18th. She has passed a very restless night having been slightly delirious. The pneumonic consolidation which yesterday occupied the extreme apex today extends halfway down the left lung. Her breathing is 44 per minute, temp. 103.2 . She takes nourishment well and does not seem as prostrate as is usual, cough still persistent and expectoration much more abundant and very slightly tinged. 19th. temp.

TEMPERATURE CHART by Mr Geo. Chas. COLES, M.R.C.S.

NAME.	RESIDENCE.	AGE.	SEX.	OCCUPATION.
Case XX		13	F	

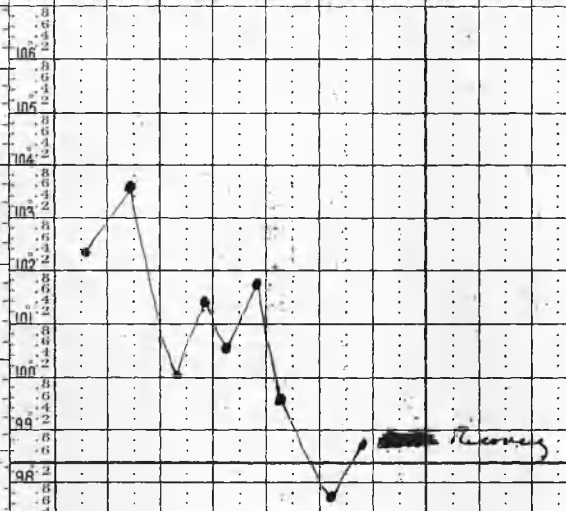
DISEASE. Pneumonia

18 DATES OF OBSERVATIONS

April 19 20 21 22 23 24 25

Cent. / Fahr. — AM PM AM PM AM PM AM PM AM PM AM PM AM PM AM PM AM PM AM PM AM PM AM PM AM PM AM PM AM PM AM PM AM PM

41° 106 · 8 6 4 2
105 · 8 6 4 2
40° 104 · 8 6 4 2
103 · 8 6 4 2
39° 102 · 8 6 4 2
101 · 8 6 4 2
38° 100 · 8 6 4 2
99 · 8 6 4 2
37° NORMAL 98 · 8 6 6
98 · 2 8 6 4 2
36° 97 · 8 6 4 2
96 · 8 6 4 2



Pulse, per minute. 128

Respirations per minute. 44

Urine. Ozs. / Spec. Grav.

REMARKS.

ENT. STA. HALL.

Published by T. Brettell & Co 51 Rupert Street London W.

99.6.- Skin cool and moist, very drowsy, resolution starting in lung; recovery rapid.

CASE XX: (Dora S. age 13): This child whose father was at the time in the last stage of consumption caught cold on the way home from the theatre and woke in the night with an attack of vomiting followed by rigor. The next morning she had a severe stitch in the side localised in the iliac region. I have had occasion elsewhere to refer to this position of the pain in the case of children which I imagine to be due to some sympathetic connection of the nerves supplying t he iliac region with the intercostal nerves and similar to that well known to exist between the intercostals of opposite sides, so that pain has in some cases been felt on the opposite side to that of the lesion.

I saw her first on the 19th of April, she was breathing short and quick with dilated nostrils and a drawn expression on her face, which had a slight icteric tinge. She is a delicate hectic looking girl, but her mother says she has exhibited no symptoms of lung affection till now Menstruation has not yet commenced. Tongue just commencing to get furred. Wellmarked crepitation at left base with faint friction sound at the ~~a~~terior margin of dullness; no disease at either apex; temp. 102.4, resp. 44. The next day the ordinary physical signs had made their appearance; there has been some more vomiting and there is intense headache. Temperature about noon 103.6, pulse 128, herpes at the angle of the mouth. Her temperature fell considerably during the night and never rose so high

again. On the night of the 22nd it fell further in a true crisis and recovery was rapid.

CASE XXI: (C.J. age 10):

I first saw this child on May 12th; he had been seized suddenly with an attack of convulsion. He had seemed quite well up to the time of seizure. As measles was very prevalent in the town at that time I thought it probable that he was sickening for that disease as there was no indication of any other definite disease. Temp. 100, pulse 95; the convulsions did not recur. The next day he had become worse and was suffering greatly from pleuritic pain and there is evidence of consolidation at the right base, at present very limited in area, temp. 104. During the day he had a pretty severe epistaxis, Takes food well and is cheerful but weak.

14th. Tongue very dry and brown , great thirst; consolidation has extended half way up; no evidence of fluid; temp. 103, resp. 40, pulse strong. The next day he is much the same and on the morning of the 16th his temperature had fallen to normal.

CASE XXII: (Elizabeth T. aged 84.):

This was a case with a fatal termination occurring in an old woman who had not led the best of lives. She had had syphilis and was a chronic drunkard, and her liver was cirrhotic. I saw her first on December the 26th; she having celebrated Christmas day somewhat freely and spent most of the night out of doors. She was in a state of semistupor groaning with pain in the side and with a frequent cough with

the expectoration already tinged with red. Her temp, is 102.5 Pulse 108.; arteries calcareous. There is dullness at the right base, scattered rales over both lungs; she has vomited several times; the tongue is dry, brown and tremulous. During the night she was in a state bordering on delirium tremens. Ammonia and Digitalis were ordered with a pint of brandy in the 24 hours. Of food she will hardly take any. The next day the consolidation occupied the whole of the lung and the sputum is almost pure blood; pulse 130. She took a little nourishment and a bottle of brandy during the day and was somewhat quieter during the night. In the morning however it was obvious she was sinking; her face was dusky and breathing was evidently a difficulty; there is oedema of the feet, (there was no albumen). She died the next night.

TEMPERATURE CHART by Mr. Geo. Chas. COLES, M.R.C.S.

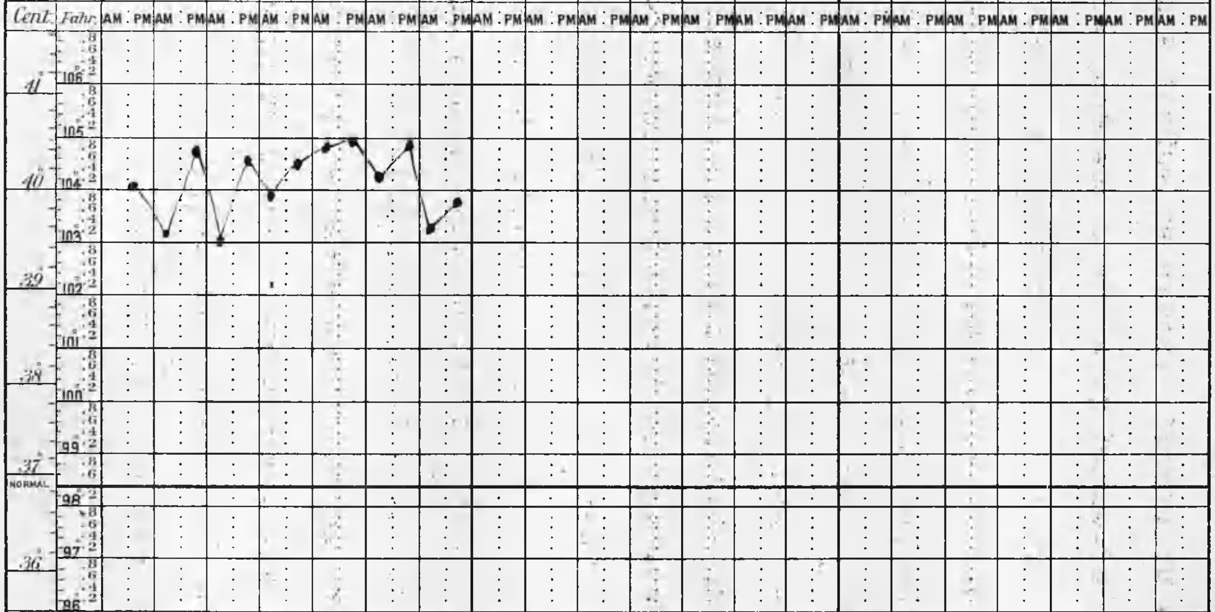
NAME. Case XXIII	RESIDENCE.	AGE.	SEX.	OCCUPATION.

DISEASE. Pneumonia.

18 ....

DATES OF OBSERVATIONS

April 16, 17, 18, 19, 20, 21, 22



	16 AM	16 PM	17 AM	17 PM	18 AM	18 PM	19 AM	19 PM	20 AM	20 PM	21 AM	21 PM	22 AM	22 PM
Pulse per minute.		96				97	120							
Respirations per minute.														
Urine Ozs.														
Urine Spec. Grav.														

REMARKS.

ENT. STA. HALL.

Published by T. Brettell & Co. 51, Rupert Street, London W.

CASE XXIII: (H.S. age 54):

This man walked into my room one morning complaining of weakness and pain in the side of two days duration. He had nevertheless kept at work till today when increasing shortness of breath necessitated his leaving. I found his temperature to be 104, his tongue parched and furred, and his right lung solid up to the spine of the scapula, and he was breathing at the rate of 25 per minute. He was of course sent home to bed at once. The next day he was much worse; the whole right side is dull, with bronchial breathing and increased vocal resonance with the exception of the extreme base where there is indication of a little effusion. There is frequent cough with prune-juice sputum; his tongue is almost typhoid in character; there

TEMPERATURE CHART by Mr Geo. Chas. COLES, M.R.C.S.

NAME.	RESIDENCE.	AGE.	SEX.	OCCUPATION.
Case XXIV.		27.	M	Fireman

DISEASE.

18 ..... DATES OF OBSERVATIONS

April	14	15	16	17	18	19	20

Cent. / Fahr. — AM PM AM PM AM PM AM PM AM PM AM PM AM PM AM PM AM PM AM PM AM PM AM PM AM PM AM PM AM PM AM PM AM PM

41° 106 · 105
40° 104
39° 103 · 102 (Died)
38° 101 · 100
37° 99
NORMAL 98
36° 97 · 96

Pulse, per minute.		120		146			
Respirations per minute.	36			42			
Urine Ozs.			Ale				
Urine Spec. Grav.							

REMARKS.

ENT. STA. HALL.

Published by T. Brettell & Co. 51 Rupert Street, London, W.

i s much headache and sensitiveness to light and noise, temp. 103.6 in the morning , pulse 105, weak and compressible. April 18th. the fourh day of illness. He is slightly better although troubled with diarrhaea which is a frequent occurrence in pneumonia, but one generally easily stopped and of no dangerous signáficance. He took nourishment better today ; with a moderate allowance of alcohol. There is no extension of inflammation to the other lung. The next day the diarrhaea had ceased and the tongue is cleaner; there is no albuminuria; but lumbar pain has been a rather obtrusive symptom all through with tenderness on pressure over both kidneys. He was worse again at night being somewhat delirious and 7 p.m. his temperature was 104.3 but the pulse continued strong, and was

110; during the night the disease underwent crisis , and resolution set in normally.

This case was peculiar from the apparently slight inconvenience that a comparatively advanced state of inflammation gave rise to. I have met with similar cases since. one especially was noticeable in that the patient while suffering from well established pneumonia of which he was quite unconscious, except of the sense of malaise induced, committed suicide and at the postmortem half of one lung was found pneumonic.

CASE XXIV: (R.V. age 27):

This was an exceedingly strong well developed Irishman , an enormous eater and drinker. Many of these men were in the habit of eating meat 4 times a day, he received

princly wages and knew of no other method of spending them except on food and drink. It is true their work was very hard and exhausting, but the consumption of so much nitrogenous matter was I think often indirectly responsible for the prevalence of Bright's disease, enlarged livers and gout. After 16 hours work he had spent 3 hours in a public house on the way home in a very heated atmosphere, and got chilled on coming out. I saw him the next day; he was vomiting dark venous blood in considerable quantity; his face was very suffused, and he was apparently breathing with difficulty and was very prostrate. He was a more like a man in the last stages of pneumonia than the first. There is a well marked patch of consolidation at the base of the right lung. The border of the liver

is to be felt an inch below its normal situation and is extremely tender; the slightest pressure inducing vomiting. Bismuth and Hydrocyanic acid were prescribed, laternating every 2 hours with 3 grains of quinine in powder. 15th. He was very prostrate; the extreme base of the left lung is affected today in addition to the whole of the right lung; the vomiting is slightly less occurring only 4 times a day , but it is still haemorrhagic; He was very delirious in the night and during the next morning being only properly conscious , when spoken to or roused; he has taken nourishment pretty well. temp. 103.2 pulse 120, resp. 40. 16th. 10½ Very prostrate face cyanosed: tongue brown and dry, pulse 140 very weak and compressible; occasional spasmodic cough with a profuse bloody sputum, every breath

rattling in the throat. Nutrient enemas were given as he takes no nourishment, but he is evidently sinking. Today there is some albumen in the urine. 17th. His condition is the same as yesterday; he has lost control over both bladder and rectum. temperature in the morning only 100.5 , but it rose shortly before his death in the afternoon to 102.3.

CASE XXV: (Thos. B. age 33.):

I saw this man first on the 3rd day of his illness. 4 Days previously he had fallen into the river when very drunk, and the next day was seized with rigors and a severe pain in the lumbar region. He had a temperature of 103.6 , consolidation of the left base and his urine contained a small quantity of albumen.

He is a fullblooded plethoric looking

man, and as he was suffering a great deal I beld him to the extent of 8 ounces which afforded him great relief but had no effect on the temperature or subsequent course of the disease. 2 days after I bled him again removing 4 ounces. On both occasions he slept well for some hours afterwards. Crisis occurred normally on the 8th day but recovery was very prolonged, dullness not disappearing for a fortnight, and a muco-purulent expectoration continuing for some weeks longer; he eventually made a good recovery.

Bloodletting in Pneumonia used to be a routine treatment but in these days is quite discarded, in accordance with the view held that it is a disease calling rather for stimulation. I am inclined to think it is beneficial in a few

cases such as the above . It is not likely to cut short an attack, but by giving relief to the pulmonary engorgement lessens the work required of the heart and the consequent exhaustion of the cardiac muscle.

CASE XXVI: (George K. age 41).

This man suffered from a typical attack of Pneumonia of the right apex in the course of which however he developed suicidal mania which nearly proved fatal. He was quite well on the evening of June 10th, but was that day much exposed to cold and wet. The next morning he did not appear at breakfast, and on sending to his room he was found sitting in a chair in a dazed condition, a razor in his hand with which he had inflicted a tolerably severe gash in his throat. The carotids however being

uninjured. He was put to bed and I was sent for The wound was dressed and he was ordered to be kept well watched. In the evening I was sent for again as he appeared to be very ill. He was very flushed with a burning skin, temp. 104. pulse 100, complaining of pain in the chest with a dry cough. There is pneumonia of the right apex. The next day he was worse, very restless and delirious, at times requiring to be held down in bed. The sputum is rusty; the urine contained no albumen, nor did it at any future time; consolidation occupies three quarters of the lung; his temperature continues high. The wound in the throat is giving some anxiety as it seems inclined to suppurate. By the 4th day the lung was solid to the base; the patient is in a typhoid condition and living chiefly on

alcohol. On the 6th day however there was a fall of temperature and improvement began. resolution proceeding regularly and the wound in the throat starting to heal. The last 3 days he was in a semiconscious condition and on recovery could remember nothing of his illness.

The constant association of apex pneumonia with delirium and other forms of cerebral disturbance does not seem ever to have received a satisfactory explanation.

CASE XXVII:

This patient was an old man of 70, employed on light jobs at the works; poorly clad and half fed he had been a hard drinker in his youth and has the peculiar waxy cachectic look of that class. He walked up to see me, complaining of pain in the chest and cough,

dating from 2 days back, and following on a severe rigor. I found his temperature to be 103.5 and he has pneumonia at the right base. The next day the inflammation had spread half way up the lung. Jan. 22nd. Inflammatory process at a standstill, temp. 102. , resp. 28. He has been a little delirious. Next day his temperature is 102.2, but fell during the night to normal. Convalescence was slow as might be expected from his age.

CASE XXVIII: (John C.):

A strong young fellow of 24, married; gets drunk occasionally; was seized with vomiting about 2 a.m. on the 17th. sent for me on the 19th I found him sitting on a chair breathing heavily and rapidly , pale and perspiring considerably, temp. 100, pulse 110. He says he had pneumonia

2 years ago, but does not remember on which lung. This time it is at the left apex; his spleen is larger than normal and tender. A Lieter's Coil was applied to the seat on inflammation, and gave relief. His temperature rose during the day to 104, and continued high throughout showing morning and evening rise and fall of considerable extent; The next day there was a slight amount of albumen in the urine. The inflammatory process never spread further than the 3rd rib,. On the 21st he complained much of great pain between the shoulder plates, delirium during the night was very violent. 22nd. His condition is much the same, slight aedema of the feet. There are however no signs of cardiac weakness. Temperature came down on the 24th and he made a good recovery.

CASE XXIX: (C.H. age 35):

This man had served some years in India where he had had several attacks of malaria he had also had syphilis badly , having secondary and tertiary symptoms; since his return to England he had been a heavy drinker. The day previous to that on which I was called in, he had been quite well and eaten a good supper, but in the night was seized with severe pain in the right side and vomited some blood. When I saw him he did not present any of the usual signs of pneumonia, his face was pale the tongue clean, the breathing only slightly rapid and the temperature 101. Before the end of the day however he was expectorating almost pure blood; the right base presents dullness to about half way up, but not the signs of consolidation.

A Vocal resonance and bronchophony were absent; there was fairly wellmarked friction sound. I concluded that the case was one of pneumonia in its stage of congestion presenting a somewhat malignant type owing to the malarial poisnn in his system. His spleen I may mention was enlarged more than could be accounted for by the present disease. He was put on a light but nutritious diet and liberal allowance of alcohol with 10 grain doses of quinine. The next day he was no better and he had two attacks of vomiting , but this was checked by the application of a mustard poultice at the pit of the stomache and ice to suck. The expectoration is more profuse and just as deep red as before. The dullness now occupies the whole of the chest and it is evident that there is fluid at the base there are also signs of consolidation above the

level of the fluid. His temperature today is 105 in the evening. It was evident in the course of the next 2 days that the fluid was increasing and it was decided to aspirate as there was considerable dyspnaea. There was entire absence of vocal fremitous over the fluid with wellmarked aegophony above. About a pint of muddy serum tinged tih blood was withdrawn to the patient's evident relief and that night the temperature fell to 99, only howver to rise again every evening for a fortnight, during which time paracentesis was twice performed. He eventually made a good though tardy recovery, his pleura remaining thickened to the end. A sea voyage eventually thoroughly cured him.

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