On Functional Disease of the Heart

John Kirk
Functional Disease of the Heart

By functional disease of the heart, is meant a disorder of that organ which gives rise to disagreeable and frequently painfully distressing symptoms, and which cannot be ascribed to any organic lesion of the organ. These symptoms are produced by preternatural sensibility, increased, irregular or decreased actions of the heart, occurring singly or combined. As the term palpitation is commonly understood to mean the action of the heart unnaturally felt by the patient, we shall first speak of preternatural sensibility and increased, then of irregular, and lastly of decreased actions.

I. Palpitation, according to Dr. Hope, "may be defined to be an increase, in either the force or the frequency or in both the force and frequency of the heart's Contractions, by which they become not only perceptible, but sometimes very troublesome to the patient." This definition is not sufficiently extensive, for the feeling of palpitation may arise from increased sensibility where there is very little increased action, and in chlorotic cases the impulse may even be less than usual, while great distress is occasioned to the patient. The patient is made conscious of palpitation mere by in-
creased violence, than frequency of the heart's action, and
so, contrary to what I supposed imagined, we may have
a slow pulse accompanying it. The heart's action can
not, therefore, be measured by the sensibility of the feel-
ing of palpitation. We shall, for the sake of simplicity
and distinctness, classify the symptoms of functional
palpitation according to the system they affect. And first
of those which are more immediately referable to the heart.
The period of life most subject to functional palpitation
is that of puberty, and after years consequently. It is
always in proportion to the degree of excitability of the patient;
the greater the excitability the greater the palpitation. It is
borne in mind too, that persons are occasionally met with,
whose hearts throb with great force; without giving them any annoyance, or even without their
being conscious of it. Such a state however is always asso-
ciated with organic disease, and very different from what
is witnessed in functional cases. The palpitation occurs in par-
oxysms, and during the intervals the heart's action and
pulse are natural. The force of the impulse is sometimes
but slightly increased, at other times it shakes the whole
frame. The duration of the paroxysms varies greatly,
from a few minutes to several days; in the latter case with
the remissions. They have a tendency to recur, when the
patient's Practice of Physic
int is at rest, or in bed, in a wakeful state, especially during the early part of the night. In cases depending on dyspepsia, hysteria, and hypochondriasis an amount of exercise, which would certainly aggravate the palpitation dependent on organic disease, is attended with great relief.

The respiration is oppressed and irregular or hurried; sometimes of proportion with the pulse, the patient appearing like one out of breath with running, and complaining of choking sensations. When the force, frequency of the beats, and the loudness of the sounds are exaggerated simultaneously, there may be not only dyspnoea but orthopnoea.

The patient is commonly of what is denominated the nervous and temperamental, and whatever excites the nervous system increases the cardiac disorder. He is feeble and complains of much lassitude and aching of the limbs after very slight exertion. The intellectual powers are often unimpaired; at other times one finds delirium and syncope, or even fatal coma may occur. The general distress and fear of death is often greater than in organic disease, at least when that is not far advanced. Each palpitation may occasion a feeling of rushing through through the ears, which is so distinct as to enable the patient to count the beats by it. The paraordial anxiety accompanied by
feeling as if the heart were jumping into the throat. There is pain, wandering into the vicinity of the precordium, and it may be, stretching towards the left arm, or slight, dull and aching, or cramoid, the pain being exacerbating and simulating angina and sometimes relieved by pressure. There may also be cephalalgia, vertigo, confused vision and tinnitus aurium, with hot and flushed face and coldness of the extremities.

Physical signs. The heart sounds may be altered. The first may be so loud as to be distinctly heard by the patient or by the bystanders without the application of the ear to the chest. Dr. Hope indeed states that both are occasionally audible to the patient. The first may be loudest on the left of the mid-sternal line. The pulse varies as what has already been said of the heart action implies. In general the action of the arterial system is unduly strong. Palpations of the aorta are sometimes seen in the epigastrium in hypochondriacal and hysterical cases. A systolic bellows murmur heard loudest at the base is a frequent phenomenon in functional palpitation. Physic when one shall afterwards mention. Dr. W. M. Hughes says that it is erroneously thought commonly supposed that the murmur is heard only at the aortic orifice; it is also heard he says at the orifice of the pulmonary artery. Replication of the second sound is very
Common accompaniment, but reduplication of the second art is much rarer being commonly associated with organic disease. Dr. Walsh (so far as I know, hardly) thinks that a bell-Lower
murmur loudest at the apex--may occur in purely functional palpitation. According to Lacunae and Clarke, the tachyon majority Cataract or purring tremor can be detected at the heart when the palpitation is accompanied by a bell-Lower murmur. Andréau denies this flattery. He says, however, who, during the last years of his life, betrayed a singular tenacity to doubt the existence of functional
alterations in conjunction with physical signs of disease, admitted that purring tremor might be produced by mere nervous
disturbances; this opinion, however, one cannot possibly partake of. The purring tremor associated with a bell-Lower
murmur is often heard at the same time in the larger arteries.

Venenous murmurs are of frequent occurrence: "The veins in which the murmurs occur," says Dr. Walsh, "may, as far as
the authors of observation are concerned, be arranged as follows in order of frequency.

The external and internal jugulars, on both sides or on one side
only, in the latter case most frequently the right; the subclavian
arteries; the femoral (have never failed to find it in these
regions when well developed in the neck, and it may be sought
in them sometimes when mandible in the poplars); the axillary;
the superior cava; and even miscellaneous; the veins of the hand.
of the elbow; certain abdominal veins; the pulmonary, and
the superior celiacal veins, especially, at its terminations
in the vena cava inferior. It is stated that it is only in the
most unusual cases that the has been found in the external
jugulars, and that it can be detected almost invariably on
both sides, but generally tends on the right side. It is invariably
continuous and varies from a soft thud to a distinct roar. Oc-
casionally it is modulated in musical, but the separate tones
are always connected by a low hum, which gives it its continuous
ness. Whatever causes acceleration of the venous and circulatory
increase in the jugulars for instance inspiration or the as-
sumption of the erect posture has this effect.

II. The rhythm or strength of both of the hearts action may be
irregular. Irregularity may coexist with palpitation or
may exist without it, just as the irregularity may exist with-
out the irregularity. Again, irregularity may exist like a cer-
tain amount of excitement without the palpitation
of it; individuals possessing this peculiar idiosyncrasy may live
in the enjoyment of good health, and are as free from the symp-
toms of disease and symptoms free from palpitation. Excessive ir-
regularity in rhythm and strength may be caused by great disturb-
ance of the nervous system, but when this is constant and persist
it is almost always indicates not functional but organic dis-
order.

Andrew, Weber, R. M. Hughes
Irregularity of rhythm may consist in alterations in the relative length of the two sounds; in the occurrence of a beat before its time, or in the prolongation of the period of silence. In the last case the heart is said to intermit, or to intermission always implies irregularity, but irregularity does not always imply intermission. The relative length of the two sounds is not altered in irregularity independent of organic changes, and the only alteration in them is that those which occur before their time are protornaturally abrupt and short, while those that occur after their time are longer and more prolonged than natural. Intermisions of the heart action are apparently constitutional in some individuals. Dr. Christian states that an intermission every fifteen beats is common enough in old men without any symptoms of cardiac affection. Such individuals, according to Dr. Williams, have other signs of a weak and slowly disordered circulation. Some discrepancy of opinion seems to exist as to the frequency of intermission in functional cases. While Dr. Williams affirms, that intermissions are very common under suffering from bodily fatigue, and Dr. Mateo that they often depend on derangement of the stomach. Professor Andral maintains that they seldom occur before the age of sixty and "pledges" himself for the accuracy of the statement that "simple nervous affections very sel
tio Williams, Dr. and Rev. Feb 24th 1852
Some causes intermittent pulsations. Intermittence are
often associated with slow and feeble action, and indeed
cases these may be brought by depletion and removed
by stimulants. In plethoric cases the pulse is rapid in-
termittent, though the heart does not; the ventricles contracting
as feebly as not to transmit the impulse far enough into
the arteries. Many of the cases of excessive slow pulse
mentioned by writers are probably of this description but
not all of them. Arunius supposed this intermittent
pulse, especially when occurring during palpitation as
an invariable proof of organic affection, but this opin-
ion is denied by Dr. Lay, who has met with numerous
cases of it in young persons free from organic disease.
Dr. Williams believes irregularity of strength the commonly
associated with organic disease. Although this irregularity
may occur without irregularity of rhythm, these commonly
are met with together, and their combinations are infinite-
ly varied in different cases, and in the same case at dif-
ferent times. "And all this irregularity, when perhaps
no three consecutive beats are of the same period or thought,
there is very often something like an attempt at order,
every fourth or fifth beat being stronger and fol-
lowed by a longer interval; so that a sort of time meas-
ure is more or less kept up." The irregularity is often
much greater than in organic disease. Though as already stated, irregularity of a certain amount may be suffered by the patient, he generally complains of a irregular trembling, fluttering, or trembling sensation in the breast, which creates great alarm. When the irregularity has been of long continuance increased dulness of the heart may occur from over-dilatation. When irregularity is coexistent with palpitation the feelings of suffocation are intense, and the tendency to fainting greater than in simple palpitation - as we might expect. The sufferings of the patient are most intense, and all the signs and symptoms stated as witnessed in simple palpitation may then occur.

III. Decreased action occurs in two forms. It may
have it in the form of hypomieps, or of an habitual decrease, where the patient retains the power of voluntary motion.

The habitual feebleness of action is most commonly met with in young females laboured under some form of disorder menstruation. It has been already stated, that when the heart's action becomes very feeble, it may not be able to propell the wave of blood as far as the arteries in which the pulse is attempted to be felt, and that many of the cases of supposed slow pulse have probably been of this

Do[es] [En climber.
kind. But a truly excessively slow pulse is sometimes obtained. Dr. Hales met with a patient, free from organic disease of the heart, but whose pulse, nevertheless, was only 28. The cause in this case was hypercatharrhitis after fever. The same author states that he has frequently seen the pulse at 40 from mere nervous depression. The impulsive pulse is exceedingly weak; there is tendency to syncope; partial atonie is easily excited, and reduplication of the second sound is common. The following symptoms are often, though not constantly present, anorexia or depraved appetite, foul breath, constipation, coldness of the extremities and even at times of the ankles.

Syncope is an amount of decreased action decreased in force or frequency—producing almost ultimately unconsciousness. In some cases, as, for instance, where the mind had received a sudden shock, the synphral unconsciousness comes on instantaneously and without any preceding symptoms. Primarily a cause of syncope, usually fainting, but in some cases pleasurable, sickness, giddiness, disorder vision, noises in the ears, coldness in the extremities, paleness and collapse of the features, chatter of the teeth, quivering of the lips, slight convulsions, tachic in the unconsciousness. When this has arrived, the pulse at the wrist is exceedingly weak, or altogether.
ible, the heart's actions is feeble, frequent, or slow, and commonly irregular; the expansile sound of diminished intensity, and the other usually inaudible, while the breathing is almost imperceptible. This state may last for a few seconds, hours, or days. Where it is of long duration, the diagnosis between it and death is difficult, and of course of infinite importance to this we shall recur.

Before proceeding to the causes and diagnosis of functional disease, we shall notice the explanations of some of the physical signs. One of the blowing murmur and pulsing tremors of the heart and arteries the views laid down in Dr. Hope's elaborate treatise on diseases of the heart, are, for aught we have been able to discover during the too short time we have had for composing this delay, the most satisfactory that have been promulgated on the subject. We shall therefore attempt to show that we understand them, and in as brief a manner as possible. These phenomena occur together, and are all dependent on the same cause, namely, modifications in the one quantity or quality of the blood occasioning increased friction and vibration. To establish this theory, Dr. Hope sets about to prove three propositions; first, "that liquids permeating tubes as occasion murmurs and tremors"; secondly, "that
in the living subject, modifications in the motion of
the blood calculated to elicit murmurs and tremors to
take place, under the circumstances under the circum-
stances in which such murmurs and tremors do occur,”
and, lastly, “that the explanation applies equally, what-
ever be the circumstances under which these murmurs
and tremors occur.”

Although the possibility of producing a murmur by forc-
ing a liquid through a tube, was doubted by Laennec, it is
a fact easily demonstrable. It has been supposed that the
friction of the piston and tube produces a murmur, which
has been misunderstood, and supposed to be generated by the
friction of the fluid against the interior of the tube; but the
rushing murmur is so close to the ear, as to preclude
the possibility of this. The murmur is increased by in-
creasing the velocity of the current, and by bending the tube
at an angle. Provided the velocity be sufficiently great,
thrill is felt at the application of the hand. M. Pell
es com has produced the murmur by injecting water into
the arteries of the dead subject. The first proposition
is thus fairly demonstrated, and what experiment de-
monstrate, the principles of hydraulics would lead us a
priori to expect; if being admitted by natural philos-
opher that, however smooth a tube be, the passage of
a current of liquid is retarded by friction, that this friction is increased by irregularities in it, and lastly that the friction increases rapidly—in more than a simple ratio—with the increase of velocity.

Next, when similar phenomena—murmur and tremor—occur in the tubes of the living, whereas organic lesions exist, the circumstances which are usually present, such as promote vibrations in the tubes and liquid flowing through them. But usually, because, Dr. Walshe, in his treatise on diseases of the lungs and heart, states that murmurs may occur in circumstances in which Dr. Hope denies the possibility of its occurrence, namely, where there is no deterioration or diminution of the blood, but merely an excited action of the heart, such cases still admit of the application of Dr. Hope's theory, as we shall see presently. The circumstances are these, attenuation of the blood, unfilled arteries, and a certain velocity of the current of blood. That these, unaided, are capable of producing murmurs and tremor, is proved by our being able to produce them at will in the lower animals, as dogs, by bleeding part of them, using them invariably accompanied by murmurs and tremors. The too also in their experiments, the effects varying with the intensity of the cause; for modifications.
in the latter are produced by modifications in the former. Also, that the effects disappear as the cause disappears; that is, as the animals are permitted to regain their natural condition.

It comes now to be asked how these circumstances exact in producing such phenomena. All sounds are produced by vibrations of particles of matter; and in the attenuation of the blood, the particles, having lost a portion of their lubricity, are better calculated for respiration, and consequently for the production of murmur and vibration, by collision against each other and against the walls of the containing vessel. To understand the mode of action of the diminution of the volume of the blood, the hydraulic law already mentioned, concerning the velocity and friction, requires to be kept in mind. When the volume of blood is diminished, it is driven with greater velocity through the arteries, and the friction and consequent vibrations of the walls of the vessels are increased; while at the same time the diminished tension of the walls renders them more capable of vibrating. Although both attenuation and diminution existed, unless the heart were acting with a certain force as murmurs or tremors would not be produced.

The value of the experiments on dogs, practiced by Dr.
Hope, and on which he found his standing case. 

The case is as follows:

On August 21st, 1838, I was summoned to the case of a young man, aged 16, who, after a head injury, had lost an enormous quantity of fluid blood; very feebly furnished by a small divided artery. Symptom: bleeding, face colourless, eyes turned up and braced; general coldness; long and low inspirations; pulse exceedingly quick and weak. On listening to the heart, which were feeble, but very abrupt and frequent, so as scarcely to admit of being counted, I heard a clear, short, bellows murmur, like the puff with which one blows out a candle. In the further examination, I found the murmur, depressed, solely on the fainting and anemic state, during which from the hurried pulsation of the heart, the small column of blood contained in the ventricles was expelled, if not with much force, at least, with a sort of convulsive rap- 

dity. I revisited the patient on the following day at the same hour: the haemorrhage had, for more than twenty hours. There was not a single trace of the murmur, which, according to the surgeon-major's account, had completely
disappeared ever since the preceding evening. The patient
had no organic disease of the heart.

The third proposition that the explanation applies
equally, whatever be the circumstances in which
murmur and tremor occur, requires but a brief notice. That pres-
sure by the stethoscope, by the tubercular edge of a lung, or
by a tumour of any kind, pressing on and indenting
any of the larger vessels, will increase the friction of the
blood, cannot of course be denied. We have therefore
an easy explanation of the murmur produced in
anemic subjects. This will be greater, seeing that it is
then in part produced by the diminution in the volume
and increased
viscosity of the blood.

After what has been said under the second proposition it
is only necessary to state that the explanation applies in all
cases of excessive loss of blood. Dr. Hope mentions that
he has seen in cases of active haemorrhage the anemic
pulse appear sooner than could be explained for
by the quantity of the blood lost. In explanation of this
he says: "In these cases it appears to be attributable
either to the irritable temperament of the individual,
or to the fright which seldom fails to be occasioned
by the unexpected appearance of blood." This to be infer-
ed from this, I presume, that the character of the pulse
is attributable solely to the abrupt and hurried action of the heart. If more violence of the heart action is augmented by a morbid condition of the blood, or blood vessels, can produce murmurs, as Dr. Walshe averred, the explanation still applies; for there is still the increased vibration produced by the increased velocity.

By far the larger proportion of individuals in whom inorganic murmurs are heard are of irritable temperament, hypochondriacal, or hysterical, and subject to reduplication and precipitation. Of these again the greater number are females. Now the observation of Dr. I., proceeding the last ten years, have fully confirmed him, that in all or nearly all persons, all such subjects, there exists an anemia, or that in his opinion is the same thing, in the state. In other words, the anemic is a sick person and the same cause in operation, namely a diminution and attenuation of the blood and abrupt action of the heart produced by the nervous irritability consequent on the anemia, as are the sick in dogs rendered anaemic by repeated bleeding.

In certain cases of aneurism by anastomoses a murmur and tremor are present. In such the occurrence of friction and vibration is favoured in an pre-eminent degree, for the current is broken by an...
The softness of the tubes, as they descend from the unfilled state of the vessels, gives the same laxity to the arterial walls, as they descend in an animal from the unopened state of the vessels. The propagation of a shock of excursion is to be explained in this way: but according to Dr. Williams, the vibration of the tubes is the chief agent in its production, while in the blowing kind the vibration of the reflected current is the cause. The sound is less actually engaged in less actually engaged in its production.

According to the views here adopted, Dr. Corngand's theory that the murmurs are produced only in the fluid portion of the vessels, is no partial. They are produced not merely in the portions incompletely filled, but also the constricted orifices, and at the same time, the sound produced at the orifice, is better conducted by the flaccidity of the unfilled arteries.

Reduplication of the first sound is most frequently met with in cases of organic disease. When it occurs, it is instead of being lub-dub, the heart sounds become bullub-dub. It is said to be produced by irregular action of the auricular valves, especially the mitral, causing them to flap back at different times. The same irregularity is said to produce, sometimes, a double pulse. When the action of the valves precedes or follows the division of the first pulse.
the impulse, and a double first sound is produced. Dr.
Nohe thinks, that in some cases where the first sound is
apparently doubled, this doubling is produced not by
any abnormal action of the valves, but, in lean per-
sons (the internal surface of whose intercostal spaces
is not thick set, so as to be on the same plane as the rib),
by the impulse against the inferior margin of the fifth
rib taking place after the first sound is produced.
Dr. Millais's explanation would be more plausible,
did not Dr. G. state, that it disappears when pressure
is made on the intercostal space. Reduplication of
the second sound is produced by the flapping back of
the pulmonary and aortic semilunar valves at differ-
ent instants.

The systolic bellows murmur, spoken of by Dr. Walsh,
as being occasionally heard in cases of chorea, is probably,
he thinks, attributable to irregular action of the muscul-
ar apparatus of the mitral valves; "but of this," he says, "I
am not quite sure."

The formation of the second murmur was not sat-
isfactorily accounted for until 1837. Dr. Ward of Birmin-
gham has the merit of being its discoverer. D'Enneveaux
and Brueillard following him, believed the murmur to be
naked in the arteries. Dr. Ward has proved that this is a,
onstrate, and that it is educate in the veins. His opinion
is confirmed by Dr. Hope. It is invariably present in manic
subjects. Bonnet and André l'hopital deny that its ever
witnessed where the condition of the blood is absent; but
Malaria has observed it where no symptoms of mania
could be observed. Dr. William has succeeded in pro-
ducing it in robust individuals, by pressure with the
end of the etherase or on the veins. The causes of its
production are, doubtless, the same as of the murmurs of
the heart and arteries. The conditions usually present
are the same, namely, diminution and attenuation of
the blood, and consequent increased velocity of the blood.
All as already stated favorable to numerous vibrations.
Arqal has endeavored to establish an exact relation
between the amount of pressure and the constancy
of its occurrence. "If the red corpuscles fall below
80 per 1000, murmurs is constant; if the range is
80 and 100, pretty frequent; if between 100 and 115, occa-
sional; if 115 and 126, murmurs is sometimes heard; or
ence if they reach the average of health." It has been stated
that the last assertion is doubted by Malhez. It is also said
to be occasionally seen in phthisis. In chlorotic patients, twice
with iron the color has been seen to return to the blad
before its disappearance, and Beuque and Nollet
1 From Malhez.
found a normal amount of red corpuscles in the blood of two chlorotic girls, in whom it was distinctly marked. In such cases, probably, the chief cause is the increased velocity of the current, but as already said Hope and Andral knew that it is ever met with an associate with anaemia. According to the latter, diminution of the fibrine of albumen has no effect in producing it. Dr. Walsh thinks that the proportion of the white corpuscles has more to do with it than is commonly believed. In chlorotic patients, and in persons on whom repeated bleeding has been practised, these are increased, and most, according to him, greatly increase the friction. The augmentation of the vesicle lump (which takes place during the arterial diastole, when the throbbing of the arteries is considerable) is due, not merely to addition of the arterial thrill, as suggested by Hope and Andral, but also to the pressure then exercised on the vein by the artery. The arterial murmur can always be heard through the venous. By pressure on the vein its murmur is destroyed, and then the arterial one is heard alone. Dr. Hope's observation, that the former seems sometimes momentarily checked by the latter, must be important in a diagnostic point of view. When the murmur is increased by position, Dr. Hope attributes the increase to the state of tension produced being more fav-
durable tonorous vibrations. The increase of the velocity of the current must also act favourably. Dr. Bowdland Ward and Audral state that the lamproseal as a sounding board of the popular veins, and thus explain the fact that, when the carotid is drawn away from it, the vein becomes less loud or entirely disappears. But Dr. Hope boldly avers that the whole is a mistake. When the murmur ceases altogether in such cases, he attributes it to cessation of the intermittent pressure on the vein obliteration of it. When this is avoided and the lamproseal is driven with moderate force, it is, he says, instead of being diminished, increased; probably by the steadiness given to the expiring parts. Venous thrill analogous to that of the arteries, is occasionally felt, though less marked than the latter.

The conditions necessary for the production of the murmur occurring more frequently in females than males, accounts satisfactorily for its more frequent occurrence in the former.

The peculiar leading causes of functional disorder of the heart are the termination of the maternal period of pregnancy, the nervous temperament, and female sex.

The exciting causes of functional disorder (coming for the present those of sudden syncope) are exceedingly numerous and very different. The disorder is in all cases pro
duced by even excitement of the heart, and its varieties
are produced by differences in the causes, and from the
different routes which these causes pursue in order to
arrive at and convey their stimulus to the heart. The
causes act on the heart directly or indirectly, or in both way
simultaneously. In enumerating them, we shall class
ify them according to the systems which they are primarily
connected. And first of those which are primarily
connected with the nervous system. These are diseases of
the brain: Spinal irritation, Chorea, phlegmat, hypochondriac;
mental emotions, whether of an exciting or de-
pressing kind, as joy, anger, sorrow, fear, and mental
anxiety of all sorts, as protracted mental exertions, care.
Here also are to be placed certain articles of luxury, what
as, excessive smoking, opiumuous potations, tea and cof
fee, especially green tea. We have read "say Stock
"of abstinence, etc. etc. being produced, along with
were dyspeptic dyspepsia, thus the irritation of cases
of the teeth and alveolar process, and being further
moral of diseased teeth and, doubtless, many other
examples of inordinate or irregular motion of the heart, brought
on from sympathizing with painful affections of distant
parts, might be aduced.

Pellagra and Spacenemia (including maniacal and
12. by Bet.
However reduced, are frequent exciting causes. These two act in the same way. In the former the whole vascular system is overloaded with blood and this overload in the heart creates over excitement. On the other hand, in apneumia, the condition of the blood enables it to traverse the vessels with greater rapidity and thus to arrive at the heart in redundant quantity. This also acts by producing a state of nervous irritability, but it is utterly mysterious. Some writers state that in this condition the cause of the disorder is a diminution of the normal amount of stimulus at the heart. This is surely an mistake; an effect is proportional to the intensity of its cause, and why it should be otherwise in this instance I know not. The blood is also said to act sometimes by being in too sthenic hypertrophy. Depositions hemorhages and excessive discharges of any description are very common exciting causes.

Impediments to the function of respiration, whether from disease of the lung, as phthisis and tubercle; in the cavity of the pleura as tumours or accumulation of fluid; or from malformation of the thoracic parietes, may likewise give rise to functional derangement of the heart. These act by preventing the free exit of blood from the cavity and thus over-stimulating the organs.
Depression is proverbially an exciting cause. It usually 
attenuation of the nervous system directly, but where it 
produces great flatulence in the first instance mecha-
nical—the distended stomach interfering with the re-
spiratory movements. Enlargements of any of the ab-
normal visera, ascites or a gravid uterus, act partly 
immediately on the nervous system proportionately 
and partly by mechanical pressure. Tight lying by compris-
ing the abdomen and thorax is also known to produce 
perspiration. The abuse of purgatives must also be men-
tioned. Among causes among people of the middle ranks 
is continued diarrhea with flatus evacuations, gas-
tritis inflammation is also an exciting cause in some cases.

Uterine diseases, especially uterine congestion, are found 
fulminates of this disorder, as also sexual excess and more 
particularly ovarian secretion. Disease of the ovaries and 
breast are also known as exciting causes.

The predisposing causes of functional dyspepsia are gener-
al debility and nervous excitability. These act upon 
both. Many of the causes, notice below as exciting causes 
act often merely as predisposing causes.

The exciting causes act primarily on the nervous system 
or on the circulation. Those acting on the nervous system 
often affect the senses of sight, smell and hearing.
to certain odours, disagreeing or painful sights, muscular mental excitement, or depression, intense pain, concussion of the brain, fatigues—all often enough produce syncope. Of those acting through the circulatory system the chief are, dyspnoea, excessive loss of blood, profuse evacuations, the too sudden removal of pressure on the abdominal contents, as in parturition and paracentesis in acuter, sudden change of position in state of debility, as in convalescence from exhausting disease. But syncope is brought on not infrequently in the opposite condition of anemia—plethora.

The diagnosis of functional disease falls now to be considered. Its great importance no one doubts. We cannot do better in introducing this subject than quote a couple of sentences from Dr. Soys article on nervous palpitation in the Library of Practical Medicine. "How much unwarrantable suffering, "mypho, is inflicted on in individuals and families by the deplorable, but unfortunately too frequent, error of confounding nervous affections of the heart with those of an organic nature is but too well known to need the more than simply mentioned here. It is only by ever altering, or since more accurate grounds for forming a diagnosis
of the e two very opposite classes of diseases have been
furnished by the discovery and judicious application
of the physical signs distinctive of each, that the bet-
ter informed portion of the profession has become fully
aware of the extent in which such errors must have
formerly existed. "The importance of a correct diagnosis
in reference to treatment, likewise, only requires the men-
tioned. Different opinions are held as to the facility of the
diagnosis in certain cases. We shall in treating of this
subject, take up and discuss each of the circumstances
on which I attach most attention in the examination of the patient,
and then state the conclusion, to which we think we are entitled to
come, as to the difficulty or facility of the subject. The
frequency of organic, as well as of inorganic disease of
the heart, is but too well known. Nevertheless, it is
worth of notice and importance to know that purely func-
tional derangement is of very frequent occurrence, abs-
olutely and comparatively - comparatively mean with re-
spect to organic disease. It is well then, to recollect a
statement coming from a man of Hippocrates' experience,
that no less than one half of the patients who consult
ed him in private practice, for supposed organic dis-
ease, laboured under the almost infinitely formidable com-
plaint of functional disorder.
The patient will always, whether anemic, lethargic, or (if I may use the phrase) blood-healthy, be found to be of a nervous temperament. And it ought to be recollected that anemia is not incompatible with a full, flabby, habit of body with which the hemorrhagic tendency is not unfrequently seen. The fact that the symptoms are of a much lesser character than the appearance (emaciation &c) of the patient would suggest, is of great moment in a diagnostic point of view. The emaciation, weakness &c are not commonly great, unless they have preceded the cardiac disorder. The anxiety is often greater than in organic valvular disease, at least in its incipient stage. The accompanying difficulty of breathing is not in proportion to the severity of the palpitation, but to the weakness of the patient. Also while benefit accrues both in functional and organic disease from attention to the digestive system, in the former the beneficial effects are greater and often more permanent than in the latter. While too much exercise is often rare, very rarely, indeed, in organic affections, a very large number of functional cases are rapidly improved by it, when taken immediately after consultation with their physicians. Inhales passed, it also removes all the symptoms more effectually than organic cases. The existence of secondary changes, such as edema of the limbs & pulmonary congestion, the slowness of the heart &c. in his clinical lecture mentioned a case — one of the most extraordinary he ever met with— where notwithstanding the very extensive degree of palpitation the patient was taught.

1. By Leet. 2. By Dr. H. L. in his clinical lecture mentioned a case — one of the most extraordinary he ever met with — where notwithstanding the very extensive degree of palpitation the patient was taught.
...sense of intervals of perfect freedom from the distressing symptoms - one or all of them - are not implicitly to be relied on as indications of organic disease. Nervous disorders, if conjoined with dyspnoea, is by no means very rarely associated with more or less extensive anaemia. As, although organic lesions be present, there may be intervals when the distressing symptoms are entirely about. Percussion will generally show the heart to be of its normal dimensions. But temporary distension may increase its transverse dulness; and in one variety, to be precisely noticed the heart being congenitally small, this is diminished. Here of course, as in all other cases, the precordial dulness at the edge of the lung, emphysema, or a very large mamma, may prevent the cardial dulness from being accurately ascertained.

Pallidation alone, since it may accompany every change in the heart, is little in it to aid our diagnosis. One or two points, which are of some use in this point of view, may however even be here noticed. The fact, that, functional pallidation is of more frequent occurrence in females than in males, while the opposite in true of organic, is here needed. The abruptness of purely nervous pallidation is in importance, as much as it differs greatly from the heaving pulsations of the hyper trophyed heart. Here too the pallid...
ation comes on suddenly, and has very common perfect
intermissions, while the opposite is the case in organic
afflictions. The remarks made on the effects of attention to the
dietetic, of exercise, and of anxiety, in the dis-
tressing symptoms of the patient apply also to the precipi-
tation.

This well to remember in examining the patient, that
the character of the sounds are altered by a variety of
circumstances exterior to the heart. An echo of the sounds
may be produced in a cavum of the lung, which has hard-
ed boundaries, or within the pleura in cases of pneumo-
thorax. A stomach distended with gas will act in the
same way. In both cases if these be audible to the pati-
ent, it may occasion him great alarm. The effects on the
sounds of enlarged spleen or liver are also, be remembered.
When the heart is displaced by organs exterior to it, the
points of maximum force of the sounds are likewise
displaced; especially that of the first, in consequence of
the heart being more movable at its apex than at its
base. The effect of debility is greater on the first sound
than on the second, as might he anticipated when the time
of that sound are considered. Functional Disorder has
much more frequently been known to render the
sounds audible at a distance than any organic disease.
Dr. Walshe doubts: "If the latter come once, unabated by nervous excitement, produce the phenomenon.

Reduplication of the sounds is absolutely worthless as a diagnosis is concerned. "Reduplication is never so far as I have observed, permanent and invariable, it occurs most frequently in hearts either healthy or functionally disordered only, but commonly in cases of slight organic affection, and with frequency when serious valvular disease exists."

It has been already stated, that whereas irregularity of strength and rhythm is constant and persistent, organic disease is almost invariably present.

In treating of organic murmurs, with reference to diagnosis, I shall put out of sight that which Dr. Walshe thinks may occur with the systolic and heard sounds at the apex.

The first question is: - What character does it invariably possess? It is always basic and systolic. In organic murmurs never occurs even between the sounds; but it may so preclude the first as to make that sound appear as a continuation of it? Dr. Walshe says that it has never been heard by him so low down as the left apex. If therefore we have a diastolic murmur or a double one or one heard at the apex, we have something more to deal with than functional disease. But unfortunately for our diagnosis, a basic systolic murmur is also produced by obstruction.

Walshe, 2 Dr. C. Lee.
at the aortic orifice—a common disease. If therefore, any
peculiarity in either of these, by which we may at all times
distinguish them from each other? No. We have not. The
invariable softness of the inorganic is unflinchingly main-
tained by Dr. Hope, but the great majority (judging from the
authors I have consulted) assert the contrary. It is admitted
by all, that it is generally soft, while the organic is harsh
generally. But the organic may be soft, and the inorganic
harsh; and what is more, the latter may be rendered tem-
porarily harsh by excitement; and as to the pitch, both of
the organic may be low, while the other may be shrill and
shrill. The inorganic, however, is never permanently
harsh and of high pitch. When the heart action is quick,
it is. If along with it a semi-murmur be heard stretching
out thinly along the arterial trunks coming off from the
daorta, the semi-murmur is in part at least inorganic. Though
frequently confused with the aortic orifice, the organic mur-
mur is not invariably so. The arterial inorganic mur-
mur are, unless accompanied by pressure of a soft blow-
ing character simple and synchronous with the arterial dias-
stole of the artery. But degrees are bad criterions of diagnosis;
and, midway between the organic and inorganic varieties,
stands the semi-murmur, precipitated on an artery precipitated by
an adjacent tumour."

"Malhe, Malhe!"
There are other, however, concomitant circumstances, which, along with the other signs and symptoms, render one examination of the patient superior; nearly, though not entirely, sufficient for the forming of a certain diagnosis. If the disease be an acute and young, if the pulse be quick and correspond in volume with the cardiac impulse, and there be a brisk systolic cardiac murmur and an arterial one heard only in the aorta and larger trunks coming off from it, then we may be all but absolutely certain that the murmur is organic. Yet it must be forgotten that all of these may occasionally be present in other diseases, and more over, that in a person of a perfectly sound heart, and enjoying excellent health, you may have bruit de la sente present from some cause or other of only momentary duration.

De Carjass's remarks on the relation of the pulse and functional murmur would be of importance, were they corroborated (which they are not) by those he says. The bruit here [brillantia palpitation] differs from that in organic disease in the following particulars: in organic affection the beats of the pulse being 50, 60, 70, 80, or 90 in a minute, the number of times the bruit is heard, will tally exactly with this, except in cases of permanent straining after aorta, when the sounds of the returning portion of blood
causes double bruit. You cannot count the number of times in which you hear bruit de soufflet in this affection. There it goes on continuously, for one half, one, two, three, or ten seconds; there is no intermission in it as in organic disease: it may last on thus for half a minute or a minute, but during this time there is no cessation. In this distinction we possess a never-failing criterion between functional disorder and disease of the heart. It is to be recollected too, that the organic bruit may possibly be dependent on pressure from a condition produced by pleurisy, pneumonitis, phthisis, enlarged bronchial glands, or abscess in the anterior mediastinum. Stage of position in a case mentioned by Hope, where mamma was produced by tubercular deposit in the edge of the lung, pressing on the ascending aorta, so altered the relation of the compressing portion of the lung as to cause it to disappear. A mamma, which ought readily be mistaken for a cardiac one, may be produced by a tight dress, which impedes the respiratory motions. In such cases it is rather behind the first sound, and is supposed to be produced by the violent action of the heart, compressing a part of the lung and forcing the air out of it. Dr. Elliott mentions a case of asthitis, in which a mamma with the first sound was present, while the retention of the abdomen existed, but
which immediately disappears on evacuation of the fluid. 

To explain this, he offers two theories, either of which may 
explain them; though Dr. Hope reports the first — why 
she does not state. The first is denoting of the right arcade 
compressing the aorta — the epiemeo lifting up of the heart 
at an angle to the aorta. The murmur arising from 
roughness of the pericardium and pleura, and which 
sometimes resembles inorganic endocardial murmur, is 
distinguished from the latter, by its remaining the same 
whether the circulation is excited or calms, and by being 
created during inspiration.

The pulse lends itself to a separate notice here. The 
rareness of opinion of lacunae in respect to the existence of a 
slow pulse and disturbing palpitation, and the fact that the 
beats of the heart may be more numerous than the 
juice, have already been noticed. A murmur can never be 
merely inorganic, which is associated with violent action of the 
heart, and a weak pulse. This is only found in obstructive 
disease, where the obstruction neutralizes so much of the 
force on pulse. The inflammatory pulse differs from the 
anaemic in being full, strong, and hard, and destitute of pulse, 
thrill, and bell-like murmur. But when inflammation 
and anaemia coexist, the pulse assumes the character of the 
inflammatory pulse of weak subject — it is sharp. The
Abstractions, which to the inexperienced may appear refined in description, are perfectly familiar to practical men; and it is of great importance to the young practitioner, that he make himself intimately acquainted with them; as such knowledge will not only facilitate his diagnosis, but prevent the unnecessary and often pernicious abstraction of blood, for inspissating fevers and inflammations.

Vesical murmurs are of great importance in diagnosis, as we have in their existence strong presumption of their being only functional disorder. But as persons with organic disease may be anxious, and consequently may have its invariable accompaniment — the brisk doable, its diagnosis is far lessened. As already said its continuous character invariably distinguishes it. Care must be taken however not to mistake the brisk muscular for it. Unlike the latter, it can only be excited in a very slight degree in the healthy subject, and it can be wholly and immediately suspended by pressure on the vein.

It is to be noted, that the absence of all physical signs does not indicate with certainty, that there is no organic disease. Obliteration of the coronary arteries, for instance, though generally associated with endocardial lesions, without them and without any physical signs.

And, what conclusion do the above considerations en?
title us to arrive at? Are we to conclude with Dr. Hope's general diagnosis, "that the diagnosis presents no difficulty to me. What a knowledge of those afforded by percussion and auscultation?"

Most decidedly not. The results of efficacious treatment will alone enable us to decide between functional and organic disease, with absolute certainty in a vast proportion of cases.

We now speak of the diagnosis of esoteric. Though extraordinary fainting fit is usually easily recognized, there are states which its simulate, and might possibly be mistaken for it. Besides, a state of unconsciousness dependent on epileptic may continue for several days, and may be, may have been, mistaken for expectal serum. It is certainly of no importance to distinguish the two, and to prevent what has surely been truly characterized as, "a calabash, the most horrible the mind can conceive." When the unconsciousness is not of death, the countenance retains something of its living aspect, and the cadaveric congestions and rigor mortis are absent. It is not known whether in extreme cases the sounds are to be heard. The temperature of the interior of the body and the mouth is higher than that of the surface. There is for death, entire absence of signs of sensibility on the application of what in primary state would produce the most intense pain. On death too, the serous membrane, from being exposed to the atmosphere, becomes blackish. Of course time being
granted protrusive changes will be begun. The conditions which might be mistaken for a faint are, a convulsive condition, apoplexy, and hysterical insensibility. Although pallor, which might be mistaken for asphyxia, may be present in the first two of these, the continuance of the heart's action and pulse will at once leave no doubt in the diagnosis. In hysterical insensibility we have neither the pallor, the colour of the lips and cheeks remaining nor the diminution of the pulse and heart action found in asphyxia. The history of the patient too—theglobus hystericus and the alternate fits of laughing and crying—will guide us.

The general indications of treatment of functional disorders (omitting for the present that of apoplexy) may be thus summed up:

1. Remove all causes. 2. Withdraw the patient's attention from his complaint. 3. Let him sleep on the right side. 4. Attend to the digestive organs. 5. Use opium and antispasmodics.

The very nature of the treatment of syncope occurring in organic affections of the heart, or when it takes place at the outlet of inflammatory disease. The treatment of it when occurring in functional diseases may be spoken of under two heads, first that suitable when fainting is only threatened; and secondly that suitable when it has occurred. The remedies during both periods are principally internally directed to the nervous, or to the circulatory system. These director the
latter during the first period, are the horizontal posture, the
removal of all compression which interferes with the respiratory
movements of the chest or abdomen. Means of preventing the
in the extremities
circulation are still recommended by some. Those acting on
the nervous system primarily are, fresh air, cold applications
stines such as ammonia, a draught of cold water, some
stimulant from the draught, as of ammonia or comphage
of wine, or the like. During the syncope, all the above
means are continued, except the introduction of liquids into
the stomach, for were this attempted, we should turn the risk of
restoring the patient by forcing the liquid
the air passages. It is also usual among the non-profession-
al to apply stimuli to the ears, to stroke the palms of the hands,
and to forth - no doubt, often with beneficial effect. In cases
where the above means do not succeed, others must be applied
to the cerebral capillaries, stimulant injections, friction of the
trunks and extremities, warm applications to the regions of
the stomach and heart - a bowl or spoon dip in boiling
water, and then applied to former region or to the spine is
said often to be of service. In very extreme cases, where death
approach is fearfully threatened, the reintroduction into the stom-
ach of warm stimulants by an elastic tube ought to be
employed, and at the same time artificial respiration fiercely
kept up. When syncope is produced by plethoric,
abstraction of blood is required during both periods. In the intervals
the only treatment is of course to improve the condition of the pa-
tient.

We come now to the last part of our subject, namely the
varieties of functional disorders, common especially in practice.
This is a case of useless classification, seeing each
class requires a method of treatment peculiar to itself. If a false
classification is adopted, correct as far as it goes, we shall there-
fore adopt it, adding such varieties as seem to require a
separate notice.

Hereby a large class of cases are dependent on "hypochondriacal
fever, hysteric, latent pain, mental perturbations of the exctic,
or depressing kind, excessive study with deficient sleep, and general
excesses." In these cases it is seen in various degrees. In its mildest
forms, it is dependent on inhibition of the heart's action, and
"shuddering or rolling motion of the heart, with a momentary feel-
ing of lassitude and oppression," is felt. When of a rather severer
form, first still with but little anxiety the beats are quick, weak,
fluttering and irregular, the respiration is quickened, and there
is a muscular tension at the epigastrium. The pulse care-
gularly, or at long intervals, or several times during the day, espe-
cially if the patient be exposed to slight excitement. Again, in still
severer form, the force, frequency and loudness of the sounds are
simultaneously increased, and perhaps confused with irregularit-
Along with this stare area certain amount of anxiety, dyspnoea, or even orthopnoea. This condition may occur more or less frequently, or continue with little intermission for several days. All the symptoms are relieved by bodily exercise of such a sort as would certainly increase the causes of hypopnoea diseased. The measure of the heart is really but slightly exaggerated. The pulse may be weak and small but is always "fluttering." We must be careful not to refer the variety of causes of the heart which is accompanied with deep sleep with the symptoms. In cases of this form although a variety of head symptoms may be present there are no symptoms of determination of blood to the head. He cannot enter into the treatment of this variety ad to do so would require us to enter into the various disorders stated as giving rise to it. Our time will not permit us to do so.

Variety II. To that arising from anemia (including chlorosis) it is more liable than any other to be mistaken for organic disease. Its general symptoms are the following. The patient has the usual symptoms of anemia and weakness. The body is exercised, producing lacrimation and swelling of the limbs, increases the distress of the pain. There is anorexia with loathing of animal food and a preference for four articles of diet. If the patient be a female the catamenia are absent, deficient and the chloasma present or they are profuse consisting of blood, and continued for ten days. In the latter
the auscultation of the heart. The intellectual powers are often unimpaired; vertigo, noises in the ears, and headache are common. Dizziness of sight and sound, and even fatal coma, occur in the case called. There islessness is greater or less extent.

From the short, bounding character of the beat, they are heard more distinctly perhaps than in any other form of functional disorder. This is more frequently that the patient can the sensation of pushing through his ears and the ears in the chest, or abdominal veins are heard, as if they be not present the slightest excitement will produce them. The venous murmur is always present.

The treatment is simple. All exciting causes being removed; large doses of the preparation of iron are administered for some time or eight weeks; and the body is regulated by abstinence from purgatives. The diet ought to consist of animal food and change of air and exercise. Short of severe fatigue will also prove beneficial.

Variety III. The third variety is that arising from a too stimulant diet. Men actually employed in the open air can bear and require full animal diet, but when a change to a less active and it may be a healthy mode of life or made to overcome health, lighter meals are only suitable. If this be an attend
ed to distressing, and the patient may alarming functional disorder of the heart, as indeed it often weeks. "the pulse is accelerated and full; the tongue is whitish; the body confined; the skin hot; the face flushed, with throbbing headache, and sometimes universal throbbing." The excitability of the nervous system being much excited, mental emotions and slightest sensations give rise to palpitation.

The treatment is obvious. The excess of blood in the system must be reduced by bleeding, purging, and low diet. After care of this obtains the return of the disorder can be easily prevented by a moderate diet and sufficient exercise.

Variety IV. We observe this variety in persons having a decided tendency to phlethora, and may be produced by the same cause as generate the preceding; but sometimes no such cause can be detected. "The patient becomes stouter than usual, and complain of palpitation, an indefinable oppression in the precordial region; sometimes with slight angina pectoris; these symptoms are increased by exertions, mental anxiety, and often by meals; the pulse is small and oppressed; the spirits depressed, sometimes with vague fears or dread of death; constipation and dyspepsia generally attend the latter, sometimes inflammatory. The symptoms proceed from a gross state of the heart and whole vascular system."

The inexperienced must beware of esteeming this variety.
owing to the smallness of the pulse, to nervous debility, otherwise a grand blunder will be made in its treatment.

The treatment consists in bleeding (and here this may require to be repeated more than once at intervals of two or three weeks), keeping the bowels open, and restrained diet. The imposition of a restrained diet is here only in consequence of the dyspeptic annoyances of the patient.

Varity I. is most frequently met with about the commencement of puberty, in weak subject, especially in females, although occasionally also in males. It may continue till the patient has attained the age of twenty or nineteen. It consists in palpitations without pain in the precordia. Irregularity of heart also difficultly is also present. The pulse is often irregular, and intermittent; and it is of importance to recollect that it is very remnant during life after all palpitations has disappeared. The disorder is much increased by pedestrian exercise; although not by exercise of the patient has been a generative exercise frequently, according to D. Corippo (who describes the variety and from whose description I have drawn up this brief account). It is quite unconnected with the state of the cutaneous; for there may be regular and of normal quantity and quality, nor in any of the various abnormal conditions to which they are so well known, take place. It is sometimes connected with a congenital narrowed of the chest or with tight dressing.
frequently on spinal irritation at some part of the dorsal region.
The last cause ought especially to be noted, as if neglected serious
spinal diseases may be permitted to run its course unchecked.
Dr. Corrigan states that he has seen such cases most
for their cause by medical men.
If by percussion along the spine we ascertain that the
cause is spinal irritation, our treatment is immediate and
mainly directed towards it. The blood to be relieved by leeches
or cupping, and followed with counter-irritation by bitter and
ic bitters or blisters. If such heart disease the patient's
strength is to be augmented by tonics and tonic regimen, pay
ing due attention to the digestive organs.
Variety VI. This is also described by Dr. Corrigan, and appears
deserving of a place here. It depends on cardiac inflammat-
of the stomach. The pulsations of the heart are violent and
unruly, and often accompanied with pain stretching down
the arm. The anxiety of the patient is extreme. The stomach,
having acquired the power of secreting gas, often becomes
enormously distended, and over it the heart sounds are heard
preternaturally clear and distinct. Dr. Corrigan has met
with it most frequently in persons who were deprived of
the supply of wholesome food, and had made up for it by
indulging to excess in every kind of stimulants; as tea, tobacco,
and spirits, etc. The appearance of the tongue is peculiar,
and of diagnostic value. "Its color, size and dream—presented an altered appearance; indicating, in some degree, subacute gastric inflammation."

In treating it the gastric inflammation must be attacked. Counter-vomiting is applied to the gastric region. Dr. Corrigan uses a mixture of turpentine oil, ferretine, and camphor liniment rubbing it in night and morning until induration is produced. This is persisted in for a considerable time simultaneously outside of biocnion with its carbonate of soda is to be administered internally. The saccharine carbonate of iron is often with good effect combined with them. It is needless to state that the patient's mode of life is the changed. No diet should be omitted, but not stimulant. Under such treatment the tongue will improve, and all gastric and cardiac symptoms disappear.

Variety VII. What has been called epileptio convulsion by Dr. Corrigan is dependent on disease of the brain of the nature of which Dr. L. does not inform us. One striking peculiarity of it is, that if the nature be not understood, and it be not properly treated, it will terminate in that grave disease—epilepsy. It commences (and this is peculiar to it too) with a fainting fit, after which hallucinations set in. Afterwards syncope occurs occasionally, but it is not that but the hallucination which gives him concern. The heart sounds are normal. The palpitation
ation and fainting fits may continue for two or three before term-
inating in epilepsy. The points which attract most attention, and
point to the source of the evil, is the occurrence of the fainting
fits at a time when the patient is young and the constitution
vigorous.

The treatment recommended by Dr. Corrigan consists in
the abstraction of all mental irritation, and the use of diger-
talis purpurea by bleeding from the arm. The drug ought accord-
ing to time, to issue in the form of powder, and two doses of
two or three grains at bed-time every night, and in some
cases, in fine grain 25 days until it exerts its peculiar ef-
fects on the constitution.

Variety VIII. This the last we have noticed was first de-
scribed by Dr. Christian in a paper read before the Medico-
Chirurgical Society of Edinburgh January 8th 1845. It is abil-
to be mistaken for hypertrophy of the heart, and Dr. C. states,
that in his experience it generally has been so mistakent
It occurs generally in male adolescents and young adults.
"The affection seems to occur usually with a slender frame
of body, yet with a muscular system tolerably well devel-
oped and at all events firmly built." There is always the usual
nervous excitability met with in functional disorder of the heart.
Disorder of the digestive system may or may not occur.
There is always pulsation felt at the heart, which with the pulsation
ations in the Carotids and Temporals (when such exist) prove
especially troublesome while the patient is in bed, and more
as of lying on his left side. The pulsation is frequent and violent
so that in examining it, the observer's head is sacrificed
by the misfired pressure of the clothes. Also, and the expiration of the
chest is visible at a distance of eight or ten feet, when the
patient is stripped. The symptoms are increased by violent
though not too moderate exercise. There is no marked dyspnoea.
A number of symptoms common to all varieties are usually
present. There are no hiccoughs, nor are the respiration
the heart-beat. It has however three peculiarities. The first
is the constancy of the palpitations--for, whether the patient
be conscious of them or not, they are present, though varying at different times in strength. The second is the abnor-
mal position of the beat of the apex of the heart. It is found
not between the fifth and sixth ribs, as in health, nor lower down
as in hypertrophy, but between fourth and fifth. Dr. B. how-
ever mentions one case in which the apex was found to beat at
the normal site. The third is the diminution of cardiac dulness. Dr.
has had the opportunity of watching for years some of the cases
which have fallen under his care, and in these he has in-
variably found that, while in the course of time with the
Care on the part of the patient the distressing symptoms have
been mitigated, the physical signs have remained unaltered.
A writer in Parkinson's Abstract states, that in his experience, the distressing symptoms have been induced frequently by unnatural excitement of the sexual system organs. The pathology of such cases is, according to Dr. Charters, congenital smallness of the heart, which is at the same time dilated, lying nearer the sternum than usual.

The treatment consists in avoiding all over excitement and violent exercise, a stimulating diet with as little animal food as possible, the administration of calomel to be toned with moderate exercise, and as in all other cases of functional disorders, due regulation of the bowels.

It will be observed that, while among the general indications of treatment we placed, the withdrawal of the patient's attention from his complaint, sleeping on the right side, and the use of spirits and antispasmodics, we have been not without some of them in the special treatment of the different varieties.

The reason of this is that not all the varieties of symptoms ought to be attended to.