It did not appear to be from

On the Heart: Anatomy, Physiology, and Diseases. Of course, it is incomplete, yet it still contains a great deal of accurate statement, and judicious reflection, well expressed.

R. D. Turner

Among the conclusions: 1. No diagnosis or account of Hypertrophy seems to be tenable. 2. Presence of Percussion.
The heart, gentlemen may be looked upon as the centre of three distinct circulations, the systemic, pulmonic, or cardiac. It is itself a hollow muscular cavity divided into 4 compartments by two partitions which cut one another pretty nearly at right angles. The two upper of these compartments are called the auricles. The right one, in the adult, receives the blood which has circulated through the frame, thus becoming impure or venous. When the veins have poured sufficient blood into this cavity it contracts & expels the fluid into the compartment below, the right ventricle. The left auricle receives the blood from wh.
has progressed thus far. The lungs, with its passage has become convoluted. From the darts it impure venous blood into the bright pure arterial stream. When a sufficient quantity of blood has entered. This cavity, its presence is acknowledged by its contraction. The blood at the same time being forced into the cavity below, the left ventricle.

The walls of both the auricles are thin; the orifices of the veins which supply them with blood are unprovided with wall markings; the diseases which affect them are generally of a secondary nature. This in a medical point of view these two cavities are without any special interest to any the rapidly passed over.

The two lower compartments are called the ventricles. The right one receives the venous blood which has been driven forth from the right auricle: the vital fluid enters by means of the auriculo-ventricular, which is guarded by the tricuspid valve, in such a way that the blood is allowed freely to enter, but has its exit.
entirely obliterated by the slipping together of its folds. The function of the right ventricle is to propel the blood thro’ the lungs or pulmonic circulation. The blood makes its exit by means of the pulmonay artery. The mouth of which is accurately guarded or closed by the three semilunar valves; the latter come into action as soon as systole of the ventricle has ceased.

The left ventricle received arterial blood from the left auricle by means of the left auriculo-ventricular or mitral valve opening with is guarded by the mitral valve. This cavity has the wide task of sending forth the blood thro’ the whole systemic circulation. The mouth of the aorta, which is the main throb is guarded also by 3 semilunar valves.

The walls of the ventricles are much thicker and consequently stronger than those of the auricles. Again the walls of the left ventricle are very much more powerful than those of the right, on account of the more extended field of its action; the
Power with which it propels the blood is estimated to be about 20 oz.

The ventricles act synchronously, i.e., they dilate together, contract together, or at the same time. The number of contractions in a minute ranges greatly in different persons, even in the same person. In the latter case, the variation may depend upon age, time of day, position of body, diet, sex, disease, etc. But 70 contractions per minute is generally looked upon as about the normal average for a healthy adult male, 80 for the female.

The quantity of blood forced into the aorta at each beat has been variously estimated from 3/4 to 3/5, but this would certainly appear to be somewhat too high.

The ventricles are of much greater medical interest than the auricles. The former are not only liable to secondary affection such as dilatation from debility, a relaxed state of the auricles, dislike hypertrophy from some unpremeditated in the circulation, but it is also liable to numerous
primary & most fatal organic disease. All the ventricular orifices are carefully guarded by valves, any one of these may be the seat of disease. In 58% for the majority of cases of valvular disease, the left ventricular valves are the ones affected, those of the right being comparatively rare.

There may be attributed to the much greater exposure of the left ventricle to secondary affections, to the more stimulating character of the blood, to the greater amount of fibrinous tissue connected with the left valves; again it may be presumed that the left ventricular affections would increase more rapidly than those of the right, etc. 1. From the greater power with it must possess of attracting the nutritious particles of the blood.

The action of the heart is excitatory; its nervous supply is derived from the hypoglossal, cardiac, & cervical ganglia of the sympathetic. Their natural stimuli is the blood itself.

The normal position of the heart is...
values, as well as its natural rhythm, must be thoroughly known and understood, before any alteration either in its position or action can be properly appreciated.

The heart then holds an oblique position in the chest, with its base directed forward and back towards the right side; the apex being directed downwards forwards to the left; on either side we have the lungs; while posteriorly the descending aorta and esophagus, splanchnic nerve between the base & the 5th, 6th, & 7th dorsal vertebræ. The apex when the ventricles are contracted corresponds to the 5th intercostal space at a point two inches & a half from the left border of the base of the ensiform cartilage. One half of the heart lies to the left of the sternum, behind the cartilage of the 4th & 5th & the sternal articulations of the 5th & 6th ribs. The other half of the heart lies behind the lower half of the sternum, a small portion only of the right ventricle & right auricle being behind the sternal articulation.
lation of the 3d to 5th ribs and the 3d to 5th intercostal spaces of the right side. The dia-
phragm separates the posterior flat under surface of the right left ventricle from
the left lobe of the liver. The rounded up-
ner and anterior right ventricle is turned up-
wards and forwards, separated from the ster-
num by the pericardium and some loose cellular
fissure. The position of the cardiac valves
with reference to the frame of the chest has
been accurately determined by transposing
them from without with June. Thus if we
force the June thru the centre of the sterno-
um on a level with the 14th costal cartilage
we transfix the aorticpsid valve. The mit-
ral is transfix by forcing the June thru
the junction of the 4th costal cartilage with
the left edge of the sternum; again just
one rib higher, i.e. at the junction of the 3rd
cartilage with the left edge of the sternum,
we may transfix the pulmonic semilunar
values, or by pushing the June thru the 3rd cos-
tal interspace, just on the left side of the
+ + Mathematica. Hence formulas 2. Second
sound. \(2 + \beta\)
Sternum we transfer the aortic semilunar valves. So that it is possible to cover all the cardiac valves with an ordinary stethoscope.

The normal sounds of the heart are two in number. They differ in character: the first coincides, in point of time, coincides with the pulse, i.e., precedes the beat of the radial artery at the wrist; it is therefore systolic. The second sound immediately succeeds the first and is therefore diastolic. In character it is much shorter, a clearer than the first. The cause of these sounds has caused no little amount of discrepancy to physiologists, who, however, most seem to be agreed that the first dull sound is principally a muscular sound, depending upon the contraction of muscular walls of the ventricles. The second clear sound they refer to the flapping together of the aortic semilunar valves. After the completion of the second sound we have a period of rest, a pause. This pause of suspension constitutes the 2thone of the heart.
of one pulsation the beginning of the
next, the compensative periods of time oc-
cupied by the three component parts of
the rhythm, taking 5 as the whole, would
be as follows:— Two for the first, one
for the second, or Two for the Jounce.

The natural rhythm of the heart’s action
is liable to be interfered with in a variety
of diseases — it is to this interference
that we are chiefly indebted for a correct
diagnosis of the morbid changes which are
going on.

Having made these few prelimi-
nary remarks upon the anatomy & physio-
logy of the heart, we may now proceed
to their adaptation for the recognition of
cardiac diseases.

The primary disease division of
cardiac diseases is into —

1. Functional or nervous affections.
2. Structural or organic diseases.

Augusta Parot is said to have
suggested the form

The two principal functional affections.
I am not quite sure if that. Certain is not a common frequent result. Read says for above 20 years.
Palpitation is an irregular and abnormal action of the heart, sensible to the patient, the pulse not necessarily being synchronous with the heart's action; it is not infrequently accompanied by a painful sensation, of being referred to the pit of the stomach. It is a disorder common to both sexes, but more particularly to the female.

The exciting causes are strong mental emotions, violent exercise, debility from any cause, intemperance, distemper, or excessive study. Palpitation may be purely functional, as in Hypoesthesia or chlorosis, this it accompanies various organic diseases. There can be but little doubt, but that pure functional palpitation, of long continued, is capable of producing organic mischief; abnormal action being the chief cause of hypertrophy.

Palpitation is divided into the ethmic and asthenic forms, ethmic as in hypertrophy and during the excitement stage of fever.
as the mic as in chlorosis, all states of debility and anemia.

The effects of palpitation are:

1. To cause an irregular distribution of the blood to the lungs, thus destroying the balance between the circulation and respiration, causing dyspnea; under urgent dyspnea we get anxious eye and countenance with dilated nostrils. For the posterior division which supplies the muscles of respiration the fourth and supplies the upper, oblique, on both nerves of respiration moisture according to Bell, symptoms with the increased respiratory function.

2. To produce pale face and vertigo from the irregular supply of blood to the brain, or even syncope from the absence of sufficient blood to stimulate that organ. But if the palpitation of the heart is of a strongly thomie character, we may get symptoms just the reverse of the above.

3. The first week a fine gelatine
not synchronous with the heart's stroke.

Gastricis a most uncommon cause of palpitation. There are several reasons why derangements of the stomach should affect the heart.

1. From irritation of the cardiac plexus, this occurs for the most part in irritable Gastritis; here the best remedy is Bell. Hydrog. Dil. which will often give marked immediate relief.

2. Under healthy digestion, little gas is generated. They are under deformed digestion abundantly se, & the stomach becomes painfully over distended, causing gastrodynia; the distended stomach pushes up the diaphragm, & thus interferes with the proper action of the heart. This cause occurs most in those suffering from Dyspepsia, & is relieved by Tonics, stimulants, & Carminatives.

3. Many of these gases are highly deleterious & are seen no reason why a portion of them, tho' ever so small, should not be absorbed. & thus be brought...
into direct contact with the cardiac
parietes, stimulating them to an undue
amount of action.

In chlorosis the palpitation is due
from asthenic irritability of the heart,
from the non-stimulating, non-nutritive
character of the blood; in old stand-
ning cases the heart becomes large, flo-
ibly and dilated, just as in the advanced
stages of Bright's disease, as the blood
gets poisoned by the retained urinaria
diuretics: in this form the palpitations are
relieved by stimulants, but iron is the
great remedy to improve the the
tone of the organ. In severe asthenic
palpitations, we may have necessity to
cure, treat, or perform R. S.; but generally
saturate purgatives, diuretics, a strict anti-
phlogistic regimen, with the adminis-
tration of acid: Hydrocy, Oil: with or without
Digitalis internally; in conjunction with
amphlet: Belladon, applied over the
procordial region, will quickly afford
relief.
The second functional affection of the heart is Syncope. It may be defined, to be a species of asphyxia, for the functions of animal life are suspended from causes operating upon the heart. At the moment of syncope the heart is not sending sufficient arterial blood to the brain to stimulate it to support these functions.

The literal meaning of the term "asphyxia" (a. pne: opiz) is a "stop of pulse;" the common meaning however attached to it is "suspended animation," i.e. the functions of animal life are suspended. Our hope lying that the functions of organic life are going on, if ever so feebly. An asphyxiated person is morally dead; he is dead to surrounding nature; but if the functions of organic life are also stayed, then he is really a truly dead, beyond all hope of recovery.

Some of the old Pathologists, as Mayo de., were very exclusive as regards the meaning of asphyxia; they applied it alone to those cases where the functions
of animal life were suspended from causes operating primarily upon the
nerves. Watson objects to the term being applied to these cases; if he calls it
"frenex", if we stick to the derivation
of the word, syncope is the genuine ortho-
physical.

At the moment of syncope the brain
is not receiving sufficient arterial blood; but this may result from two
opposite causes:—

1. The heart may not have the blood
to send as in hemorrhage, flooding,
rupture of the fatty heart, etc.,—

2. Its cavities may be full of blood,
but it may not have power to for-
ward it to the brain, as in shock,
confinement, exhausting diseases, &c.

Hence syncope becomes divisible into
three varieties, some one of which

The former the only remedy is transfusion
for the latter the recumbent posture, stimulants,
friction to the cardiac region are the remedies.
But while in syncope our first indication is to increase the susceptibility of the heart, in apoplexy, or asphyxia according to Mayo, our first indication is to get the blood in the lungs gradually oxidised by the cold dark artificial respiration. All stimulants, hot baths, cardiovascular friction are to be condemned as likely to produce a fatal result, until we succeeded in restoring the respirations of respiration. If the heart be acting even to poorly, it is better to let well alone, for if we succeed in making it act more powerfully, we only do harm by increasing pulmonary congestion, before the blood has a chance of being oxygenated.

Syncope may be merely functional. This accompanies many organic diseases of the heart, as gouty degeneration, and when angina pectoris does prove fatal, it is generally by syncope. The patient faints a never rallies; hence the term "syncope anginosa" (Cullen). Functional syncope will result from the operat
of any direct sedative.
A direct sedative is one which depresses the heart without any previous stimulation or excitement; among the chief of these are—

1. Fear of depressing passions of the mind.
2. Blood letting "pлену во, corpore recto ample orificio", so that the blood may be drawn more rapidly than the heart vessels can accommodate themselves to its loss.
3. But if we bleed from a small orifice in the recumbent posture, so that the heart vessels do accommodate themselves to the loss of blood, we can remove a much larger quantity of blood, before we produce syncope, or before it occurs we set convulsions from the irritable or exhausted state of the brain. Of this character are the peripheral convulsions which come on after labour, these seldom occur unless the labour has been exhausting and flooding, while those which occur before or during labour are of a scarce character & result from centripetal or eccentric...
3. Acid: Hydrocyanic. This it is said by some to destroy life not by its action upon the heart, but rather by paralysing the muscles of respiration.

4. Tobacco, according to Paradies, etc., if injected.

5. Digitalis, but it has been asserted that the pulse is slightly accelerated previous to its lowering.

6. Long continued exposure to the cold is a powerful direct sedative, the tendency to death is by come rather than syncope. But cold properly employed is one of our best stimulants.

7. The hot bath, according to A. J. Thomson, here the effect would probably be from the shock.

We now come to an affection or disease of which at present little is known, angina pectoris; it consists of a sudden acute pain in the chest, behind the sternum.
accompanied by great anxiety and fear of death.

The symptoms are as follows—During exercise, such as walking against the wind, up a hill, esp. if a full meal has been previously taken, the patient is brought to a sudden stand-still by a violent acute pain, referred to the sternum, but which gradually extends itself to the left shoulder and more or less down the corresponding arm, usually following the ulna nerve. In descriptions of this distressing complaint, much stress is commonly laid upon the patient's want of breath, apnoea. But Dr. Paterson in his work on medicine says that this is by no means a constant symptom. The pain however is soon over, and the patient is left much as he was before; he is now ever subject to these fits which afterward are liable to become not only of more frequent occurrence, but a more severe type, until at last he is carried off by one more than usually severe.
At the "post mortem" we generally find some serious organic derangement in the heart, of which the most common are fatty degeneration, insufficiency of the coronary arteries, etc. Indeed at one time was supposed to be the essence of the disease, but we now know that this scarring may exist without any symptoms of angina pectoris or vice versa. Again there is sometimes found valvular disease, aortic also. In some few instances the affection seems to have been functional, no sufficient cause being found after death. To account for it, it for the most part attacks males at an advanced age, over 50.

Our prognosis in these cases is extremely unfavorable. We cannot hope to cure the man even though we should succeed in prolonging life. By putting off for a time the settling short the attacks.

For the sake of prevention, the patient must avoid all excitement both of body and mind, such as hard working, rage, etc.
he must also pay esp. attention to his digestive organs, so that the free action of the heart may not be interfered with, & his mode of life & diet must be alternated.

During the paroxysm bleeding can hardly be necessary; but seeing that the tendency to death is generally by asphyxia, we ought rather to try a course to continue its action by the administration of stimulants & cordials.

If we are correct in our notions concerning the nature of the disease, we can expect but little benefit from the applications of leeches, blisters &c.

Of the structural diseases of the heart the principal are—

- Cyanosis
- Hypertrophy
- Dilatation
- Fatty degeneration
- Disease of the valves
- Endocarditis
- Pericarditis
Cyanosis, Morbus Casulceus, or the Other Disease. This disease is congenital, usually carries off the patient at an early period, tho' she may live up to puberty or even sometimes to middle age. After death we generally find some deficiency in the walls between the right & left heart; the foramen ovale may be patent, or the interventricular septum may be imperfect; the ductus arteriosus may remain uncoiled; or the root of pulmonary artery may have a common orifice. With any of these defects, the venous blood becomes mixed with the arterial; thus blood more or less impure, according to the abnormality, is circulated through the system, hence the colour. The patient is liable to a series of secondary affections, such as palpitations, dyspnoea, dropsical effusions, & complete syncope.

We can do nothing to cure; all that we can hope to accomplish is to palliate the distressing symptoms. By attention to diet, stomach, & the mind.
Hypertrophy (increased nutrition) here the walls of the heart become more developed.
This increased development as a primary affection, begins in the walls of the left ventricle, the it may extend to those of the right. Three varieties exist:
1. Eccentric, in which the convexoncent. In this case the walls are thickened, the cavities are enlarged, the heart acts with greater force & energy.
2. Concentric, here again the walls are thickened, but at the expense of the cavity of the heart, as it becomes encroached upon it consequently rendered less expacious. Many however have denied this. They say that appearance is deceptive, it results from the rigor mortis or that tonic contraction of muscular fibers of commences shortly after death, & remains till decomposition begins to set in. But Bernard in among French admit that it may exist esp. as the result of Ch. Cordetii.
3. Simple, walls thickened, the cavities normal.
Causes: The great cause is abnormal action.
causing increased nutrition, but there are three special causes viz.—

1. The heart having to labour to overcome some obstacle in the course of the circulation. Here the hypertrophy is called “comparatorily,” i.e., if the eccentric variety. Thus when the orifice of the aorta is obstructed, the left ventricle puts on increased action to work the blood onwards, and it will succeed in doing this at first, while the disorganization is not great. The heart's action will remain regular and strong. The pulse will be little affected if at all. But this abnormal action will slowly but surely cause hypertrophy, if the constitution of the patient be of a rathonic character, his blood health.

If our patient is athenic then visible dilatation & thinning of the walls of the left ventricle must ensue.

2. Cause is adhesion of the pericardium to the heart. This adhesion will cause the action of the heart to become tumultuous & abnormal; which again, in its turn, will surely bring about hypertrophy.
3rd case. This is due to primary hypertrophy not infrequently occurs without any disease, athletic sports, bowling, running, 
are causes of this, the heart being obliged to act more powerfully to supply 
the wants of the system. This form occurs esp. 
among athletes and others who drink largely, 
or directly afterwards are subject to great muscular exer-
cise.

In detecting hypertrophy of the heart we must 
bear in mind the following symptoms. —
An hypertrophied heart always contracts slow-
ly but energetically: the first sound, i.e. the 
dull prolonged systolic sound not accompanying 
the ventricular contraction, is increased in 
length of time, from the slow contraction of 
the hypertrophied ventricle, thus enroaching 
upon the second, sharp or diastolic sound: 
the impulse of the heart will be increased, 
the ribs forcibly elevated under its stroke, 
from the energetic contraction of the left 
ventricle: if the hypertrophy is eccentric, 
we get increased dullness on percussion, s the 
sounds will be heard over a larger space, but 
if it be unipile or concentric, then the sounds 
will be heard over a small surface. For the
Heart is rounded & a portion only of it opens through the thoracic walls: if the hypertrophy be primary, the pulse will be hard & prolonged, hard from the energetic, prolonged from the slow contraction of the enlarged left ventricle; if the hypertrophy be eccentric, we shall have one of the strongest & most powerful pulses possible: the effect will be that the heart overworks the arteries, capillaries, they become loaded to excess: active effusions as active diastolic or active hemorrhages must ensue: general anaemia, implicating the upper & lower parts of the body, being the general diastasis, while glandular pleural spots under the skin, or central hemorrhages, are among the most frequent hemorrhages: but if the hypertrophy be secondary, as when it results from aortic obstruction, then in addition to diagnosticic sounds, or endocardial preeusions as they are called, heard most distinctly at the left base & prolonged into the course of the aorta, the pulse cannot & wont correspond to the force & magnitude of the heart, it will soon become_partitioned & unfilled: then distal congestions must come on, first of the lungs
Then of the right heart & then of the whole venous system, till dyspnoea, approaching to suffocation, venous face, cold extremities & historical or hemorrhagic effusions of a purely passive character, show a state which is incompatible for the carrying on of life for a much longer period.

Dilatation of the heart: here the walls are thin & the cavities dilated. It has been called "passive hypertrophy" & "aneurism of the heart." This state may occur wherever we have great anemia, cachexia or debility; thus it occurs in advanced Bright's disease, as the blood becomes spotted & poisoned by the retention of the urinary salts; a again it occurs in long standing cases of chlorosis, in short we may find in any case of long standing debility, or debilitating diseases.

The symptoms are for the most part the converse of those of hypertrophy.

The systolic sound is shorter, shorter, & clearer, for the ventricle with thin walls contracts quickly & instantly. The impulse is very weak, the stroke of the heart being scarcely felt. We have extensive dulness on percussion.
& the sounds are heard over an extensive area.

The pulse at the very onset will be full but very compressible, full because a large quantity of blood is sent, compressible because it is sent with so little force; but very soon from the excessive profuseness, a state of general debility & anaemia must supervene; the cavities of the heart will become engorged from an inability to propel the contained blood onwards, & the distal conjunctions will ensue. The pulse become small, weak, irregular or intermitting, & these symptoms will in time ensue, with terminal effusions of a jaundiced character: the dropies generally resume the form of an area. These effusions may take place into the serous sacs, the thoracic rather than the abdominal.

In treating patients suffering from hyper trophy of the heart one must attend to the peculiarities of the case.

If the pulse be very hard or prolonged & the skin hot, & the patient of a full plethoric habit, bleeding gives speedy relief & checks the tendency to effusion.

Digitalis should be administered. Its accumula-
Being checked by the exhibition of Pot. Vit. I.
Sthenic palpitations should be controlled by acid. Hydrocy., a Belladonna plaster is also very efficacious.

The patient must be put upon a dry non-stimulating diet.

It is also our duty to give alteratives as Pot. Iodid. To endeavour to set up a new healthy action in the system.

The tendency to drooping must be obviated not only by the use of Digitalis, but also by acting upon the skin by the flesh brush, gin.

It may be as well occasionally to work the bowels by an occasional purgative such as Z. of Pulv. Jalap. 10 or 20% of ext. Eclatric.

In dilated heart, we must avoid the use of either bloodletting or Digitalis. They can only do mischief: iron is our sheet anchor both to improve the tone of the heart and the quality of the blood. Dry diet must still be insisted upon. The tendency to gaseous dyspepsias must be met with the constant use of stimulating dietetics. Juniper, Scopari-uncor. The occasional use of hydroaque cathartics
Lauchard Richardson
Diseased valves; their chief affection are—
1. Simple induration from fibrinous deposit or it may be theromatous.
2. Cartilaginous induration from the valve becoming organized.
3. Ostification, esp. in old age.
4. Pericarditis, or want of vegetations on the edges of the valves; the special result of rheumatic endocarditis.

The left or arterial heart, is far more subject to valvular disease than the right. Physiologists have assigned three reasons for this:—1. That the arterial blood is more stimulating & contains more fibrin & salt. 2. That there is more moisture in the left heart. Therefore, coeleis praebus, it must be more liable to disease. 3. But the most satisfactory reason is that the left valves, not only contain more moisture, but a larger proportion of fibrinous tissue; hence they are more liable to become simplified, in their make endocardial & peri-cardiac affection.

The causes of diseased valves are sometimes not obvious, extensive disease occurring sometimes without any traceable cause.
The most diagnostic signs of cardiac valves are clicks or murmurs, which accompany or replace the normal heart sounds, and are called endocardial murmurs. But in addition to the heart, we have to pay marked attention to the heart's rhythm, the point where it is heard most distinctly, and above all, the diastolic "ejection sound." It is propagated horizontally from the mitral to the aortic area. The sound may vary in character; the most common is a hollow or blowing sound, heard either with a snoring harsh sound, or with a continuous staccato sound of vibration or osification, or it may assume a musical sound. According to Dr. Seitz, each area on the right side of the heart may be the seat of two sounds, a direct sound with the covering of the blood and an indirect or regurgitant sound against the normal current.

Aortic Disease. Here the sound is usually single, systolic, and of a blowing character at the outset, but becomes double as disorganization advances, so that regurgitation is allowed, during the diastole, from the aorta into the ventricle. The sound of aortic disease, whether systolic or diastolic, is
Regurgitation by no means signifies a stage of valvular disease.
always heard most power distinctly at the left side of the heart, i.e. at the 3rd intercostal space, just beyond the left edge of the sternum, but it may be traced upwards or towards the right side, in the course of the ascending aorta.

The phenomena or symptoms may be divided into three stages according to the extent of disorganization:

In the 1st stage there is simple induration from fibrous or cholesteromatous deposit; the heart will be quite at rest with the systole. While the heart is simple (simple) or quiet, there will be little injury; the heart's action will remain regular but strong; the pulse will little if at all affected, for the left ventricle puts on increased action in order to counteract the slight obstruction. In the 2nd stage one has more marked mischief; one may have calcification, induration or ossification or nearly excrescences. Now one gets a beat with the diastole indicating of course repercussion; in this case the left ventricle is dilating from the flow of blood into it thus the mitral valve; but
on account of the insufficiency of the aortic semilunar valve the blood the blood also enters it thru the aortic opening: it may to happen that these two streams come into collision with such force, or to produce a palpable shock: The "diastolic impulse." Much graver symptoms will now arise, the pulse becomes jerking & unseised, exhibiting a peculiar vibration to the finger: the blood seems to be shot down the arteries and bulls as it were: now also the action of the heart becomes irregular: the excentric hypertrophy rapidly increases & most distal congestions of the lungs, right heart & venous system come on, with dyspnoea, pressure disposition & cyanosed shaper, dusky countenance etc. In the 3\textsuperscript{rd} stage the breath is double, systolic & diastolic, often causing a gurgling sound, "Breit de rolle", with a small weak unseised pulse, & the distal congestions aggravation is the utmost. as also do the other symptoms, so that death must soon take place.

In initial disease one have distinct symptoms. The breath may be double or single, the "former is rare. The breath is a
Also mutual mirror between desert in
spring
rule is single & systolic, it is consequently regurgitant from the onset. It is heard loudest over the left apex, & becomes fainter as we ascend upwards. One do not hear this sound with its greatest intensity over the exact part of the chest which corresponds to the position of the mitral valve, i.e. the junction of the 4th cartilage with the left edge of the sternum, and one hears it loudest a little lower down towards the left, because it is prolonged in this direction by the chordae tendineae & muscle papillaees, which regulate & control the action of the mitral valve.

This systolic regurgitant mitral murmur is spoken of as a bell like murmur, but it is very variable in character, one day one may hear it cracking & whistling, the next there may be merely a gruff accompanying the systole of the auricle.

In mitral disease the heart's action is irregular from an early period, because there is regurgitation from the onset & a peculiar thrill a tremolus is felt on the hand being placed over the heart. The pulse is never regular from the very earliest period, soon becoming
irregular and intermittent. For only a portion of the blood passes onwards into the aorta, and again distal congestions of the lungs, right heart and venous system must come on early and increase rapidly, unless we have regurgitation from the outset.

We may have a single diastolic murmur, occurring with the diastole of the ventricle, the blood entering from the ventricle that the diseased valve, it is therefore direct. Dr. Todd only heard it twice or three times, in these cases it had resulted from rheumatic endocarditis, valvular vegetations having been deposited round the edges of the valve, and the orifice had become converted into a mere slit.

Valvular disease of the right side of the heart is rare. It contains less fibrous tissue, The tricuspid valve may be dilated, and it may be the seat of two sounds, systolic and diastolic, the former is by far the most common of the two, and when it occurs it is generally associated with obstruction pulmonary deceleration; thus in long-standing cases of emphysema one may find it, one knows it by the following points:

1. The systolic murmur will be heard most
distinctly at the right apex, i.e. just below the middle of the sternum; it can sometimes be traceable into the epigastric region.

2. The pulse will not be affected. 3. Resinous countenance + pulsating jugulars will, followed by diaphagy, will soon leave us in no doubt that there is positive negativisation.

Disease of the pulmonic semilunar valves is the least common of any; but we should suspect it, when in addition to a bruit heard at the right base, a prolonged upward towards the left and costal cartilage, we have early or severe symptoms of disturbed pulmonic circulation, the pulse is not affected.

The treatment of valvular disease of the heart is very unsatisfactory. We may use alternatives or counterirritation to check disorganization & promote absorption of the deposit. Any diet must be commanded, excitement must be avoided; & the tendency to diaphagy must be kept off as much as possible by an occasional hydrophagous diet.
Fasciaceum, Bronze, Syphilis &c. But the length of time the patient will live will depend to a great extent upon the healthy or unhealthy state of the liver & kidneys, the extent to which he will be able to bear the burden of blood thrombi &c. back on these organs under the distal constrictions.

Fatty degeneration or Atrophy of the heart has of late years attracted much attention but we are never the less as yet without any well marked signs of its presence. Still however we may suspect it, when in addition to weak action of the organ, anxiety in the precordial region, small weak irregular pulse, dyspnoea, &c. an anxious pallid somewhat waxy countenance we have other symptoms of fatty degeneration consisting of areas semi, fatty degeneration of the liver, which large smooth & too soft, or above all symptoms of lumbargia pectoris. These cases often prove suddenly fatal, under excitement, either from syncope or rupture of the organ. After death we not only find layers of fat in the substance of the muscle lying between the muscular fibrillae but the muscular fibrillae themselves reun...
To have undergone a morbid change. For inside the sarcolemma are found oil globules in the place of the normal muscular fibers.

This disease occurs for the most part in men, above 50, who have been in intercourse, or who are suffering from exhausting diseases, or drooping contraction or ossification of the coronary arteries may produce it.

The disease does not admit of cure; all that we can recommend is a good nutritious diet, with tonic exercise. The heart must be kept quiet and free from all excitement; or the heart may fail at any time to perform its function, and death occur from syncope.

Excocordial murmurs: These result from causes operating external to the heart. They do not replace or occupy the place of the normal sounds of the heart. The excocordial murmurs are very diagnostic of the stage of effect of pericarditis, ranging from a soft tinkling brushing to a gro sound at the onset, when the pericardium is dry. The 'beater sound' of Addison occurs when the heart and pericardium are reddened with semiplastic phlegm, to the touch creating new-ether sound, when this
Fibrous becomes firmer and more granular. These are true ecocardial murmurs, but in addition the base of an aneurysm will be ecocardial. The most diagnostic sign will be the sound, increasing in intensity as one passes from the heart to the aneurysm.

Endocardial murmurs are heard in the heart, they replace or occupy its normal sounds. They are divided into organic and functional. The organic endocardial murmurs are those connected with a diseased state of the valves. The endocardial functional breeds are again subdivided by Walsh into "hemic" and "dynamie". The hemic result from an altered state of the blood; they may occur in patients suffering from starvation, from excessive hemorrhage; the plasma and corpuscles requiring a long time before they can again reach their normal proportion in the blood; the white parts being replaced in a few days. The blood then becomes diluted and of low specific gravity.

Again in chlorotics where the fibrous and corpuscles are diminished a the time of fever. These hemic breed are well marked, but not always. Hemic breed are heard with the systole, most distinctly at the base, proving that they depend on
the propagation of poor blood. These arterial and pulmonary orifices. They can be diagnosed from the organic faults by their ceasing or becoming much left place in the recumbent position. Accompanying these organic faults, we often have a continuous venous hum, in the large veins of the neck, it is more distinctly heard on the right side than the left, from the difference of the direction of the innominate veins. These venous hums depend on the descent of venous blood that the veins or pressure on the veins immediately stops them. Dynamic functional faults are heard also with the systole, they are also heard at the base, suspended by the recumbent position. They depend on the heart acting powerfully and forcibly, dashing blood into the pulmonary and aortic orifices. They may be produced by the exciting passions of the mind. They are sometimes heard during the excitement stage of fever, in acute delirium, or here we have the blood very rich in fibrine.

Pericarditis, this is inflammation of the pericardium, the sack of the heart, which is in structure fibro-serous. The inflammation may be idiopathic or rheumatic, the former is very rare. The
Continuity of tissue not the reason
Letter common. The special causes of this will produce extension or metastasis of rheumatism to the pericardium will be these: In this extension will take place more frequently in the few fibrinous or diffused rheumatism, than in either the synovial or muscular form, for the latter are continuous, more or less, over the whole body: the fibrinous coats of the pericardium itself is continuous with the edge of the deep cervical fascia. The first of the three special causes is - Too free depletion in acute rheumatism. In an acute case, in a rheumatic habit, we might bleed once. But should we repeat it, we run a chance of immediately cutting short the distal local congestion, before we have corrected the morbid state of the blood, and hence the transfer or extension to more central or vital organs. Second cause, the too free use of colchicum, esp. in constitution, where its sedative action is very manifest, it will then act like too free depletion. Colchicum is safe when its sedative effect is not very manifest, after we have given three or four doses, it will begin to purge, producing bilious stools, thus unloading the liver of retained viscus bile. It will also combined with an alkali act.
as a diuretic, assisting the kidney, to eliminate a much greater quantity of uric acid & lithate, & it will also tend to arrest the urine to form off more uric acid. The third special cause will be the improper application of cold to the affected part. Cold will cut short the local inflammation, but favour the extension to more central structures. When the ascertainment of others still exists.

Symptoms:—we can't be certain of the presence of pericarditis, without having recourse to auscultation, for several circumstances may lead us to believe there may be a murmur in the precordial region, but pain is not essential, there may be uneasiness or anxiety, for pericarditis has excited a symptom been deposited, without the least pain. But it has been said that in all cases of pericarditis pain can be produced by pressing superiorly beneath the false ribs. There may be high symptomatic fever, with pain strong pulse, but pericarditis may exist with very little of this disturbance. 3. Above all we may have great cerebral disturbance, irritability, delirium, who, in the absence of pain & fever, would moat the real disease. Auscultation makes every thing.
clear. We will suppose the following case to occur, with an attack of hemorrhage, so that attention can be roused to the heart at each visit from the outset. The first mark of coming evil, according to Lathmore, is a prolonged diastolic sound. After a few hours of the pericardial mischief continues, we get that very pathognomonic sound, the silky, soft, breathing to a groan or friction sound, it shows us that the serous pericardium is dig the vessels beneath dilated & prominent.

This to a groan sound might be mistaken for the friction sound of pleurisy. But the latter is suspended when the breath is held. Its satiny fee quenched is only as 1:3½ when compared with the 1 to 5 of sound of the heart; again, it is harsher, more irregular & more jerking, from the mode in which the patient takes his rapid, quick respirations.

3. After a variable period, this is usually about 48 hrs., the to groan sound begins to disappear. For then, serum is effused into the pericardial sac; the dry state no longer exists. Now, according to our extent of the fluid effusion, symptoms of hydroptic pericardii begin to make their
appearance, if the accumulation becomes considerable. The following will be the diagnosis:

(a) A very weak pulsating, indistinct, of the heart.
(b) A very small, weak, vanishing, intermittent pulse, more rise than fall, and intermittent noise in hydrothorax.
(c) Widening of the intercostal spaces, more on the analysis of the precordial region.
(d) The apex of the heart is lifted up a felt thrill, the thoracic walls at a higher level.
(e) External deadness on percussion, the greatest depth of deadness being below.
(f) Urgent dyspnoea; countenance pale and anxious.
(g) Above all the sounds of the heart appear muffled and indistinct; the distance from the systolic sound appears to reach the ear, it being diagnostic.

(h) We may get a distressing cough as a reflex on diastolic action.

(i) After another indefinite period of the existence is being reabsorbed, under counter irritation, mercury, iodine, the friction sound begins to reappear, but it is no longer soft and silky. The mucous harder in character, the two adjacent surfaces of the serous lining of the thoracic
are exceeded with fibrine, from the effused
region bas granules. If this fibrine be semi-fluid
plastic, as it is at first, then we shall hear
that harsher sound, “better sound,” audible quickly
as the fibrine becomes firmer & more granular,
we get the harsh creaking new-leather sound.
5. Lastly, since endocarditis may be consistent
with pericarditis, one may have concomitant
endocardial consequences from valvular
thickening, known by their character, the point
where they are heard, & the direction in which
they are propagated.

This harsher friction sound may disappear
under proper treatment or it may remain permanent. If it gradually disappears,
one of two things must have taken place;
either the surfaces have become normal or
else adhesive bonds must have formed
between the pericardium & heart, i.e. between
the two surfaces of the serous layer of the
pericardium. These adhesive bonds, will
lead to irregular action & hypertrophy of the
heart & will no doubt materially shorten
life in the end. If this harsher sound re-
 mains, then the surfaces are rough & granular
but not adherent. Friction sounds are heard most distinctly at the base of the heart for there the visceral & parietal layers of the pericardium are in closer contact.

It may be as well that we state a part of diagnostic symptoms between Pericarditis & Endocarditis: They are as follows.

1. In Endocarditis, the feeling is more of anxiety & uneasiness than real pain; in Pericarditis there is actual pain, often acute.

2. In Pericarditis we have more constitutional symptoms, more fever, not infrequently some cerebral disturbance.

3. Of course in Pericarditis all the sounds are pericardial, the normal sounds of the heart may still be heard, while in Endocarditis they are endocardial, replacing the normal sounds.

Pericarditis may terminate in resolution, the affected pericardium & pericardial fluid being reabsorbed. To get this termination, one may bleed in an acute case & otherwise habit. We shall afterwards do a more good by local bleeding, such as cupping over the pericardial region or leeching, instead of repeating the general bloodletting; after fairly free perforation calomel & opium are our sheet anchors,
Our object being to get the patient under the influence of mercury as quickly as possible, to check effusion, and promote absorption. We may give gr. of cal. and gr. of speen. The latter will retain the cal. and keep down a reaction after bleeding. We may follow up the treatment only giving smaller doses of gr. of cal. with gr. of speen every three hours. We might combine with the cal. a gr. of antimonium with each dose as an auxiliary sedative. Some pathologists have recommended gr. of the acet. ext. Colchici in the atheromatous form, but it is a dangerous remedy from its accumulative tendency. As soon as the acute stage of the attack has been subdued, then counterirritation and Peter's fluid are our remedies.

If pericarditis terminates even so favourably, we can tell for many years afterwards, that it has existed by finding white abnormal patches on the pericardium. If it terminates fatally we find lymph in greater or less quantity poured out into the sacs of the pericardiums; the heart too is generally abnormally muscular; if there has been much endocarditis, we shall there in addition find the valves thickened.
The second termination of pericarditis is serious effusion, constituting acute Hydropericardium, with all the symptoms before mentioned. Hydropericardium is treated on the same principles of disease in general.

3rd Termination. Acute Pericarditis may go on to chronic to produce most extensive disorganization. The Pericardium has been found nearly an inch thick, from the short but dense deposit of fibrine, & again it has been seen perfectly opacified under the tendency to earthy deposit, as occurs in rheumatic effusions.