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AN  
INAUGURAL DISSERTATION

ON

*Acute Pericarditis,*

SUBMITTED TO THE

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# Acute Pericarditis.

The pericardium is a fibro-serous membrane investing the heart and large blood-vessels, it lies between the two pleura, conical in shape its base looking upwards, its apex downward. The pericardium is a serous membrane therefore a shut sac, and is liable at any time to take on inflammation, which is termed pericarditis, this may be either acute or chronic, and of the acute form it is my province to treat of, inflammation of the pericardium is marked by redness or congestion of the membrane, and by an exhalation of albuminous matter and a seropurulent effusion but these characteristics are not so plain in the acute as they are in the chronic form of the disease.

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Acute pericarditis is one of those diseases most difficult of diagnosis, and there are few attended with more variable symptoms. This affection generally proves fatal either very early or at a more remote period, it is estimated by Watson that in nineteen cases out of twenty the disease proves fatal at a remote period. The symptoms are various and numerous, frequently there is in the onset of the disease a slight chill succeeded by pyrexia, or more frequently it is marked by faintness and sometimes even syncope. Fever is a very prominent symptom, always attending this disease, being high or mild according to the degree of inflammation. We usually find the pa-



tient laboring under a dry hacking cough, though this is not of very frequent occurrence unless the disease be complicated. Palpitations of the heart is another very prominent symptom, they are often very violent, coming on generally in the night, sometimes this is brought on by mental emotions or muscular exertion, and at others without any apparent cause. They generally occur in paroxysms. Dyspnea is found to attend the majority of cases, when this does occur it is very distressing, it is a nervous phenomenon, in part connected with the par vagum, and partly by pressure made on the lungs by the accumulated fluid in the pericardium. Sometimes this

is so severe that the patient is unable to rest in a horizontal posture, preferring to sit up leaning his body forward and to the left side, the respiration is hurried, generally it is about twice as fast as it is in the healthy state, there is great difficulty of speaking and deglutition. The pulse is generally, in the incipient stage, full and strong, and sometimes very, after the fever is fully set in the pulse ranges from 110 to 180 in a minute being at the same time regular, but grow irregular as the disease advances, beating very fast for a few strokes then slow, occasionally they intermit, But these irregularities may be dependant on any exciting cause, such as quick motions strong mental emotions &c. When

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The disease is a bout to terminate the pulse grow very feeble, often not to be felt at all at the wrist, and at the same time the heart appears to be acting very violently. This weakness of the pulse is said to be owing to the cramped condition of the heart by the liquid effusion that is thrown out during inflammation. The next, last and I presume the least important symptom is pain, for it is very uncertain, this is produced by pressure, percussion, and by deep inspirations, coughing &c. This pain extends to the left shoulder, often to the elbow-joint, where it stops short, but frequently it extends as far down as the wrist. But suppose all the symptoms just enumerated are



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wanting or are so deficient that we are unable to make a proper diagnosis. We must then have recourse to the stethoscope and percussion, by means of these expedients we are enabled to ascertain the the different changes that are being wrought in the pericardium by the peculiar sounds which are elicited. In inflammation of the pericardium as is the case in inflammation of all serous membranes there is more or less effusion, and when this effusion is considerable we can perceive a dull heavy sound on percussion, but we are not able in many cases under three or four days to detect this sound, from the fact that there is but little effusion short of this time. In extreme cases the effusion

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extends from the edge of the false ribs  
to near the clavicle, and occupies a  
space seven inches in height and nine  
across at the base of the heart. In such  
cases the diaphragm is greatly depress-  
ed and the stomach and liver, often  
displaced. We find the respiratory  
sounds over the region of the heart  
to be absent, which are very distinct  
during health. The cardiac sounds are  
also very indistinct which is caused  
by the intervention of liquid. The  
action of the heart of course is im-  
peded, it can be felt to change its po-  
sition, owing to its free movement  
in the liquid of the pericardium,  
if the hand be placed over the re-  
gion of the heart a waving sensation  
will be perceived, this sensation is



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produced by the displacement of  
the water by the action of the heart.  
This "undulating motion" says Dr Latham  
"is often visible to the eye between the car-  
tilages of the second and third or third  
and fourth ribs". When the effusion  
is copious the heart is commonly  
pressed backward and upward  
and a little to the left, so that when  
the patient is on his back we can  
feel the heart behind or to the left  
of the nipple. Effusion sometimes causes  
the chest to bulge out in young patients  
owing to the great flexibility of the car-  
tilages. I should have remarked  
that in the incipient stage of the dis-  
ease the ventricles contract with great  
force and energy, consequently the  
sounds are louder, this is owing to the

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irritation given to the muscular tissue from the inflamed membrane. There is yet another set of signs: They are the rattling sounds produced by the inflamed surfaces coming in contact with each other, coagulable lymph being effused the surface is rendered rough and being made dry in consequence of the inflammation it is very evident that a sound would be produced by the friction of these surfaces. These sounds of course must be regulated by the roughness of the surfaces and the contraction of the heart, it is termed the to and fro sound of the heart, it is similar to that produced by sawing into a piece of board or that by rubbing two rough surfaces together, sometimes -

like the file or nutmeg-grater, there is a sound called the creaking-leather sound which is described by McCollin. In the majority of cases the to and fro sound is heard but for a few days, then ceases and never returns, but in some few instances it continues as long as life lasts; it is not to be heard very early in the disease, when there is but little effusion the sound may be sought near the base of the heart and centre of the sternum. As soon as the pericardium becomes filled with effusion or adhesion takes place this sound is no longer heard, but as soon as the liquid is reabsorbed it may be heard again, this is transient, the surfaces soon adhere to each other, therefore we



can only hear it in the early and somewhat advanced stages of the disease. This disease has been known to run its course in forty eight hours, but these are rare cases, generally it goes on in a moderate manner for several weeks without losing its acute form, frequently the disease under active treatment begins in a few days to yield, the fluid is absorbed and adhesions follow and the cure is effected in two or three weeks. When it is about to terminate fatally there is much weakness and depression with great anxiety, the pulse grow quick, feeble and irregular, extremities become cold, delirium often comes on and the patient dies in the midst of convulsions; death very often comes

on very suddenly without any premonition whatever. The first thing we observe, as regards the anatomical character of pericarditis is redness or congestion of the pericardium, which may exist in different forms as in patches or streaks of different shapes and sizes, also by an exhalation of albuminous matter and a serous effusion. The quantity of effusion is variable, sometimes not exceeding three or four ounces, at others amounting to as many pounds. This fluid is of yellowish color, oftentimes it is of a red or sanguineous hue, at others it is limpid and colourless, in the more advanced stages it is seropurulent, in some instances we find upon the surface of the membrane

spots of blood scattered irregularly over. In the majority of cases we find the false membrane to be of considerable thickness, which is characteristic of very high inflammation of the pericardium, on removing this false membrane there is no redness to be seen on the true, this is caused know doubt from the membrane having relieved itself of this high inflammatory state by an exhalation of this albuminous substance which goes to form the false membrane this membrane is rough and irregular, it has been compared to the honey-comb, to the inner surface of the second stomach of the calf, its appearance is similar to that made by the separation of two boards which



had been previously coated with water. In patients who have died of pericarditis the heart is found to have undergone some changes in regard to its colour, consistence, size &c. In diagnosing a case of pericarditis we must remember that there are several diseases with which it may be confounded, the most common of these, are pleurisy pneumonia and endocarditis, it is readily distinguished from the first by the absence of the friction sound produced by the heart, and the peculiar dull sound changing its position as the patient moves about. From the second by the brick dust sputa, the bronchial resonance &c which attend pneumonia. The

Third, by the deep bellows sound, dullness on percussion, prominence over the region of the heart, which are very prominent symptoms of endocarditis. The prognosis is generally favourable, for it is in the majority of cases a mild disease. The causes of pericarditis are those which commonly excite internal inflammations such as exposure to cold, over-stimulation &c. this is not unfrequently the result of inflammatory rheumatism. Within the last few months my preceptor Dr Wallace Estlin of Manchester has had two cases of rheumatic pericarditis, which I am permitted to report. The first was a lad of some ten or eleven years of age, of fair complexion and delicate frame

He was first attacked with rheumatism of the large joints, changing its location for a time from one joint to another, when of a sudden metastasis of the disease to the investing membrane of the heart took place, accompanied with violent pain, great dyspnea, and a dry cough. Active antiphlogistic remedies were resorted to with apparent relief for a time, but a violent throbbing of the heart and carotid arteries continued, with a short and hurried breathing. This state of things continued for some six or eight weeks, when anasarca of the extremities began to exhibit itself, this gradually increased, the breathing became more difficult with a



constant sensation of suffocation when in a recumbent posture, after great suffering the little fellow finally succumbed to the disease. In the early stages of the disease the sound from motion of the heart as described by Watson was distinctly heard, this ceased before the disease terminated, evidently indicating that adhesions of the pericardium to the heart had taken place, a post mortem examination of this case could not be obtained which I greatly regret. The second case was a mulatto boy Reuben about seventeen years of age, of rather slender frame and light blue eyes, he was attacked with inflammatory rheumatism of the

knee and ankle joints, his disease was brought on by great exposure and irregularities, being employed as a servant at an eating house on our railroad, the trains arriving at untimely hours of the night; after the disease continued for a short time perhaps a week, it very suddenly left the joints and was transferred to the pericardium accompanied with violent pain in that region, the most active antiphlogistic remedies were had recourse to, such as copious and frequent blood-lettings, purgation, cupping, blisters and mercurials pushed to ptyalism, this course seemed for a time to promise success, but it was observed, notwithstanding the active depletion, that

There was at all times a violent throbbing  
 of the heart and carotids, to allay  
 this active doses of digitalis and  
 nitro were administered, but with  
 temporary effect. Things went on  
 from ~~worse~~ bad to worse for five  
 or six weeks when an anasarca  
 effusion began to take place, the  
 difficulty of breathing became so  
 great that he could not lie down  
 at all, but was compelled to be  
 propped up over a table, in this  
 condition he continued for several  
 days, when of a sudden life  
 became extinct, the to and fro  
 sound was very distinct early in  
 the disease, finally ceased.

Post mortem examination,

The clavicles were found to be thrust



forward entirely from their articulating surfaces, occasioned know doubt by the violent efforts at respiration. The muscles were in a most remarkable relaxed condition, although the boy had been dead some six or eight hours. They continued as limber as though he was in a state of syncope up to the time of his interment which was about twenty hours after his death. On elevating the sternum the pericardium and heart were found to be completely agglutinated at all points. This union was so firm that it could not be separated, upon cutting into the ventricles they were found to be enormously enlarged or distended with very black coagulated blood of the con-

distance of thick jelly, This was scooped out in masses to the amount of a quart or more. The corda tendina were put upon the stretch and stood out like bow strings in the cavity. The auricles were empty but somewhat enlarged. The fibres of the heart were firm and did not yield when pressed by the finger. The lobes of the lungs were very much reduced in size, the right lobe was adherent in many places to the pleura the attachment being quite firm. There was about one quart of serum effused into the right cavity of the chest. It yet remains for me to give the treatment of this disease, Bled-  
ing I believe is set down as being the most important and power

full remedy in the incipient stage, although this be so great a remedy it may be and is too often carried to excess, therefore it is necessary that we should use some caution in the employment of the lancet, too much blood taken from the economy indirectly stimulates the heart, the quantity to be drawn is regulated by the habit and condition of the patient, in the commencement of the disease we may bleed if the patient be of full habit to the amount of twelve to twenty four ounces, to be repeated three or four times during the three or four succeeding days but not so much as the first time. Local bleeding by cups & leeches over the region of



The heart proves beneficiad, The patient should be thoroughly purged with Calomel or some other active Cathartic followed in six or eight hours by Castor oil or epsom salts. After the general excitement has been reduced by bleeding and purging we should then resort to mercury for the purpose of approaching ptyalism, Opium is commonly used in conjunction with mercury for two reasons, The one is: That it prevents it from running off by the bowels, the other, That it is a measure restrains the action of the heart. Blisters are very efficacious after effusion has taken place, applied over the region of the precordia the pulse should be controlled by

digitalis, every thing that has a ten-  
 dency to excite the general system  
 should be avoided, cooling bever-  
 ages if desired by the patient may  
 be allowed throughout the whole  
 course of the disease, by these  
 means we are generally able to  
 effect a cure.