Thesis on
Pneumonia
To A. H. C. Buchanan M.D.
Professor of Surgical Anatomy and Physiology in the University of Nashville
this thesis is dedicated by his pupil as an expression of admiration for his attainments and gratitude for his favors.

Feb 5, 1857
J. H. Berneke

No. 285
Pneumonia

This is a subject which has brought to its elucidation the talents of some of most distinguished lights of medical science. And is still engrossing much of the medical mind. In taking up my pen, to say something on this subject, I do not flatter myself, that I shall be able to throw any new light on the pathologic, or treatment of this most interesting disease. In these lines my only object is, to draw a faithful picture of the disease under consideration as presented to my observation by nature, during a practice of 3 years on the agricultural plains of an Illinois prairie, where it occurs in almost every variety of form, from the most simple and mild to the most malignant and fatal character.
There is no one who feels an interest in the onward progress of medical science, that does not feel proud of the achievements in the history of this disease, made in the light of the nineteenth century. As long as Pneumonia shall continue to afflict our unfortunate race, so long will the names of Laennec, Andral, Lewis da host others be held in grateful remembrance by the medical mind. There is no one who has engaged in the practice of the science of medicine who does not glow with gratitude to these noble chiefs Rain's for the light their discoveries reflect along his dubious pathway. What a consolation to the medical practitioners to be able at a glance to recognize the enemy, with whom he is to contend.
By the light of the present advanced state of medical science he is afforded this satisfaction. Who can contend successfully with an enemy unless he be acquainted with that enemy, and know with what kind of weapons to store his arsenal.

To our fathers this disease was of difficult recognition; but to us it is of familiar features. He who would fail to recognize uncomplicated pneumonia, in our days, would justly be considered incompetent to the duties & responsibilities of a practitioner of medicine. For the purpose of facilitating the investigation of this disease, medical authors are in the habit of dividing its course into 3 distinct stages, viz.: 1. The stage of Phlegmation, 2. Stage of Hyperatization and 3. Stage of Supurations. Preparatory to a proper appreciation of these different stages it is nec-
necessary that we should familiarize ourselves with the normal sounds of the lungs during health. For this purpose we must practice the arts of auscultation and percussion and by becoming adepts in these important arts, we are enabled justly to estimate the language of disease; as our esteemed professor of Theory and Practice impressively remarked in his lectures on Pneumonia. By careful auscultation and percussion, the intelligent practitioner is enabled to hold an interesting and intelligible converse with the diseased lung, thereby enabling him to ascertain the extent of inflammation and stage of that inflammatory action.

But to the subject. We now propose to consider the stages of Pneumonia through some of the phenomena.
which they present. During the stage of incubation the most marked indications that point to the development of the disease under consideration is the occurrence of cough now and then, with sense of fullness in the chest, some ever, and the usual symptoms of cold. These symptoms continue for an indefinite period, terminate in a distinct chill which usually continues from 3 hours follow by febrile reaction, with still occasional iterations of chilliness. This state of affairs may continue 24 hours or longer before reaction is fully established, and the fever is fully established. By this time there is considerable pain in the side of the chest affected. Cough increased with an increased sense of fullness in the chest, with considerable dyspnea, pulse some what accelerated. But neither very hard or full. Now this being th
State of affairs as you place your ear on the chest you may distinctly recognize the sound of crepitation such as is denominated in works on pneumonia as expectant rhonchos. With this information you at once conclude that the patient is in the first stage of the disease. During this condition of things, there are important changes going on in the parenchymatous structure of the lung. The lung is now become loaded with stagnant blood, if we may be allowed the expression, and in order to free itself from this oppressive load, assumes the office of secreting gland-pouring large quantity of bloody serum into the bronchial tubes. This effort of nature in many instances proving effective in throwing off the diseased action the patient soon returns to health.
But in many cases notwithstanding the efforts of nature, and the well directed use of medicines, the disease continues to advance and we soon find the disease advanced to the 2nd stage, or that of red hepatisation. This stage is known by the dull flat sound emitted on percussion.

On the accession of this condition all the symptoms become more decided. Skin hot & dry, pain continuing in the side, spits of bloody consistence & yellowish red color. Tongue coated with a yellowish white coating, thickened proportioned to the extent of the inflammation. This condition may continue from 3 to 9 days most usually about the medium between these extremes when the case either becomes decidedly better or grows rapidly worse. In the latter case the circulation gives way, patient
becomes more restless—features sunken—mind wandering—expectoration difficult—and the sufferer almost loses his breath in fruitless efforts to throw off the accumulated exudation into the bronchial tubes. If this state of affairs continues, which is usually the case, the victim gradually sinks into a state of coma, which deepens into the sleep of death in a short time.

But in a large majority of cases, the symptoms give way. The expectoration becomes more consistent and of a yellowish color. The tongue moist and disposed to throw off its coat, which breaks up from the tip and edges some time in large flakes. This desquamation continues till the organ is again gradually returning to its normal condition. The pulse becomes slower, more regular, and of better volume.
Appetite returns and the patient gradually but steadily continues to improve.

Till convalescence is fully established.

The above is an imperfect sketch of the ordinary form of the disease as it is presented to our observation on the wide spread prairies of central Illinois as it occurs in the latter part of winter and first of spring.

But during the fall and early portion of winter and we may truly say in the spring the also disease is evidently complicated with malarial; constituting what professor Bowling denominates Malarial pneumonia with distinct exacerbations and remissions; such as might be expected, when we consider the agency through its bear, in the development of the disease.

My observation leads me to the conclusion...
That those persons most obnoxious to this
form of the disease, are such as have
their constitutions broken down by
repeated attacks of intermittent fever.
Our portion of country is in a most
remarkable manner, exempt from
typhoid pneumonia; having had
but one partial visitation of that
form of disease; in 5 or 6 years, and
those cases, seemed to be reengrafted
on typhoid fever. Thus having passed
over, so much of the consideration of
this interesting disease, as pertains to its
different phases, as they present them
selves to the casual observer, we would
in the next place consider the prognostic
signs of pneumonia, as they have occurred
to our minds. When the disease is un-
complicated occurring in an ordinary
constitution, not involving a very large
amount of lung, the case with, or without
judicious treatment, generally does well.
But in the malarial, or typhoid
form, without the most timely and
scientific treatment, and sometimes
with them, the case ends unfavorably,
especially where there is a small soft
and frequent pulse, in the beginning,
which does not become developed, as the
disease advances to the second stage.
If there is a livid flush on the cheek,
with sharpened, and anxious expression
of the countenance, hand, & feet cool &
of a blueish cast; bowels inclined to
run off, with discharges of a thin, watery,
or greenish color; added to the above we
are led to look with the most anxious
solicitude to an unfavorable termination.
And unfortunately for the patient, we have
been seldom mistaken in our opinion
in a combination of the above symptoms.
Some authors lay much stress on the pulse exclusively as a prognostic sign in pneumonia; but according to my limited experience there is no one symptom so well calculated to mislead the unwary practitioner. On visiting my patients, I have found his pulse promising all that the physician would want—quite the tongue dry and coated with a yellowish-black material & hurried breathing. Under these circumstances the mind is disposed to cherish with pleasure every thing pointing to a favorable issue. The circulation is taken as the basis of our prognosis, and we may easily be led to the conclusion that our patient is in no very imminent danger; but on our return the next day, we may find our patient in the very jaws of death; the system having given away and the pulse dropping right down. Will not dwell on this branch of the
Subject but turn to the consideration of the causes of pneumonia. Writers are in the habit of dividing these into two classes called predisposing and exciting causes.

Such things as tend to debilitate the general system may be denominated among the existing predisposing causes; while such circumstances as tend to bring the disease into action, are called exciting causes as the exciting influence of cold air as it is brought in contact with the bronchial tubes. Among the former class of agents may be classed Mallarias. The debility produced by the agency of this poison produces that form of the disease known by the name of Mallarial pneumonia. One of the most prolific exciting causes of the disease under consideration is exposure to the elements of the weather on the damp or marshy ground with thin boots; through which the feet may get a wet and such exposure so that I think is the most of any pneumonia in the prairies of Illinois. Sometimes coming which is by 40.
means a stranger in our locality. I have thought also that the direct inhalation of cold wind as it sweeps cold and icy over our unbroken fields of brain, making the blood of the unfortunate pedestrian run cold as he bends his hunched steps towards some distant wood, might be a very efficient agent as an exciting cause of this disease. With these reflections in relation to the phenomena of this disease we are led to the consideration of that subject in connection with primordials which most deeply interest the practicing physician. I am sensible of the great discrepancy among our most distinguished practitioners in relation to this subject. I approach it with the utmost difficulty. No one who has engaged in the practice of medicine in the valley of the Susquehanna
failed to notice how inapplicable the treatment so highly praised and so confidently recommended by our eastern brethren is to the disease as it occurs to us. The cold and continue use of the great trio of our New England brethren would as effectually destroy many of our Malarial cases as a rifle ball driven through some vital organ. Experience has afforded me ample evidence of the above seeming strong remark. When in the spring of the year 1855 I made a tour to the medical department of the University of Nashville. I was soon called to treat one of the most marked cases of Malarial pneumonia. Guided in auscultation and percussion by the lucid works of Professor Wood & Watson. The last lingering doubt as to the nature of the disease
which I now called to treat, was at once dispelled, as I listened to the distinct and unmistakable sound of eruptant rhonchi. No sooner was I done my examination than prepared to inform the friends of my patient, that he labored under Pneumonia. Guided by these distinguished authors to so satisfactory diagnosis, I felt doubly sure they would point me to a course of treatments that would prove equally satisfactory. But how signal was disappointed were my expectations. Bleed gave tartarized antimony & mercury, and had the mortification to see my patient grow worse and worse until the fifth day, when he bade farewell both to me and my medicines, leaving behind for my benefit an useful admonition. From the simple details of this case I was led to this conclusion.
That the western practitioners of medicine must not follow the teachings of our eastern friend, which convention was but a recitation of what I had been previously taught by our talented professor of theory and practice of medicine. But from these considerations, I have been led to a more rational and successful course. In the beginning of the disease, where there is high reactinally, fever with full and bounding pulse, in a strong vigorous constitution my conviction is that there should be some blood drawn from the arm, watching the effect of the remit with the utmost caution. After this, the local abstraction of blood may be resorted to if pulse continue full, hard, and frequent, with hot dry skin. One general bleeding in our locality is as much depletion as this way as
march as necessary and indeed the most
plethoric cases of our locality will not
tear mere without showing signs
of exhaustion. Though one timely bleeding
in many cases will produce the best
results—Diminishing pain—Bringing
down the frequency & hardness of the
pulse—Relieving muscular rigidity—
promoting expectoration and exciting
copious diaphoresis.
In a word bring on a crisis from which
the patient goes on improving until convalescence is fully established.
But in many cases the effects of the
remedy are much mixed with
uncertainty or rather obscurity. After
exhibiting the lancet as above indicated
pain in the habit of giving dose of calomel
and Dover's powders at night
with re-administration of small dose
of tartar emetic every 2 or 3 hours.
But in many cases I do not use the Tartar emetic at all, using as an expectorant the compound syrup of squill and Renega, or an infusion of Serpentaria. Thus getting a good eliminative from the lungs, without that dangerous prostration which we run the risk of incurring in the use of emetic Tartar. An expectorant of this nature in my judgment is in nine-tenths of our cases much better and safer than the Tartar emetic. It may not be out of place for me to say that this remedy is becoming unpopular with our most successful practitioners. They say they find much difficulty in preventing too much depression of the vital forces denoted by a cool skin, small and frequent pulse. This is my experience.
Would attempt to do but little with purgatives in this disease, but keep the bowels in regular condition, if possible. For the safety of patient may be compromised, in the advanced stage of this disease, if the bowels take on an irritable condition and impoverish the circulation by an undue secretion from the blood. Thus bringing about in some so the same condition of the blood which the improper use of Tartar emetic does. A small dose of colonel with Dover's powder or blue masses at night well followed in the morning by some mild laxative will accomplish all that should be expected from the bowels. The bluemass at night, followed in the morning by mild purge to insure the daily action of the intestines, with the use of Tartar emetic, or squills George.
will in the first stage of Pneumonia in its simple form accomplish the most that can be done. If the disease continue to the second stage involving extensive expectoration—skin hot and dry—pulse frequent. Tongue covered with a yellowish white coat—chill pain in the chest—difficulty of breathing increased. Cough dry and hacking expectoration tough and adherent. Thrown off with much difficulty. With this condition of things would begin with the mercurial course having the foundation laid by the previous use of the small doses of calomel and balsam powder. For this purpose would give about 1/20 or 1/20 gr. mild chloride of ammonia every five or four hours according to the urgency of the case until there was slight improvement made.
one the system. This being established the case almost universally does well. The tongue becomes moist and begins to throw off its coating towards the tip and edges. Pulse not so rapid and hard; secretions generally improved much. Delirium where that occurs less violent. Cough less dry with increased and secretion from the bronchial tubes. The dyspnea's much less marked. On percussion we find the lung gradually to diminish in dullness until it is lost in the general resonance of health. And by applying your ear with the stethoscope you distinguish the characteristic sounds of the first stage. That diminishing by little and little, aux to unstill this is entirely lost in the resonance of health. In conjunction with this pain in the habit of raising large blisters over the surface.
of the affected side in violent cases during the 2nd stage of pneumonia which I think one of our most available medical reme
This stage producing a revulsion from the lung and acting as an excentric to the skin. After the action of a large blister the patient seldom continue to complain of pain in the side thus obviating one of the most distressing symptoms of the disease at the same time disposing to diaporosis the skin becoming soft and moist. But as Drs Wood & Watson remark we should not use the blister too soon while the case is recent & the inflammatory action still unsubdued. These are the remedies on which I rely with the most confidence in an ordinary
case of uncomplicated pneumonia in the first and second stages. Of
in the 3rd stage or that of empyema I am inclined to the opinion that
there are but few recoveries if any when I have reason to apprehend
the approach of this condition demonstrated by a sinking of the pulse—
sharpening of the features—copious dark bloody expectoration with
inability to throw off the effusion in the branchial tubes as fast as it
is conveyed into them from the blood vessels. I am in the habit of using
in this state of things stimulating expectorants such as carbonate of
ammonia, compound balsam of
syrup, and senega with wine or brandy to sustain if possible
the circulation with nutrition
diet such as rice, eggs, mutton &c.
The following remarks in relation to the treatment of pneumonia is applicable only to the form uncomplicated with malaria, as the reader will observe. He now proceeds to the consideration of this disease as influenced by this poison. In the treatment of this malarial pneumonia where there are distinct exacerbations and remissions, there is no medicine that will answer the purpose of gramine. It acts like a charm—breaking up the disease in a few days and restoring the individual to health. The lancet in this form of inflammation of the lung will not bear the lancet at all, if blood be extracted. The vital powers are usually much depressed, denoted by a sinking of the pulse with cool—
of the skin, and great prostration of the strength. Tartar emetic in this condition of things is equally hurtful, depressing the vital contractility, and diminishing the fibrin of the blood already too much impoverished by the poisonous action of malaria. Mercury itself does not seem to do as much here as in the uncomplicated form; but still I am unwilling to dispense with it entirely, for I think we may facilitate the cure much by the use of an occasional dose of mercury in a mild form. Here are some much torpidity of the liver as in all other conditions of malarial disease and all knows where this is. The care there is nothing of equal efficacy to mercury. Hence in malarial pneumonia we in the habit of resorting to quinine.
Colonial and stimulating expectorants of which professor Bowles combination of Sangunaria and senega is one of the very best, according to my experience, with the judicious use of these remedies I am persuaded that a great majority of these cases may be very easily managed. Having had but little to do with what is called Typhoid pneumonia as before intimated I will detain the but for a moment in its consideration. As I know but little about this form of the disease I will not say much about it. Any course of treatment was much as I would treat a case of Typhoid fever with the addition expectorants and emetics to the chest in the form of blisters mustard. Thus having passed through a brief and imperfect history of this disease I concluded.