

LECTURE XI.

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VALVULAR DISEASES OF THE HEART.

Physical Signs and Diagnosis of Valvular Diseases of the Heart — Endocardial or Valvular Murmurs — Mitral Direct Murmurs — Mitral Regurgitant Murmurs — Aortic Direct Murmurs—Aortic Regurgitant Murmurs — Recapitulation of Murmurs—Purring Tremor—Diagnostic Characters of Mitral Lesions—Diagnostic Characters of Aortic Lesions—Of Tricuspid Lesions— Of Pulmonic Lesions — Treatment of Disorders Resulting from Valvular Lesions.

GENTLEMEN: *We* have thus far, in lecturing on Diseases of the Heart, gathered from the latest and standard works, together with our own observations, and have omitted much that might be said, while we have endeavored, by careful study, to give you, in few words, the prominent points which will aid you in the investigation of the diseases of the heart. Our clinics do not yet furnish us with opportunities in this direction, and for this reason have I taken special pains to treat the various affections in a plain and concise way. But you must not stop here, but investigate for yourselves.

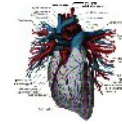
We will devote this hour to the consideration of the

PHYSICAL SIGNS AND DIAGNOSIS OF VALVULAR LESIONS

Cardiac murmurs originate either within the heart, or on the peripheral surface of the organ.

In treating of endocardial murmurs, the practical points to be considered relate to the different character which they present, the morbid conditions which they denote, their significance and value as signs of disease, and their application to the diagnosis of valvular affections. These murmurs may be produced within the cavities of the heart, at the auriculo-ventricular or the ventriculo-arterial orifices, and within the aorta or pulmonary artery, near the junction of these vessels with the ventricles. It is practicable often, if not generally, to determine from which of the cavities, orifices, or vessels mentioned, emanate the murmurs heard in individual cases.

The importance of this localization, as pointing to the seat of the lesions which occasion the murmur, is obvious: to determine the existence or non-existence of valvular disease; to determine the particular situation of



structural lesions; to determine the character of lesions, and certain of their effects on the blood-currents through the different orifices.

Endocardial murmurs are not always due to lesions of structure or organic disease. They occur as a result of certain blood-changes and of functional disorder of the heart.

The latter are distinguished as inorganic murmurs, while those dependent on structural changes are called organic murmurs.

Organic murmurs, in the majority of cases, resemble a bellow's-sound. Murmurs of this kind are said to be soft murmurs. In some instances they are so feeble as to be just appreciable. In other instances they are so loud as to be heard over the whole chest, and they are sometimes perceived by the patient, especially in the night-time.

Different varieties have been described and named from their resemblance to certain sounds. Enough for practical use is to consider them simply as presenting different modifications and degrees of roughness, the latter being, the only distinctive feature worthy of being noted.

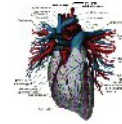
Murmurs sometimes have a musical intonation. The sounds have no special pathological or diagnostic significance, except that they denote the existence of organic disease.

The presence of a murmur involves only the fact that there is something abnormal. The presence of a murmur by no means warrants the conclusion, in all cases, that lesions do exist, as will appear more fully after the inorganic murmurs have been considered. The absence of murmur, on the other hand, warrants the conclusion that lesions do not exist, the probability of error being exceedingly small, provided the heart be not, from any cause, greatly enfeebled.

After the systolic contraction of the ventricles, the blood passes through the auriculo-ventricular orifices from the auricles into the ventricles.

The current of blood from the left auricle, through the mitral orifice, into the left ventricle, may be designated the direct mitral current.

The systolic ventricular contractions impel the blood from the cavity of the ventricle into the aorta. The current of blood from the cavity of the left ventricle into the aorta may be distinguished as the direct aortic current. These are the normal blood-currents. If the mitral valves be insufficient, more or less of the blood contained in the cavity of the left



ventricle is driven backward by the ventricular systole into the left auricle. Here, then, is a regurgitant current which does not exist when the valves are sufficient. It may be called a mitral regurgitant current. So may we have the aortic regurgitant current. Each of these four currents may give rise to a murmur. A mitral direct murmur begins after the diastolic, or second sound of the heart; or it takes place during the long silence or pause which separates the diastolic and systolic sound, and may be called the mitral diastolic murmur.

A mitral regurgitant murmur being produced by the ventricular systole, commences with the systolic sound; it is, therefore, a systolic murmur, and may be called the mitral systolic murmur.

An aortic direct murmur, also produced by the ventricular systole, is a systolic murmur; it commences with the systolic sound, and may be called the aortic systolic murmur.

An aortic regurgitant murmur, on the other hand, produced by a retrograde current from the aorta into the ventricle after the systolic contraction, commences with the second or the diastolic sound.

Then we have the systolic murmurs, commencing with the systolic or first sound of the heart: 1st. A mitral regurgitant, or a mitral systolic murmur.

2nd. An aortic direct, or an aortic systolic murmur.

Also the diastolic murmurs, commencing with or following the diastolic or second sound of the heart: 1st, A mitral direct, or a mitral diastolic murmur; and, 2nd, An aortic regurgitant, or an aortic diastolic murmur.

The mitral direct, or the mitral diastolic murmur, generally denotes a particular kind of lesion, namely, union of the mitral curtains, leaving a slit-like and more or less contracted aperture between the auricle and ventricle. It may be distinguished as a blubbery sound when this quality is strongly marked. The mitral direct murmur always ends with the ventricular systole. This murmur may be produced—and it may be quite intense—when the mitral valves are not the seat of any lesion. The fact that the mitral curtains are floated out and brought into apposition to each other, by simply distending the ventricular cavity with liquid, is * sufficiently established and easily verified.

Now, in cases of considerable aortic insufficiency, the left ventricle is rapidly filled with blood flowing back from the aorta, as well as from the auricle, before the auricular contraction takes place. The mitral curtains,



under these circumstances, are brought into co-aptation, and when the auricular contraction takes place, the mitral direct current passing between the curtains, throws them into vibration, and gives rise to the characteristic blubbery murmur.

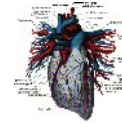
Mitral regurgitant, or systolic murmur, is most frequently met with in cases of organic disease of the heart. 'Whenever the mitral valve is insufficient, a portion of the blood contained in the left ventricle is driven backward by the ventricular systole into the left auricle.

The gravity of valvular lesions, as has been seen, depends on the amount of obstruction and regurgitation resulting from them; hence the importance of bearing in mind, that a mitral systolic murmur is not always, strictly speaking, a regurgitant murmur, that is, the murmur may be produced without regurgitation.

Aortic direct or systolic murmur. In proportion as obstruction to the aortic blood-current is involved, evils ensue, namely, accumulation of blood in the ventricular cavity, enlargement of the left auricle, followed by pulmonary congestion, and the more remote consequences which are essentially those resulting from obstruction and regurgitant lesions at the mitral orifice. There are no constant characters pertaining to the murmur itself which enable the auscultator to determine whether the lesions do, or do not, involve obstruction. In a large proportion of the cases of obstructive lesions at the aortic orifice, the valves are involved sufficiently to compromise, to a greater or less extent, their function, and impair the intensity of the aortic second sound. Aside from attention to the aortic sound, the evidence of obstruction, and also of its degree and duration, must be derived from the amount of enlargement of the left ventricle, and the remote effect of the heart affection.

Aortic regurgitant or diastolic murmur. This ranks next to a mitral direct murmur as regards infrequency. The gravity of the lesions represented by this murmur depends on the extent of insufficiency or the amount of regurgitation. Absence of an aortic regurgitant murmur, therefore, is not positive proof that there is no regurgitation. Roughness of the inner surface of the aorta above the aortic valves may occasion a murmur with the retrograde movement of the column of blood within the vessel, although the aortic valves are sufficient. An aortic non-regurgitant diastolic murmur is then characterized by its ending abruptly with the second sound of the heart; whereas an aortic regurgitant murmur continues, more or less, after the second sound.

Localization of the systolic murmurs. The first point is to ascertain whether it be a systolic or a diastolic murmur. If the heart-sounds recur



with great frequency, the difference in duration between the two pauses or intervals is scarcely apparent. Whenever there is doubt or difficulty in determining whether a murmur is systolic or diastolic, it is to be remembered that the first or systolic sound of the heart is synchronous with the apex-beat and the carotid pulse. If the beginning of a murmur be coincident with the carotid pulse, it is either an aortic or a mitral systolic murmur. A murmur may be inappreciable, owing to feebleness of the action of the heart. Before deciding, therefore, on the absence of murmur, it is sometimes advisable to excite the heart's action by muscular exertion. If the murmur be a mitral systolic, its maximum of intensity is at or near the apex of the heart. This is to be depended upon as a rule.

If a systolic murmur be an aortic direct murmur, its maximum of intensity is at or above the base of the heart. The particular situation where it is most intense is usually in the intercostal space nigh to the sternum. From the base of the heart it is propagated upward for a greater or less distance, usually more so on the right than on the left side it is often pretty loud at the sternal notch.

To determine the presence of both these murmurs: If a murmur heard at the apex be transmitted over the left lateral aspect of the chest, and if it be heard at the lower angle of the scapula behind, a mitral regurgitant murmur is present. If, now, a murmur heard at the base be heard over the carotids, there is also present an aortic direct murmur.

Localization of the diastolic murmur. A mitral direct murmur is pre-systolic. It occurs just before the first or systolic sound, and is almost always continued up to that sound. None of the other murmurs occur in the same relation to the first sound of the heart, and hence, this alone is distinctive. Its maximum of intensity is within a circumscribed space around the apex of the heart. If the diastolic murmur be an aortic regurgitant murmur, it commences with, and follows, the second sound of the heart. As no other of the four murmurs under consideration commences with the second sound of the heart, it suffices for its recognition to make out this point; and if it be difficult to determine which of the heart-sounds is the first, and which the second sound, the relation of the murmur to the second sound is shown by the interval between the murmur and the carotid pulse.



RECAPITULATION of Point involved in the Localization of the Systolic and Diastolic Murmurs referable to the Mitral and the Aortic Orifice.¹

SYSTOLIC MURMURS.

<i>Mitral Regurgitant</i>	<i>Aortic Direct.</i>
Maximum of intensity at or near the apex of the heart.	Maximum of intensity at the base of the heart in the second intercostal space, near the sternum. Intensity diminished over body of heart and at the apex.
Comparatively feeble or wanting at the base	
Not propagated above the base of the heart. Not heard over carotids.	Propagated above the base of the heart and generally heard over carotids.
Often heard over left lateral surface of chest.	Rarely heard over left lateral surface of chest.
If heard in the interscapular space, most intense near the lower angle of scapula.	If heard in the interscapular space, most intense as high as the spinous ridge of scapula.
Aortic second sound weakened in proportion to the amount of regurgitation, but distinct.	Aortic second sound often weakened, and more or less indistinct.
Pulmonic second sound often intensified.	Pulmonic second sound less frequently intensified.
Mitral valvular element of the first sound more or less impaired.	Mitral valvular element of the first sound not impaired.

Diastolic Murmur

Occurs just before the systolic or first sound, and ends with the occurrence of this sound. Usually vibratory or blubbery in quality.	Commences with and follows the diastolic or second sound. The quality usually soft.
Maximum of intensity over apex of heart.	Maximum of intensity over body of heart, near sternum.
Generally not appreciable at the base of the heart.	Generally appreciable at the base of the heart.
Mitral valvular element of first sound impaired.	Mitral valvular element of first sound not impaired.
Pulmonic second sound often intensified.	Pulmonic second sound less frequently intensified.

¹ From Flint on Diseases of the Heart.



In connection with murmurs, it may be safe to say, that they show organic lesions are accompanied by an organic murmur in the great majority of cases.

Lesions which occasion neither obstruction nor regurgitation may give rise to murmurs.

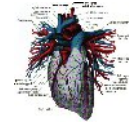
Purring tremor. This term is applied to a sense of vibration, or thrill, felt on placing the fingers or the hand on the praecordia. It resembles the sensation given to the hand by the purring of a cat. It is doubtless due to tremulous movements of the heart. A well-marked purring tremor may be considered as a sign denoting valvular lesions associated with hypertrophic enlargement of the left ventricle. It occurs when the mitral orifice permits free regurgitation, and may also occur in aortic lesions.

DIAGNOSTIC CHARACTERS OF MITRAL LESIONS.

Physical signs: — An endocardial systolic murmur is present in the majority of cases, with the traits which distinguish a mitral regurgitant murmur, viz.; its maximum of intensity at or near the apex of the heart, the intensity diminishing as the stethoscope is carried upwards over the body of the heart; generally feeble or lost above the base of the organ; not propagated into the carotids; often diffused over the left lateral surface of the chest; and not infrequently heard on the posterior surface, at the lower angle of the scapula, and in the interscapular space below the level of the spinous ridge of the scapula; the murmur more or less intense; generally soft, but sometimes rough, and occasionally musical. The aortic second sound is weakened; the pulmonic second sound is often intensified. Enlargement of the heart exists in the majority of the cases which come under observation.

Pain is rarely present. Abnormal force of the heart's action and palpitation denote consecutive enlargement, but the symptoms are often not prominent.

The pulse is small and weak, and, in an advanced stage, it becomes irregular and intermitting; inequality of the pulse is, in some measure, characteristic of obstructive lesions. Turgescence of the jugular and other veins, lividity, or cyanosis, and dropsy occur at an advanced period, when dilatation of the right cavities of the heart has been induced. Dyspnoea is more or less marked. Cough and muco-serous expectoration occur frequently. Haemoptysis is of frequent occurrence, and extravasation of blood in the lungs, or pulmonary apoplexy, takes place occasionally. (Edema of the lungs is not infrequent.



DIAGNOSTIC CHARACTERS OF AORTIC LESIONS.

Physical signs. — An endocardial systolic murmur is present in the majority of cases, with the traits which distinguish an aortic direct murmur, viz.: its maximum of intensity at the base of the heart; comparatively feeble and often lost at the apex; propagated upward in the direction of the aorta, and into the carotids; not diffused over the left lateral surface of the chest; and if heard on the posterior surface, either limited to, or most intense in, the interscapular space on and above the level of the spinous ridge of the scapula. Murmur more or less intense; generally soft, but sometimes rough. The aortic second sound of the heart is often weakened and indistinct; the pulmonic second sound is much less frequently intensified than in cases of mitral lesions. Enlargement of the heart exists in the majority of cases. An aortic regurgitant murmur is present in a certain proportion of cases.

Pain is oftener present than in cases of mitral lesions, but is often absent. Abnormal force of the heart's action and palpitation, as a rule, are more prominent symptoms than in cases of mitral lesions.

The pulse in cases of aortic regurgitation is quick, jerking, collapsing, and a longer interval than natural is sometimes observed between the apex-beat or systolic sound and the pulsation in remote arteries.

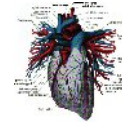
Visible pulsation of superficial arteries is frequently marked. Turgescence of the jugular and other veins, and dropsy, occur at a later period than in cases of mitral lesions, and oftener wanting.

Dyspnoea is less marked. Cough and muco-serous expectoration and haemoptysis are comparatively infrequent. Pulmonary apoplexy rare. (Edema of the lungs less frequent.

DIAGNOSTIC CHARACTERS OF TRICUSPID LESIONS.

Physical signs.—The rule, that a murmur is present in the vast majority of cases, cannot be applied to tricuspid lesions; and hence, absence of murmur is not proof that the latter do not exist. A tricuspid regurgitant murmur, however, is sometimes observed. It is rarely intense or rough, and is usually low in pitch. Its maximum of intensity is at or above the xiphoid cartilage.

Tricuspid lesions, not congenital, are in most instances associated with lesions of one or more of the valves of the left side of the heart. One case is reported of the diagnosis being based on the fact that the presystolic



murmur was heard, not only around the apex, but at, and to the right of, the ensiform cartilage.

Regurgitant and obstructive lesions, situated at the tricuspid orifice, do not produce those immediate effects on the respiratory system and the pulse which pertain to analogous lesions seated at the mitral orifice. Their immediate effects are manifested in the systemic venous system. Congestion of the systemic veins is a direct result, tending to general dropsy. Cerebral apoplexy is more liable than in mitral or aortic lesions.

DIAGNOSTIC CHARACTERS OF PULMONIC LESIONS.

Physical signs.—Lesions situated at the pulmonic orifice may give rise to a murmur with the first sound of the heart, which may be called a pulmonic direct murmur. This murmur has its maximum of intensity in the second intercostal space on the left side of the sternum, the situation where the pulmonic second sound of the heart may be isolated from the aortic second sound.

Pulmonic lesions, however, exclusive of congenital malformations, are so rare, that the opportunities of any clinical observer, however large his experience, for studying the physical signs, are extremely limited.

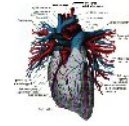
Hypertrophy of the right ventricle, which is produced by obstructive or regurgitant lesions of the pulmonic orifice, involves augmented intensity of the tricuspid valvular element of the first sound, and an impulse in the epigastrium.

The primary effect of obstructive or regurgitant lesions situated at the pulmonic orifice, is enlargement of the right ventricle. The secondary and remote effects, and the symptoms thereon dependent, are essentially those which are occasioned by tricuspid lesions, being due to distension of the right auricle, tricuspid regurgitation, and congestion of the systemic veins.

TREATMENT OF DISEASES RESULTING FROM VALVULAR DISEASES OF THE HEART.

It is evident that the anatomical changes which the valves and orifices of the heart have undergone, are not amenable to any medical treatment. The lesions existing must remain. The most that can be done is to retard their progress and control their primary effects.

Cases may, however, occur where suitable remedies may set up such an action in the system, as may result in the partial or complete removal of



certain morbid products deposited on or about the valves. A thorough trial of those remedies known to us as *antipsorics* may give you excellent results.

You need not feel discouraged in the treatment of valvular diseases, nor should you discourage your patients, for in general no immediate danger is present, even when those lesions exist which involve more or less obstruction or regurgitation.

For the treatment of the *primary* effects of valvular diseases, I refer you to the treatment of enlargement of the heart.

The *secondary* effects of valvular lesions do not generally appear so long as the enlargement of the heart is by *hypertrophy*, unless, from fatty degeneration or some other cause, weakness of the organ has been induced. Flint says that obstruction and regurgitant lesions tend first, as a rule, to produce hypertrophy, the muscular walls increase in thickness up to a certain limit. When this limit is reached, dilation of the cavities ensue, and, finally, predominates over the hypertrophy. So long as the hypertrophy lasts the increased *power* of the heart compensates for the immediate consequences of the obstruction and regurgitation.

But when dilatation takes place, the real danger appears. It is then that other organs become affected, and a train of evils follow which will require your watchful care to relieve and arrest.

The main objects of *treatment*, before these resulting affections have appeared are mainly *preventive*. (1) You must seek to prevent or retard the progressive anatomical changes. (2) You must strive to prevent weakness and consequent dilatation of the heart.

As I have just now stated, you will find this treatment fully set forth in your notes on hypertrophy, and dilatation.

You must ever bear in mind, that in the treatment of the secondary and remote effects of these lesions, the *condition of the heart* should not be forgotten. You cannot successfully treat the local congestions in such cases by specific remedies directed solely to the organ affected. For example, *leptandra* will not as often remove a jaundice caused by cardiac disease as will *digitalis*, because the latter has a specific influence over the heart.

These secondary affections are mostly dependent on *passive* congestion, and as they arise from a weakened circulation, those cardiac remedies



which strengthen the force of the circulation will give the most relief. I have enumerated these in Classes I., II., and III. in "Dilatation."

Dyspnoea, otherwise known as cardiac asthma, or breathlessness, will often claim your special attention. In advanced cases you can only palliate, but you can do much with such medicines as *digitalis*, *hydrocyanic acid*, *arsenic*, *lobelia*, *cuprum aceticum*, *phosphorus*, and *tartar emetic*.

Cough can be alleviated by the same remedies, aided by *hyoscyamus*, *conium*, *lycopus*, etc.

Expectoration in valvular disease should be encouraged rather than checked, for it often relieves the congestion. When it becomes too profuse, it may be lessened by *squilla*, *tartar emetic*, *cubeb*, *copaiva*, *ammonia*, *ippecac*, and similar remedies.

Intercurrent pulmonary affections, such as bronchitis, pleurisy, pneumonia, are to be treated in the ordinary manner.

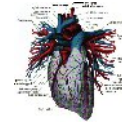
The *disorders of digestion* and *hepatic affections* are sometimes, quite obstinate. If you will study the provings of *digitalis*, you will observe the peculiar and prominent derangement of the gastric and hepatic functions which it causes. It causes these disorders by deranging the action and impulse of the heart. *Digitalis* is our most reliable remedy in similar cases; and next in value come *nux vomica*, *ignatia*, *china*, *cornus*, *aesculus*, *hydrastis*, *podophyllum*, *leptandra*, *lycopodium*, *sulphur*, and *benzoic acid*.

Cerebral congestions are to be met with *digitalis*, *nux vomica*, *opium*, *glonoine*, *agaricus*, *arnica*, *solanum*, aided by hot mustard foot and hand baths. The extremities must be kept warm and full of blood.

General dropsy is one of the most troublesome of the secondary effects, and will tax your skill greatly. Remember that the *kidneys* are not primarily in fault. The co-existence of Bright's disease gives the disease a double character.

Any remedy which will aid the heart by giving it increased power will benefit the dropsy. It is not necessary that the remedy should be a kidney remedy. The best remedies for cardiac dropsy may be arranged in two classes, namely:

I. Those which act primarily on the heart: *digitalis* and its analogues; *nux vomica* and *china* and their analogues.



II. Those which act specifically on the kidneys: *apocynum cann.*, *asparagus*, *eupatorium purp.*, *benzoate of ammonia*, *colchicum*, *asclepias syriaca*, *squilla*, *potass nitras* and *acet.*, etc.

In cases of co-existing Bright's disease, I have found *sulphuric acid* to act in a wonderfully efficient manner.

It is a significant fact that allopathic authorities are quite unanimous in asserting, that from experience they find that by combining a remedy of my Class I. with one of Class II., they are enabled to remove cardiac dropsy more rapidly than in any other way. A favorite combination with them is *digitalis* and *squills*. Now, we need not combine medicines to get these good effects. Better results can be gained by alternation. You will, according to my experience, get prompt action from an alternation of *digitalis* and *apocynum cann.*, or *china* and *asclepias*, or *nux* and *benzoate of ammonia*.

Obstinate cases have been reported where the internal administration of remedies failed to remove this form of dropsy, but in which their *external* application over the abdomen and kidneys was successful.

If your dropsical patient is anemic, give him *ferrum* (the *iodide* is the best,) and advise a strong nitrogenous diet.

Finally, gentlemen; do not always inform your patients of the presence of organic disease of the heart. Such an announcement will militate against your best chosen remedies, by depressing your patient's spirits, and thus lowering the vital energies. Better is it to encourage; and only allude to the heart in a vague or indirect manner.

APPENDIX.

THE INFLUENCE OF THE MIND OVER THE HEART. THE object of this paper is twofold:

First. To show the powerful influence which the mind can and does exert over the heart, and the manner in which such influence is exerted.

Secondly. The results which may be brought about upon the normal conditions of the heart by such influence; and their value from a medico-legal and therapeutic point of view.

We will first inquire how the mind can affect the heart; or, in other words, through what nerve-channels the intellect, the will, and the emotions can affect that important organ.



The heart is supplied with nerves by the pneumogastric and the sympathetic; but we find it impossible to make satisfactory experiments with the nerves in connection with the purely emotional influences.

We are obliged to depend mainly on negative testimony, viz., the effect produced upon the heart by irritation and by division of these nerves. Even here, unfortunately, we are met by so much contradictory evidence that it really seems hopeless to arrive at any definite conclusion.

Claude Bernard, Weber, Valentine, Schiff, and Lockhart Clark disagree in many essential particulars relating to the effects of division or irritation of the pneumogastrics.

The majority of evidence, however, is in favor of the conclusion that the pneumogastrics, pure and simple, contain motor fibres, and that, through the cardiac branches, they effect the motions of the heart.

The pneumogastric may contain sensory fibres also, and may, therefore, be a compound nerve from its origin.

With regard to the influence of the sympathetic, Carpenter

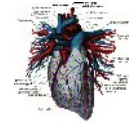
found that pressure on the great cardiac sympathetic nerve checks the heart's pulsations from four to six beats, causing fearful anxiety and pain; while Weber found that stimuli conveyed through this nerve accelerated the movements of the heart.

These and other facts leave no room to doubt that the sympathetic nerves are also concerned in the motions of the heart.

Now the question is whether the emotions act through them or the pneumogastrics, or both, when accelerating or retarding the movements of the heart.

As to the sympathetic nerves of the heart, Moleschott's experiments demonstrated that the same phenomena occurred as in the case of the vagi, when excited mildly or strongly by galvanism, and he concludes that these two sets of nerves exercise the same influence upon this viscus.

It appears fair, therefore, to conclude that the emotions act upon the heart both through the vagi and the sympathetic. Their *modus operandi*—now accelerating, now retarding its action—would seem to derive illustration from these and similar experiments.



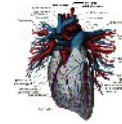
If we were to substitute emotion for the stimulus applied by Moleschott to the nerves proceeding to the heart, we can well understand how the former should produce the various and opposite disturbances of this organ, including spasm and paralysis, with which we are familiar. First, as a feeble or moderate stimulus of the vagus (whether electric or otherwise) causes a considerable rise in the pulse, so does an emotion which is not excessive in character. Secondly, as an increased stimulus gradually retards the action of the heart, while a very powerful one immediately arrests it from the fatigue which succeeds stimulus, just so, we can well conceive, a violent emotion would act. Thirdly, the fatigue may be gradually recovered from and the heart's action restored to its normal frequency and force.

The ganglia of the heart appear to act in the way of communicating the condition of one of the four nerves supplying the heart to the other three. In regard to the emotional stimuli, however, it seems impossible to decide whether one is more influenced than another, and in view of Professor Moleschott's experiments, it is evident that the emotions may act in precisely the same way through either the vagi or sympathetic.

We may be allowed to surmise that the ganglia and the fourfold supply of nerves to this organ are designed to lessen its liability to fatal spasm and paralysis by emotion.

"The heart," observes Moleschott, "is animated by four very excitable nerves, which may be easily over-excited; these four nerves, two vagi and two sympathetic, have a peculiar consensus, which is no doubt due to the action of the ganglia of the heart, so that the state of irritation or over-excitement of one is conveyed to the other three; but it is impossible to permanently exhaust the other three by the over-excitation of one nerve singly, as stimulants which would be powerful enough to effect this, would soon kill the excited portion of the one nerve, and therefore lose their effect upon the other three; such an effect being only possible as long as the nerve acted upon retains part at least of its excitability."

This conclusion accords with the opinion of Kirkes and Paget, that the cardiac branches of the pneumogastric are one, though not the sole channel through which the influence of emotion is transmitted to this organ, and with that of Dr. Carpenter, already cited; and it does not contradict the judgment expressed by him elsewhere, that the sympathetic constitutes the channel through which the passions produce palpitation of the heart, or Dr. Baly's statement, that the disturbed action of the heart during emotion is a remarkable instance of the influence of the passions over movements of organs supplied by the sympathetic.



Since Moleschott's experiments, those of MM. Cyon and Ludwig indicate the existence of accelerator and depressor nerves of the heart, the former emerging from the cord with the third branch of the inferior cervical ganglion, and the latter arising, in rabbits, from the pneumogastric and superior laryngeal nerves.

Bernard, it is stated, adopted this view, and held that the heart, with this sensory depressor nerve, is able to regulate its volume according to circumstances, by exerting a reflex action on the general circulation.

If the inhibitory view of the pneumogastric nerve be established, we must, in attempting to explain the injurious mode of action of certain emotional states upon the heart, suppose that the normal control which is being constantly exercised by this nerve is, under excessive emotion, so intensified under increased stimulation at its origin in the medulla oblongata, that the pulsations of the organ are partially or wholly arrested. A provision by which the heart is prevented sending more blood to an organ already too vascular from emotional excitement, may thus cause death.

It seems, however, that as long as physiologists differ so widely as to the functions of the nerves supplying the heart, it is impossible to determine the exact manner in which the emotions influence this organ.

The general conclusion is, that it is through the acknowledged sympathetic and probably through the pneumogastric by reflex action, when excited centrally by certain emotional states, just as it is alleged to do from the state of the heart at the periphery, or, if Moleschott's views be adopted, directly through the motor fibres of this nerve.

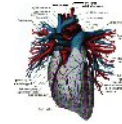
In order to be methodical and give a more clear and comprehensive understanding, we will take up the various functions of the mind, as the intellect, the will, and the emotions.

THE INTELLECT.

The influence of the intellect upon the heart is similar to that exercised over voluntary muscles.

The direction of thought to the heart has very generally an embarrassing influence on its regular action.

Sir Henry Holland says: "There is cause to believe the action of the heart is often quickened or otherwise disturbed by the mere centering the consciousness on it, without any emotion or anxiety." On occasions



where its beats are audible, observation will give proof of this, or the physician can very often infer it while feeling the pulse; and where there is liability to irregular pulsation such action is seemingly brought on or increased by the effort of attention, even though no obvious emotion be present.

I have observed this phenomenon, in my own practice, in hysterical women, who imagine they have heart disease. In these cases a morbid attention to the action of the heart would bring on palpitation and irregular action. Upon the removal of all anxiety by a decided assertion from me, after a careful physical examination, that the heart was not diseased, it would quickly resume its normal action.

From the same cause medical students, when their thoughts are directed by their studies to this organ, are frequently sufferers from its disturbed action. Anxiety, no doubt, comes in here to aggravate the disorder, and will be referred to again under emotions. Peter Frank himself, even in advanced life, while devoting especial attention to the subject of heart disease, during the preparation of his lectures, was attacked with severe palpitations, accompanied by an intermittent pulse, and felt certain that he was affected with an aneurism. The symptoms did not cease till some time after the completion of his labors, and after he had enjoyed the relaxation and diversion of a journey. In fact, it is quite a common remark that medical men often die from a disease that they have made a special study during life.

The question now naturally arises, is it possible for hysterical or hypochondriac persons to bring on permanent structural disease of the heart by a morbid concentration of the mind on it?

It is the opinion of most medical writers that it is not probable such a result would occur. They admit, however, that it would be likely to aggravate any previous mischief and induce irregular action, and ultimately hypertrophy, or some other disease decidedly organic. The physician should, therefore, in treating such patients, exercise his influence and ingenuity to divert their minds from the heart to some other subject or organ.

Numerous interesting cases are recorded showing the specific effects of the intellect over the heart's action, as one of a medical student being initiated into the rites of a Masonic society; his eyes were bandaged, a ligature bound around his arm, and the usual preparations made for bleeding. A pretence of opening the vein was made, and a stream of water spurted in a bowl to represent the sound of the flowing blood expected. As a result the student soon became pale and fainted.



Then there is the well-known case of the man being bled by the prick of a pin and warm water running down his arm, who actually died as a result.

The daughter of Sir Charles Lee, at 2 o'clock on a certain morning, saw between the curtains of her bed a little old woman, who told her that at 12 o'clock the next day she would be with her in the next world. She immediately dressed herself very carefully, went into her private closet, and did not come out till 9 o'clock, when she went to her aunt, handed her a letter directed to her father with the request it be sent to him immediately on her death, telling her aunt about the apparition. A physician and a surgeon were sent for, but could discover no disease, but on the urgent solicitation of the aunt bled her slightly. She then took a chair and played on her guitar and sang some favorite pieces, and a few minutes before 12 went to a large arm-chair, sat in it, and at 12 raised her hand toward her heart and was dead.

Another case of a young lady who received a similar warning, only it came a year before the appointed time. She became anemic, lost flesh and strength; nothing could apparently be done to save life, although no organic or structural disease could be found by the closest examination by skilful physicians. The day before the time set for her death a young physician who had some tact gave her a very heavy anodyne, and she slept under its influence during the entire day of her expected death. When she returned to consciousness the next day, and was making a few final preparations, she was assured that the time had passed for her to die and that the oracle knew nothing of such matters and was an impostor. She got up from her bed and rapidly regained both flesh and strength.

To be sure these are isolated and exceptional cases, and may by many be accounted for on influences other than intellectual, but in them we cannot help seeing a result comparing with the natural reasoning and with ideas firmly fixed in the minds of the individuals.

THE WILL.

Dr. Tuke says: "The direct action of the will upon the heart and nonstriated muscles, if it can ever be exerted, is altogether exceptional, although it may *powerfully influence them indirectly* by directing the course of the emotions and ideas to them, and in this way it may, and probably does, affect the organic functions."

A distinguished Fellow of the Royal Society (aet. 79) told him that he could by voluntary effort, increase the frequency of his pulse from ten to



twenty beats per minute. At the Doctor's request the experiment was made. When he sat down his pulse was sixty-two; in the course of about two minutes it increased to eighty-two. On being requested to describe the manner of accelerating it, he said it seemed to be partly due to " a sort of impulse, "partly to an internal shiver, and partly to an action on the breathing.

The increase in respiration was not apparent.

It may be that the will did not act directly on the muscular tissue of the heart, but indirectly by concentrating the attention on that particular object, on that particular organ.

The case of Colonel Townsend, in which it is said he possessed the remarkable faculty of throwing himself into a trance at pleasure. The heart ceased apparently to throb at his bidding, respiration seemed at an end, his whole frame assumed the icy rigidity of death, while his face became colorless and shrunk, and his eyes fixed, glazed, and ghastly. He would remain in this state for hours, entirely unconscious, when the signs of life would gradually reappear.

Dr. Darwin says: "There is an instance in the Philosophical Transactions, of a man who could for a time stop the motion of his heart when he pleased."

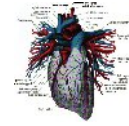
THE EMOTIONS.

The heart may be so affected by the emotions, through the nerves supplying it, as to produce violent contractions—tonic spasms of the organ. This occurring in such a vital organ must of necessity cause death.

It is difficult to decide whether this results from muscular irritability, is caused by the withdrawing of an antagonistic nerve-force, or from the direct action of nerve-force upon the muscles; but it is evident that, in cases of death like Hunter's, a condition of spasmodic contraction of the walls of the heart is produced. Let me refer to the record of his death and post-mortem.

The governors of St. George's Hospital decided that no person should be admitted as a student without bringing certificates of being educated in the profession.

Hunter advocated, at the board, the admission of two young men inadmissible under the new rule. His biographer, Mr. Palmer, states that,



before the meeting, he expressed his apprehensions to a friend, "lest some unpleasant dispute might occur, and his conviction that, if it did, it would certainly prove fatal to him." Arrived at the hospital he found the board already assembled, and entering the room, presented the memorial of the young men, and proceeded to urge the propriety of their being admitted. In the course of his remarks he made some observations which one of his colleagues thought it necessary instantly and flatly to contradict. Hunter immediately ceased speaking, retired from the table, and struggling to suppress the tumult of his passion, hurried into the adjoining room, which he had scarcely reached when, with a deep groan, he fell lifeless into the arms of Dr. Robertson, one of the physicians of the hospital, who chanced to be present. Various attempts were made for upward of an hour to restore animation, under the hope that the attack might prove to be a fainting fit, such as he had before experienced, but in vain; life had fled and all their efforts proved useless. The post-mortem showed the heart to be badly diseased; it was small, appeared to have wasted, and was strongly contracted. The viscera of the abdomen and head were loaded with blood.

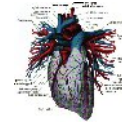
As in such cases death seems to be caused by the severe and persistent spasm or contraction of the heart, it seems to me that the opposite condition of dilatation may also occur from emotional excitement. The organ would, in that case, cease to contract on its contents and become powerless, and death ensue. We see this in voluntary muscles and from emotional causes, as in the hand. In one case it will be rigidly contracted, in another paralyzed, the only difference in result being that the heart is a vital organ, the hand is not.

Senac gives a case of a person who was witness to a shipwreck, and became so affected by the distress around him and terror that palpitation of the heart was succeeded by suppressed breathing, syncope and death. Upon examination the heart was found enlarged.

Bonnet, Morgagni, Tissot and others assert that dilatation of the heart has been caused by chagrin and anger.

Dr. Richardson says: "I have never met with a case of intermittent pulse in which the disorder was not sequential to some anxiety, shock, fear, sorrow, or their similars."

From statistics we learn that in the last twenty years deaths from heart disease have increased about twenty-five percent., and the percentage of the increase is entirely confined to men, and to those between the ages of 21 and 45, which is the time they are subject to the most trying emotional causes.



It is not an uncommon occurrence to meet with syncope produced by emotional excitement, and in the case of a perfectly healthy heart we can readily understand why nothing more serious should supervene, and I think it equally clear that it should succumb when it is already diseased, and of course has less power of resistance.

Here again we find that exactly similar results are produced by the opposite emotions of joy and fear.

Lord Eglinton informed John Hunter " that when two soldiers were condemned to be shot, and one of them to receive a pardon, the event being decided by their throwing dice, the one who proved successful—thus securing a reprieve—usually fainted, while the other remained calm."

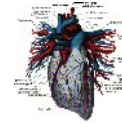
The American poetess, Lucretia Davidson, who died at 17, often fainted when listening to some of her favorite melodies from Moore, yet notwithstanding this, she would beg to have them repeated.

We often see examples where fear prevents fainting so long as it operates, and immediately it is withdrawn the system yields to the reaction and fainting takes place. A lady sitting up after the rest of the household had gone to bed saw a servant enter the door with a pistol in his hand. She immediately blew out the candle, pushed the bed from the wall, got behind it, and succeeded in evading him and getting out of the door and locking it behind her. She awoke the house and then fainted away.

The case of the doorkeeper of Congress, an aged man, who died suddenly on hearing the news of the capture of Lord Cornwallis'8 army, is an instance of death from joy, and there can be no doubt that it was the result of cardiac and not cerebral lesion.

Sweetser reports a case of an Irishman, aged 36, of ungovernable passion. Having experienced various misfortunes during the Revolutionary war, at length on the affairs of France assuming a more favorable aspect, received a pension, but which was immediately taken away from him on the death of the patron by whom it had been procured. Immediately on hearing the news he felt a dreadful heavy weight in his chest. His respiration became fatiguing, and the action of the heart assumed an irregularity which had no interruption during the two and a half years that he survived his misfortune.

On post-mortem the heart was found pale and flaccid; the parietes of the cavities fell together. There was an astonishing contrast between the



flesh of the heart and that of the rest of the body, showing conclusively that it was the diseased organ.

It has been observed by African travelers, among whom are Livingston and Samuel Baker, that when the natives belonging to some of the interior tribes were taken from their homes by force or bribes, that their sufferings from homesickness were intense, and sometimes fatal. Their sufferings were not only mental but physical, for when asked to point out the seat of their evident suffering, they indicated correctly the region of the heart. These same authorities further assert that those who died showed all the evidences of death from cardiac disease.

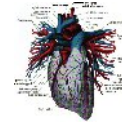
It is well known that the Swiss soldiers sometimes die of homesickness, attended with all the symptoms of cardiac failure.

Dr. M. Ward reports a case of death, which is so remarkable I cannot resist the temptation to quote it in brief. Dr. Ward was called on February 17th, 1870, to a Miss H. He found she had been suffering for several days from fever; had been out the day before. She had recently returned from the funeral of a sister who died from typhoid fever. Her symptoms became rapidly worse, and she died before morning.

A Mr. Filby, a butcher, who lived next door to the above Miss H., who had come for the Doctor shortly before her death, appeared perfectly healthy but very much depressed. He told the Doctor he had never seen any one dead before, and hoped he never should again. He did not go to bed that night, but remained sitting in a chair, and apparently slept well. The next morning he was found slipping down in the chair, and, upon trying to arouse and get him up further in the chair, it was found that he was dead.

A post-mortem revealed a perfectly healthy man; no mark of disease could be found on any part of the body. Dr. Ward gave it as his opinion that it was a sort of gradual cardiac syncope.

A distinguished veterinary surgeon, of cool, well-balanced nerves, consented to having an operation of lithotomy performed. He had had a great aversion and dread of this operation. When the preparations were being made and the usual preliminary examinations, he showed no signs of fear, but when the catheter was being introduced he was observed to become pale and faint, and notwithstanding every effort was made to restore the patient, he died in about ten minutes.



Dr. Currie, of Edinburgh, engaged to perform paracentesis abdominalis in a case of ascites. On entering the room the lady fainted, and on attempting to restore her he found she was dying.

A station master on one of the Italian railways, 55 years of age, in robust health, was awakened one morning with the news that his station had been robbed. Although perfectly healthy the night before, he immediately became sick and died within twenty-four hours. There was utter prostration, spasmodic action of the stomach, with obstinate vomiting, hollow voice, and failing pulse; consciousness continued to the last.

The case coming before the courts, it was decided, "that sudden mental emotion may induce death within a brief space of time, or even immediately, and even in persons of robust health, is a fact freely admitted in science." And that the fact of his not dying for twenty-four hours was no proof that it was not caused solely by the mental emotion.

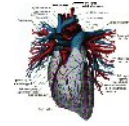
A BROKEN HEART

is no myth. Dr. Murray pays such is the influence of emotions on the heart that a sudden shock has been known to arrest its action or to excite it to an action so turbulent as to injure its valves or their tendinous cords. Those who have read my Lectures on the Heart will remember the cases there reported of actual rupture of the heart and sudden death in cases of persons dying from some great and sudden calamity.

A singular book has been published in England treating of the diagnosis of the crucifixion of Christ, by the eminent London surgeons, William Stroud and Sir J. Y. Simpson. In this they claim that Christ died from a literally broken heart.

Walsh states that a case is on record and well authenticated in which a former rupture firmly filled by a fibrinous coagulum, adherent to the walls of the heart, was found.

It is probable, says Brown-Sequard, that in cases of death from sudden emotion an excitation is produced on the roots of the par vagum, which appear to have their true origin in the neighborhood of the calamus scriptorius, and in consequence the blood vessels of the heart contract and expel the blood they contained, and with it the natural excitant which causes the movements of the heart.



Dr. Carpenter takes the ground that the nerve-force is to be regarded as a polar force, analogous in its mode of transmission to electricity, and that death results from the reversal of the usual direction of this current.

Dr. Richardson says, in regard to cardiac paralysis, the balance between the heart and lungs is broken on the circulation side, and gives several cases to illustrate his idea.

I have brought forward but a small portion of the facts recorded in medical literature, illustrating the influence of the mind over the heart. But enough has been offered, I think, to convince the most skeptical of the actual existence of such influence.

It only remains to us to inquire into the practical value of such established facts. I believe them to be of the greatest importance to the physician, both in the study of the etiology of disease and in therapeutics.

Many cases of cardiac disorder are treated by remedies which only have an action on the blood and nutrition processes, when, if the mental origin was known, no medicine would be prescribed, and the treatment directed to the ministering to a mind diseased. The homoeopathic *Materia Medica* is rich in remedies which have a profound curative action upon a disordered mind. Such remedies, used alone or in conjunction with change of scene, diversion, or properly directed mental influences, will, in a majority of instances, remove cardiac disturbances of an apparently serious nature. But this portion of the subject must be deferred for consideration in another paper.

THE PATHOLOGY AND TREATMENT OF DISEASES OF THE HEART, CAUSED BY EMOTIONAL INFLUENCES.

It will be remembered that I have read before this Society several papers relating to the effects of the will and the emotions on the heart. Without going over the same ground again, I will briefly allude to the *manner* in which the emotions do affect the heart.

HOW EMOTIONS AFFECT THE HEART.

The experiments of modern physiologists, Claude Bernard in particular, show that all sensations act primarily on the nerve-centers, through the nerves reaching from the periphery of the body to those centers. The excitation thus determined in the brain, or spinal cord, is then transferred to the nerve filaments which extend to the viscera and members, and hence the latter are affected only secondarily.



Of all the organs, the heart is the one which earliest and most profoundly experiences the influence of the sensitive excitations produced in the nerve-centers. So soon as any modification is produced in the central nerve-substance, the nerves transmit this vibration to the heart, and at once the movements of the latter suffer a perturbation which is expressed in various ways.

If the ordinary bodily sensations experienced from physical influences thus affect the heart, through the brain and cord, how much more intensely do those mental sensations, caused by purely emotional influences affect that organ, for the emotions affect the brain in a much more direct and immediate manner than the physical sensations. Emotional influences do not always affect the heart in the same manner. In fact, their influence on the heart is as varied and diverse as their influence on the mind.

We say the mind is depressed by grief and excited by joy. In the same manner emotions of sadness or grief so depress the heart's action that it beats with great feebleness, or its motion is almost arrested, causing that condition known as fainting. Joyous emotions, on the other hand, so excite the heart that the frequency of its beats is often doubled.

The heart, says Feruand Papillon, is no more the seat of the sentiments than the hand is the seat of the will; but it is a reactive, which is modified by the sentiments, with the utmost nicety and with infallible certainty.

Is not only does the heart betray by the very disturbance of its normal rhythm the nature of the initial brain excitation, but it also produces throughout the whole organism disordered actions, the sum of which constitutes, as it were, the physical image, the palpable externals of passion. But it produces this disordered action only by reacting on the brain, which is the organ of all the demonstrations and of all the movements in the nerves, and consequently, of the muscles.

It is disbelieved by some, even at this day, that emotional influences can cause long-lasting functional disorder of the heart. Much less is it thought that they may cause structural changes in that organ.

In this connection,

THE STATISTICS OF INSANITY

are suggestive, if nothing else. Dr. Wilkie Burman, who has lately investigated the relations of heart disease with insanity, says:



"Examination of the heart in the living and the dead shows that diseases of the heart are very frequent in persons suffering from mental diseases. In 500 cadavers, 36 per cent. gave a diseased state of the valves and apertures of the heart and aorta; 14 per cent. showed hypertrophy, without valvular disease; 30 per cent. showed hypertrophy, fatty degeneration, and other heart diseases of minor importance; only 20 per cent. gave perfectly sound hearts. Of 680 male patients, 44 per cent. had heart disease. The average weight of the heart is, in both sexes, when suffering from mental diseases, heavier by one ounce than in persons of sound mind. This increase may be ascribed to the valvular morbid states, or to the hypertrophy which is seen in chronic and recurring mania, and in consecutive dementia, often without valvular disease, and most frequently attacking only the right ventricle."

Heart diseases are most frequently observed in patients with hypochondriac melancholy; with the so-called "melancholy with suspicion," causing a suspicious morose disposition, and it appears that the heart disease has some relation to it, whereby the subjective sensations offer a prolific foundation for illusions and delusions. In chronic cases and for advanced mental disease it shows an essential asthenic type, also feebleness in the circulation, cold livid extremities, and a weak, small pulse.

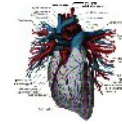
THE CONCLUSIONS.

If these statistics show anything, they show (1) that the presence of heart disease during mental disorder is too common to be an accidental coincidence; (2) that, in a proportion of the cases, the heart disease must have been caused by the mental; (3) that the coincidence of heart disease with melancholy is pretty conclusive that mental depression causes cardiac depression,—a condition which leads to certain forms of structural changes in the heart. I admit, be it remembered, that diseases of the heart may and do cause many cases of insanity. But I must affirm my belief that emotional shocks, or mental influences, may and do cause not only functional but organic heart diseases.

Take, for example, the influence of

FRIGHT, SUDDEN GRIEF,

or other sad and painful emotions. They suddenly diminish the rapidity of the heart's beating, and thus increase the amount of blood discharged from that organ at each diastole; hence the contractions by which it drives the blood into the vessels are very laborious and protracted. In some cases the shock (as from fright, terror, or the sight of blood), may at



once stop the motion of the heart, and as the blood is no longer discharged into the vessels, fainting occurs. This fainting may not only simulate death, but may actually cause it, by rupture of the heart or tetanic and persistent contraction of its cavities. But, if recovery occurs, the heart has received such a strain that it may take that organ weeks and months to recover, or it may not recover at all, but end in structural disease, for it is admitted now by all the best authorities that many functional cardiac disorders may, if persistent for a long time, end in organic disease.

Among the diseases of the heart which may be caused by mental emotions and psychical disorders may be enumerated:

1. Cardiac irritability, angina pectoris, cardiac myalgia, palpitation, and weakened heart; among the purely functional.
2. Hypertrophy with dilatation, and with enlargement, certain valvular diseases, rupture and aneurism; among the organic.

HOW EMOTIONS ACT.

Eight here it may be of interest to inquire, Through what media do emotions act upon the heart? The recent discoveries of M. Cyon afford us a basis for the most probable explanation of the phenomena. The following embodies the results of his researches.

The heart is provided with a number of little, self-acting nerve-ganglia without relations to the brain, from which spring, under the influence of the blood, a certain number of motor impulsions. These ganglia govern the usual normal action of the cardiac apparatus; but the rhythm and force of the beatings are every instant modified by excitations having their origin in the brain. The brain sends out to the ganglia of the heart two sets of nerves: the retardator (pneumogastric) and accelerator nerves. Excitation of the former diminishes the frequency and augments the force of the heart's movements. Excitation of the latter produces the opposite results, increasing the number and lessening the force of the heart's contractions.

Now it is evident that the emotions, according to their

quality and intensity, must affect these two sets of nerves either separately or together. Our next inquiry will be, then,

CAN WE CLASSIFY THE EMOTIONS



and arrange them in such a way as to show those which affect these sets of nerves in a special manner, either to excite or depress.

After considerable study of the action of the various emotions, and guided by such authorities as Tuke, Winslow, Carpenter, and Maudsley, I have ventured to arrange them as follows: (1) Emotions which excite mainly the retardator nerves: Joy, rapture, ecstasy, hope (with faith), pride, courage, love, adoration, wonder, and astonishment, to which we may add anger, rage, and wrath. (2) Emotions which excite mainly the accelerator nerves: Grief, sadness, discontent, disappointment, melancholy, despair, remorse, fear, fright, horror, anxiety, and wonder.

It may be said, in criticism of this arrangement, that we rarely find one emotion acting exclusively at one time. This is admitted, and it is the one chief element of uncertainty that prevents a perfectly satisfactory classification of the emotions. Suppose, for example, that we have joy and anxiety acting at the same time upon the brain. The result would be an excitation of both sets of nerves, causing an increased force with accelerated action of the heart. Again, astonishment from pleasurable causes would act altogether on the retardator nerves; but, if from unpleasant causes, on the accelerators.

Apparently, the most opposite emotions cause similar head symptoms, but when we analyze the nature of the effects, they will be seen to be widely different. Thus joy and terror both cause palpitation, but the former causes increased cardiac action with augmented vital force,—the latter produces an irritative frequency with deficient power. It may be asked, How can

JOY AND FRIGHT

both cause death? The action of an emotion is like the action of a drug. In small and repeated doses, quinine causes a continuous augmented action of the heart, not injurious unless too long continued; while a massive dose acts suddenly, causing cardiac spasm and fatal symptoms. So joy, moderate and continuous, increases the vital manifestations of physical and mental life, but sudden and great joy kills by causing persistent cardiac spasm. Fright or terror may also kill suddenly, either by causing immediate cardiac failure, if the emotion is overwhelming, or destroy life more slowly by producing an irritative frequency which will end in gradual cessation of the contractions of that organ.

Enough has been said to show that we must study the effects of the emotions as closely and in the same manner as we study the effects of drugs on the human organism. We ought, some time, to have carefully



arranged pathogeneses of the emotions, not only that we may recognize the peculiar diseases which they cause, but that we may use their influence as remedial agents for the removal of similar disorders.

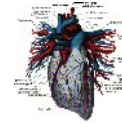
THE TREATMENT.

We come now to the treatment of those disorders of the heart caused by the emotions. What is the first principle which should guide us in selecting the medicine, after we have prescribed the proper hygienic rules? The tenets of our school of practice give us the following laws, namely:

(1) The medicine chosen must be one which is capable of causing in the healthy a condition and symptoms similar to each special case.

(2) The origin and direction of the medicinal force must be similar to the origin and direction of the original morbid force. This latter rule I consider of the utmost importance. Allow me to explain: In a case of irritable heart, when you have traced the cause to be excessive, unexpected joy, the emotion first affected the brain through the soul. This shock was transmitted by the pneumogastric nerve to the heart, which it caused to palpitate violently, with increased force, as well as increased frequency. An irritation of the cardiac ganglia was set up, rendering that organ more susceptible to any and all emotions. This irritability may become permanent and possibly end in structural disease, unless it is arrested. In selecting the medicinal remedy we must select one whose pathogenetic action begins in the brain, and in that portion of the encephalon which presides over the transmission of joyous and all other exhilarating emotions. The medicinal or drug force, starting from that locality, when transmitted to the heart, must be capable of causing the peculiar kind of irritability which we find in the patient we are treating. Hahnemann and all his most scientific followers have recognized this rule, and when strictly followed it has resulted in some brilliant cures. Those who restrict themselves to covering the totality of existing symptoms will find the cure of their patients tedious and unsatisfactory.

Another rule I would add, of equal importance with the above, namely: When the primary symptoms of the case resemble the primary symptoms of the medicine selected, prescribe that medicine in the high attenuations. When the secondary symptoms of both the medicine and the disorder are coincidentally present, the dose should consist of appreciable, or material, quantities.



THE MEDICINES.

We will now enumerate the medicines which will be found useful in cardiac affections from emotional causes, but in order to have a clear understanding of their action we shall compare the pathology of the emotions with the pathology of the medicines, namely:

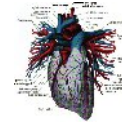
The emotions of joy, rapture, ecstasy, hope, pride, courage, anger, rage, wrath, love, adoration, wonder, and astonishment, all stimulate and irritate the retardator nerve and increase the force of the heart's action. Excessive and sudden joy, anger, and rage over-stimulate the retardator nerve and cause sudden death by cardiac spasms. Of medicines, Ammonia, Agaricus, Cinchona, Coffea, Crocus, Cactus, Camphor, Belladonna, Digitalis, Hydrocyanic acid, Lycopus, Laurocerasus, Ignatia, Nux vomica, and Cannabis indica, all stimulate the pneumogastric or retardator nerve and augment the force of the heart's contractions. Of these, Cinchona (and Quinine), Camphor, Belladonna, Digitalis, Hydrocyanic acid, Nux vomica, and Ignatia, if taken in massive doses, are capable of over-stimulating these nerves to such a degree as to cause sudden death by cardiac spasm.

It follows, then, that among these medicines you will find the remedies for the cardiac disorders consequent on the morbid effect of those emotions which irritate and over-stimulate the retardator nerve. In our old repertories you will find many of these mentioned as having been recommended by Hahnemann and others.

AN ILLUSTRATIVE CASE.

As an illustration of the proper method of treating a case of prolonged cardiac hyperesthesia from the combined effects of excessive joy and anxiety, I will narrate one that came under my care a few mouths ago.

A young married woman applied to me for the relief of an unpleasant nervous feeling in the chest, not amounting to pain, but an "uncertain, weak, weary sensation," as she expressed it. She was subject to alternate feelings of depression and exhilaration; a strange sensation of sinking, and emptiness in the pit of the stomach; the heart's impulse was feeble, its rhythm not disturbed, but the pulse-beats were small, soft, and averaged 100 to 110 per minute, even when lying down. Here were symptoms which appeared to call for Collinsonia, Lycopus, Prunus, and some others, but the history of the case revealed the true similitum. She had always been strong and healthy, but, during the civil war, her affianced was in the army during its most perilous campaigns. On several occasions rumors of his death reached her; on one occasion she



did not hear from him for several months. Meanwhile it was supposed he was starving in the prison-pen of Andersonville. All this time her heart was being irritated and weakened by the emotions of anxiety, grief, and despondency. How true the ancient adage, "Hope deferred maketh the heart sick." At last, when she had nearly given him up for dead, he suddenly appeared before her; but wan, and thin, and pale—a mere shadow of his former self. The shock was sudden and overwhelming, not of joy alone, but mixed with astonishment, pain, and sorrow.

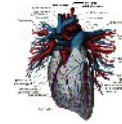
As we rarely find among the sick an affection of one organ and tissue alone, so do we rarely find cases where one emotion, unmixed with others, exercises its specific, uncomplicated influence. In this case, however, joy was the one predominant emotion. Her heart, already weakened and irritated by grief and anxiety, succumbed to the excessive stimulation of joy, and cerebral congestion, throbbing temples, loud hysterical laughter, followed by spasmodic weeping, and a sensation "as if the heart was trying to beat painfully in a cage," as she expressed it, ended in a nervous erethism which had never left her, although she was happily married and situated pleasantly in life.

The remedy in this case proved to be Ignatia. It covers all the symptoms and conditions, and also simulates the history of the disorder. One dose of a high potency was given and allowed to act a week. This was followed by doses of the lower attenuations, three times a day, and she was cured in a month.

IN ANOTHER INSTANCE,

occurring in a healthy woman, where no previous anxiety had weakened the heart, the unexpected news of great good fortune caused a condition of extreme nervousness, with strong, quick palpitation of the heart, sleeplessness, and cerebral erethism. Here the remedy was Coffea; a few doses of a lower attenuation promptly arrested the cardiac excitation after it had continued a week, notwithstanding the use of morphine and other anodynes.

The emotions of grief, sorrow, anxiety, expectation, discontent, melancholy, despair, remorse, fear, fright, horror, and astonishment, all stimulate chiefly the accelerator nerve and quicken the heart's action, while they decrease the force of its contractions. Of these, grief, fright, terror, expectation, anxiety, and fear have caused death, from cardiac paralysis. The heart in such cases is found relaxed, flaccid, and its cavities uncontracted. Of medicines, Aconite, Arsenic, Calabar, Chloral, Cimicifuga, Crotalus, Gelseminum, Iberis, Lachesis, Phosphoric acid, Platina, Veratrum album, and Veratrum viride irritate the accelerator



nerve, and weaken the heart. Of these, Aconite, Calabar, Chloral, Lachesis, and Crotoalus, are capable of causing sudden death from cardiac paralysis.

It would not be proper in a paper of this scope to give the special indications for each remedy. Such indications are to be found in our text-books on materia medica. I will, however, give

TWO TYPICAL CASES

as illustrative of the effect of medicines in the treatment of cardiac weakness.

A weakly young man, at the time of the great fire, awoke suddenly to find his room in flames, and no apparent means of escape. He was seized with an overwhelming terror, which caused profound syncope, and he was taken from the floor of his room apparently more dead than alive. It was many hours before he rallied from the shock, and then his mind and body both appeared hopelessly enfeebled. When I first saw him, it was several weeks after that fearful night, but his face still wore a look of settled fright, mingled with terror. His skin was cold and clammy. Any reference to the fire caused a cold sweat to break out on his forehead and hands. His pulse was small, weak, and quick, the heart's action feeble, quick, and incomplete. His appetite was quite good, and there was no particular abnormal condition of the digestive system. Here was a case that called for Aconite, and a few small doses restored him to health in a very short time.

A young and blooming farmer's daughter met with a severe disappointment in her affections. Her lover left for parts unknown. Weeks and months passed and no tidings. She did not weep, or make any outward demonstrations of grief, but her color faded, her plumpness disappeared, the extremities became cold, a dry, hacking cough set in, her breathing became shallow, dyspnoea occurred on the slightest exercise, and her mind became obtuse. She seemed all the time brooding over her sorrow, but no sighs or tears escaped her. She ate when food was set before her, but expressed no desire for anything but to be allowed to be alone. The heart beat feebly and quick, and the pulse was almost imperceptible.

You will all recognize this as a case calling for Phosphoric acid, whose deep-seated and profound depressing effect on the nervous life of the heart made it the specific remedy in this case. A few drops of the third attenuation in water, three times a day, removed all the physical symptoms in a few weeks, and even the mental condition became more



hopeful. After the medicine had nearly restored her, her recreant lover returned and finished the cure.

I ought to mention another class of remedial agents whose action appears to be soothing and calming to both sets of nerves above-mentioned. ' They are Ambra, Castoreum, Asafotida, Cocoa, Scutellaria, Guarana, Cypridium, Valerian, and Zinc.

STRENGTH OF THE HEART.

Before we pass to the hygienic treatment of the disorders herein mentioned, we may as well try and answer the pertinent question, Why is it that the heart is affected abnormally by the emotions? The heart, in its normal state, should have the same relative strength possessed by the general muscular system.. It is the systematic use, and not the irritation, of a muscle, that gives it strength and endurance. That great muscle constituting the heart can, under proper use, become one of the strongest in the human body. But it requires, to make it strong, plenty of fresh air, free from carbonic acid; regular, active exercise; at least eight hours of good sleep, and the avoidance of alcoholic stimulants, impure tea and coffee, tobacco, narcotics, an abuse of the passions, all the depressing emotions, and even an excess of those which are exhilarating. How many American men and women in this year of Our Lord live up to these requirements?

Generally the foundation for cardiac debility is laid early. Beginning in infancy the young child is improperly dressed and improperly fed. It is allowed unnatural condiments and food before it should be weaned from milk and bread. It is placed in schools, and its tender brain crammed with the rubbish of dead languages, when it ought to be in the fields or gardens gathering flowers; or romping in untrammelled freedom. Of all persons

THE WOMEN OF THIS COUNTRY

grow up with the weakest muscular structure, and consequently the weakest hearts. Place your finger on the pulse of the average schoolgirl attending a fashionable seminary or academy, or the ordinary woman of fashion, you will find her pulse small, soft (or wiry) and very unequal. Her heart beats in the same manner, unless she is under the influence of some abnormal excitement. Her extremities are cold and blue, and a general languor pervades the whole body. What has brought all this about? From childhood she has lived in hot, close rooms, in an atmosphere containing a large percentage of carbonic acid. She eats but little meat, milk or bread, but largely of cake, preserves, confectionery,



and other improper nicknacks. She reads trashy novels, every page of which calls up emotions and passions which excite her mind and brain. The heart becomes weak and irritable, and in time it acts unfavorably upon the brain, rendering it excitable and susceptible to the very emotions most injurious to its integrity and vitality.

Compare this picture with that of the robust and healthy schoolgirl in the country or village, or a woman in any position in life, whose physical training has had in it some element of common-sense. Or, we will say, some servant-girl of Irish, Scotch, or English descent, or an American farmer's daughter who is not too proud to work. How firmly the pulse of such a person beats under the finger! It seems to lift and throb with a strong vitality, and its rhythm is like the steady step of a trained soldier. We know that the heart which thus sends the blood into the arteries is strong, enduring, and full of vitality.

The above pictures are applicable to men and women of all ages and conditions in life. The former class are susceptible to the malign influence of emotions which would not affect the latter abnormally. The healthy heart, strong and steady, is not affected unpleasantly, or provoked to disordered or painful action any more than the trained pedestrian is affected unpleasantly by a walk of a few squares.

In conclusion, allow me to assert that we ought to teach that the heart, as well as the brain, or the muscular system in general, requires regular systematic exercise and training, in order that it may have ordinary immunity from abnormal emotional influences.

ON THE RELATION OF SUDDEN DEATH TO CARDIAC DISEASES.

POPULAR fallacies are not confined to the public. Certain fallacious ideas concerning special subjects become popular with and gain advantage in the various professions.

For example, there are certain popular medical fallacies which cling to the medical profession as well as to the people; and although the best authorities on medical topics announce repeatedly the erroneousness of such belief, they retain their hold on the popular and professional mind with a singular pertinacity. For this state of things a portion of the medical profession is to blame. Some physicians are prone to pander to popular and vulgar beliefs, however groundless they may be. We all know how dangerous it is for the young physician, or one who has not gained for-himself a position as an authority, to set up his opinion against that of the masses, or even the dictum of an ignorant but dogmatic nurse. For



these, and many other reasons, certain opinions relating to sudden death, not supported by absolute proof, are very prevalent, much to the detriment of true science.

It is my purpose in this paper to allude to but one of these popular fallacies, and solely for the purpose of disabusing the popular mind of its supposed truth. I refer to the prevalent idea that sudden death is generally caused by some form of disease of the heart.

It is the habit of the public, when a case of sudden death occurs, not directly traceable to some acute disease, and when the immediate cause is not perceptible to the senses, to ascribe such sudden dissolution to disease of the heart. In the popular mind but few other causes are sufficiently potent to produce rapid dissolution of life in a man in apparent health, or even during the progress of known chronic disease. With physicians, who should be peculiarly careful as to an opinion in such grave cases, the same habit of ascribing to cardiac disease all sudden deaths which they cannot immediately account for is altogether too prevalent.

In fact, heart disease is too often made the scapegoat upon which is loaded the results of ignorance and insufficient investigation. Let a man fall dead in the crowded street, or at his own table, or he found dead in his bed, and the physician who is called in seems to have no hesitation, in the majority of cases, to ascribe the cause of this sudden death to heart disease. The alleged cause is then proclaimed in the papers, and as such it is reported to the Board of Health, and thus placed upon the records.

What grounds had the physician for giving such an opinion? Was he conversant with the history of the deceased? Did he make a post-mortem examination.

In the great majority of instances no adequate inquiry is made concerning the history of the patient, and in but very few cases is any post-mortem examination made. The opinion is given because it is the easiest made, is the most plausible, and one with which the family are best satisfied. I do not hesitate to say that such an opinion, unless based on positive knowledge, is a subterfuge of ignorance and indolence, and a disgrace, and reproach to the medical profession.

And it is more than this. It is a positive injury to the health and happiness of the people, especially those who are connected with the victims of sudden death; and actually endangering the lives of those who suffer from cardiac diseases.



To the former class the dread of a similar unheralded and sudden death becomes a nameless horror which haunts them all through life, and nothing is more difficult for the physician than to treat that class of sufferers. A slight illness is sure to be accompanied by mental depression, attended by such a dread as to render their lives miserable in the extreme.

I propose, in order to establish the above assertions, to take up and consider briefly the principal diseases of the heart, and their liability to cause the accident of sudden death.

Beginning with the inflammatory diseases, let us inquire into the circumstances under which death occurs. Is it sudden? On the contrary, dissolution is usually attended by prolonged suffering, a gradual failure of the heart's vitality, and an unmistakable struggle. Only in rare instances, and those readily avoidable, does a sudden death carry off the patient.

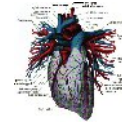
In pericarditis, paralysis of the heart may sometimes occur

suddenly, and to a certain extent, unexpectedly, as when the patient, through carelessness of orders, or the inattention of attendants, makes some violent and sudden motion.

In endocarditis, the danger of sudden death is still less, indeed, it rarely occurs, unless the muscular structure is involved, when cardiac syncope, with sudden arrest of circulation, may occur from imprudent exertion or ineffectual treatment.

Next in order are the functional disorders of the heart, in which it does not seem possible, nor is it probable, that sudden death could occur through any fault of that organ. Even in angina pectoris, not due to organic disease, when the agony is fearful and the collapse great, sudden dissolution is the rarest of incidents.

Even granting that death may sometimes occur from the *shock*, as it is termed—for it is well known that in certain debilitated constitutions *pain* alone, by its intensity and severity, may destroy vitality very rapidly—how are we to know absolutely that the *pain in the heart* caused death? There are other thoracic pains which are fully equal in intensity to cardiac neuralgia. It has been supposed that there are such conditions of functional disorder of the heart as choreic convulsion, tetanic spasm, irregular contraction, and the like, which might cause rapid dissolution. But this is not fully proven. The heart is often found rigidly contracted



after death, but this is generally *rigor mortis*, and not a true pathological state, occurring previous to death.

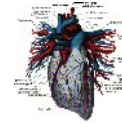
Right here I would like to demolish one of the most common of the popular fallacies relating to the heart, namely, *that it is a delicate organ whose vitality is easily destroyed*. On the contrary the heart is more tenacious of life than any organ in the body. It will go on with its work when all other organs have lost their integrity, or when its own integrity is impaired to a degree that seems wholly incompatible with its own vitality. It will even go on beating when taken out of the body, and after it has ceased to beat for hours, it may be irritated by electricity or galvanism, and commence beating again, from a strange latent vitality. The wonderful tenacity of life possessed by the heart is best seen in those organic or structural diseases in which great and important changes have taken place in its walls or valves.

The walls of the heart may become so thick that the organ becomes monstrous in weight, or so thin that they are attenuated to the last degree. In the former (hypertrophy from enlargement), death rarely occurs suddenly from the immediate consequences of the enlargement. If the patient should be of apoplectic habit, the enlargement might aid in bringing about an attack, but the resulting death could not properly be said to be due to the cardiac disease.

In the latter (hypertrophy by dilatation) death does sometimes occur suddenly, not unexpectedly by any means, but from sudden paralysis or rupture of the attenuated muscles. But nothing more astonishes the physician who sees much of cardiac disease than the length of time patients live with attenuated hearts, and the exertions they will undergo, necessary and unnecessary, without suddenly destroying the motive power of this wonderful organ.

It would seem that so long as there exists sufficient muscular fibre to force the blood out of the ventricles, the heart will go on beating in spite of all our predictions to the contrary.

Valvular diseases of the heart are rarely the immediate cause of death, and still more rarely do they cause *sudden* death. Prof. Tully likens the heart to a force pump, and observes that "it may be a very poor heart, but a pretty good pump." In other words, it will keep up the circulation of the blood long after its machinery is greatly deranged. Death from valvular disease occurs from the arrest of function in other organs, namely, the kidneys, lungs, or brain, or from the deposit of *emboli* in important arterial trunks. In only one or two instances can sudden death result. An embolus may plug a cerebral artery, thus cutting off* the



supply of blood to the brain and cause sudden and fatal coma and paralysis, or it may obstruct one of the great arteries leading from the heart. What are sometimes called polypi of the heart are of this nature, large fibrinous masses, which sometimes completely fill one of the heart's cavities, causing sudden arrest of its contractions.

Prof. Meigs, in his treatise on obstetrics, mentions this liability to the formation of fibrinous clots within the heart. especially during the puerperal state, when from loss of blood the circulation becomes so enfeebled that the blood accumulates and stagnates in the cavities. This author accounts in this way for the cases of sudden death after childbirth, and during syncope induced by assuming suddenly the erect posture after profuse hemorrhages.

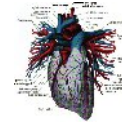
One of the most common causes of sudden death is *rupture of the heart*, but this accident is of very rare occurrence. It usually occurs from softening, or fatty degeneration; from abscesses or ulcerative perforation, or from aneurism or attenuation of the walls of the heart. The immediate cause in such cases has been usually ascribed to great mental excitement, anger, grief, or to sudden physical exertion, but Dr. Hallowell has collected *thirty-four* cases of sudden death from rupture of the heart, and it is a singular fact that in the large proportion of cases the patients were in a state of repose when it took place.

Death generally follows the rupture almost instantaneously. It is rare that any struggle follows the breakage of the walls.

The common phrase, "died of a broken heart," is not a mere myth, as some have asserted, for rupture of the heart walls, from sudden and overwhelming grief, has been known to occur.

In fatty degenerations, sudden death oftener occurs from cardiac paralysis than from rupture. The muscular fibres are so far replaced by fat that not enough are left to propel the blood out of and contract the cavities.

The fallacy of referring all cases of sudden death to disease of the heart is well shown, if we consult any standard work on pathology, where it will be found that it may be brought about by very many other conditions, namely, diseases of the brain of an apoplectic character; spinal and cerebro-spinal congestion and extravasation; the bursting of internal abscesses and aneurisms; internal hemorrhages, and even severe mental shocks. It may also be caused by the lightning-stroke, excessive heat (sun-stroke), various injuries of an unknown nature, the action of poisons like prussic acid, and the venom of serpents.



I will venture to assert that if we could get trustworthy statistics, the ratio of sudden deaths from heart disease, compared with those arising from other causes, would not be greater than three to ten !

Now, to briefly recapitulate. The causes of sudden death from heart affections may be divided into *three* classes: I. From paralysis of its muscular structure. II From rupture of its walls. III. From mechanical arrest of its movements by clots, polypi, etc.

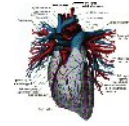
The instances of sudden and fatal cerebral or pulmonary apoplexy from heart disease are so rare that we may waive their consideration. Sudden paralysis can only occur from excessive attenuation of its walls, in debility from excessive loss of blood, during convalescence from typhus or other enfeebling diseases, from softening or fatty degeneration, or during acute pericarditis.

TREATMENT.

It comes properly within the scope of this paper to suggest the treatment of those cases where the appearances indicate that sudden death will occur during the progress of cardiac disease. In cases of threatened paralysis, from whatever cause, the assistance must be prompt and energetic. First of all the patient, must be placed in the recumbent position, upon a level bed or floor (the head not elevated), and on the right side, if on either. Then we must immediately give the most rapidly acting cardiac stimulant we possess. Alcoholic spirits, will do, but I prefer the *volatile Ammonia* to all others. The aromatic spirits should be administered in suitable doses until the pulse and heart-beats show that the patient is out of danger. Next to Ammonia, and more efficacious as a true remedial agent, is Digitalis, in material doses. If possible I generally give both remedies in rapid alternation.

In such cases do not be afraid of Digitalis. It is not the depressing agent it was decreed to be by our predecessors, but a true cardiac tonic, capable of saving life when all other medicines are useless. Cases may occur, however, where Camphor, Veratrum album, Veratrum, Gelsemium or Arsenicum are the appropriate remedies.

In rupture of the heart there is no time to use medicinal agents even if they could be of value, for the death is as sudden as it is inevitable. The same may be said of those mechanical impediments called polypi, heart-clots, and fibrinous concretions. The moment they form of sufficient size to block up the great arteries, or arrest the cardiac contractions, no human interference can save the victim.



In conclusion I feel called upon to declare that it is a duty which physicians owe to themselves, to the profession, and to the public that they decline to give an opinion as to the cause - of sudden death, unless their previous knowledge of the pathological condition of the deceased, or an actual post-mortem examination of the body enables them to give a positive opinion as to the cause of death.

And it is also the duty of the constituted authorities, the members of the Board of Health, to refuse to receive reports ascribing sudden death to heart disease, or any other alleged cause; unless they are fully satisfied that the physician has investigated the condition of the patient, before or after death, in a competent and scientific manner. The neglect of such an evident duty, has often resulted in the covering up of gross ignorance or a terrible crime.

COLLINSONIA IN IRRITATION OF THE CARDIAC NERVES.

THOSE physicians who are familiar with the history of the introduction of the Collinsonia as a remedy in the homoeopathic school, are aware that it was first mentioned in the first edition of *New Remedies*. In the second edition an additional proving, by Dr. Burt, was published, which proving verified many of the symptoms previously given. Mention was also made of a discussion before the Western Institute of Homoeopathy, relative to its use in cardiac affections. Several physicians testified to its value in disordered action of the heart.

On page 258 of *New Remedies* will be found a report of the curative value of Collinsonia in a case of pulmonary hemorrhage. It is to be regretted that the condition of the heart and circulation was not mentioned, as it might have thrown some light on its action in such cases. Is it not probable that

it assisted the hemorrhage by virtue of its homoeopathicity to irritation of the heart with too great action?

Since the publication of *New Remedies*, in 1867, much additional experience with Collinsonia in cardiac affections has been published; principally by the Eclectic school, and some valuable clinical observations by our own.

The most valuable contribution to the clinical history of Collinsonia has been from the pen of Dr. M. M. Fenner, of New York, and published in the Proceedings of the New York State Society (Eclectic). He states that he has found it most useful in that condition known as "irritation of the cardiac nerves."



"Every practitioner," he says, "is familiar with cases of excited actions of the heart, that he could not refer to any palpable cause. It is common in one's daily practice to meet with perturbations in the rhythm of this great centre of the circulation, but it is usually not difficult to find the offending cause."

The *causes* of this affection are derangements of the digestive organs; abuse of stimulating liquors and condiments; derangements of the portal circulation; excesses in venery; mental emotions; or any causes which impair the integrity of nerve-tissue.

THE SYMPTOMS.—Idiopathic cases of this affection may occur, in which the abnormally and persistently increased action of the heart may be all that may be discovered.

But it is generally a sympathetic affection, arising from reflex irritation, transmitted from disorder of the stomach, lungs, uterus, and other organs.

The more common symptoms are *pressure in the praecordia*, a feeling of fullness in the chest or heart, or both. Dr. Fenner says it is always—so far as he has observed it—*periodical*, perhaps intermittingly so at first. The pulse beats rapidly, full, and strong, sometimes reaching as high as 140 beats in a minute, but more often about 120. Generally, more or less of oppression and pain exist in the chest, sometimes with a feeling of faintness.

Any unusual stir, or the appearance of strange faces, will usually increase the rapidity of the pulse, and aggravate all attendant symptoms in a marked manner. So much is this the case that the patient will live in constant dread of hearing or seeing something new. This condition is quite common in women suffering from spinal irritation or uterine disorder.

After a full meal, the taking of stimulating drinks, or any other circumstance calculated to excite vital action, all the symptoms will become temporarily aggravated. *During sleep*, on the contrary, the patient becomes comparatively quiet, with respect of cardiac pulsations, until the latter stages of the disease, when even in this state of repose he shows the abnormal cardiac action. The irregularly periodic action becomes a sustained effort.

Thus the disease continues until the sufferer is worn out by the continued exalted action. He becomes emaciated and effeminate; distressingly sensitive to all external impressions. There seems to be no



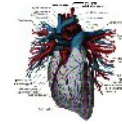
tendency to spontaneous subsidence of the symptoms, and recovery. The disease once established, from whatever cause, seems to be self-sustaining, and continues, although the cause may disappear, until relief is obtained by treatment, or death claims his victim from this alone, or the conjoined effects of this and some supervening disease.

This affection has yet hardly a place in the established nomenclature of diseases. Watson mentions it under the head of "irregular action of the heart." He says: "Besides these over-strong or irregular movements, which are symptoms of disorder of the stomach, *there are palpitations* of a purely nervous kind; I mean they depend upon a peculiar and highly sensitive condition of the nervous system."

In Scudder's Practice (Eclectic) there is a section devoted to "Excited Action of the Heart," and referred to as a symptom of: 1st. Derangement of the circulation; 2d. Derangements of contiguous viscera; and 3d. Irritation of the cardiac nerves. Dr. Handfield Jones, in his excellent work on "Nervous Disorders," gives, under the head of "Cardiac Neurosis," a full description of this affection, illustrated by numerous cases. He would call the disorder "Cardiac hyperesthesia." He says: "A common form of cardiac neurosis is that when the action of the heart is much accelerated, varying from 110 to 140 in the minute in the standing position, and not falling much below the former figure in the sitting. The contractions are abnormally sharp and vivid; the organ seems to spring up with a quick, forcible leap against the ribs. The apparent excess of action misleads the practitioner sometimes to suppose that there is hypertrophy. Percussion, however, shows that no enlargement exists, and auscultation detects no vascular bruits, nor derangement of the rhythm. The feeble stroke of the radial pulse often contrasts markedly with the vivid action of the heart. The general condition of the patient exhibits, more or less, indications of debility." Dr. Jones considers the excessive use of tea to be the principal cause of this condition.

My own experience in this affection has satisfied me that it often has its origin in spinal irritation, either reflex or idiopathic. It may have a rheumatic origin, in which case it might be called a "rheumatic neurosis."

According to Bezold, the nervous centre of the cardiac movements furnishing three fourths of the entire propulsive force of the heart, occupies the cervical region of the cord, including the medulla oblongata, and extends as low as the fourth dorsal vertebra. Its fibres run through the cervical spinal cord, and pass out between the seventh cervical and fifth dorsal vertebra, probably passing through the lower cervical and upper dorsal sympathetic ganglia and proceeding to the heart. If we



suppose a rheumatic disorder, assuming the form of intercostal neuralgia, it is not difficult to understand how, by extending backwards and involving the origins of the upper dorsal nerves, it might induce a rheumatic neurosis of the cardiac nerves, resulting in hyperesthesia.

I have often found in cases of excited action of the heart a tenderness of one or more of the cervical or dorsal vertebrae, or a tender spot on one side or the other of the spine.

TREATMENT.

Before proceeding to the examination of the value of *Collinsonia* in this affection, we will make some inquiry into the treatment usually adopted.

Handfield Jones, who may be considered the best allopathic authority, says: "The treatment of cardiac hyperesthesia is too often unsatisfactory, probably because it is impossible to obtain rest for the organ. An irritable brain or stomach may be soothed by giving them timely repose, but we can do this but very partially with the heart. Belladonna plasters are generally useful. Internally, I have seen most benefit from tincture *digitalis*, fifteen minims a day, but I am not altogether satisfied how far it is quite safe to give this drag in states of cardiac excitement. In conditions of cardiac languor I have no fear of it, but in the opposite I think we must be cautious "

[*Digitalis* is doubtless homoeopathic to cardiac hyperesthesia, but only when it depends on a secondary condition characterized by loss of tonicity. In this condition it may be given in the lower dilutions with success.]

Dr. Jones also suggests *Opium*, Nitrate of Silver, *Aconite*, and Hydrocyanic acid. In another place he says all nerve tonics tend to decrease and strengthen the action of an excited and weak heart. This is doubtless the case owing to the fact that primarily all tonics increase and excite the action of the heart to an abnormal degree, while secondarily they cause an irritable and weak condition of that organ.

Various remedies have been recommended and used successfully for this condition. Iron, especially the iodide of iron, has been found useful. The bark of the wild cherry (*Prunus*) has a specific effect on the heart, especially when its action is rapid, weak, and irregular. *Lycopus virginicus* is useful in moderating excessive action, and will probably be found curative in cardiac diseases, with exophthalmia.



Dr. Fenner, above quoted, says the specific remedies for this condition are *Cactus grandiflorus*, in doses of 10 to 20 drops of the tincture three or four times a day (he acknowledges that he gets his information from homoeopathic sources). *Pulsatilla*, *Collinsonia*, and *Lobelia*, in non-nauseating doses, are also claimed to possess specific powers over cardiac irritation.

The homoeopathic treatment of irritation of the cardiac nerves has never been fully elucidated, nor the specific indications given for *the* use of our remedies. It is obvious that we must be guided by the pathological condition, as well as on the totality of symptoms, modified by those *characteristic* indications which are sometimes so useful in practice.

A careful study of the heart symptoms given in the *Repertory to Jahr's Materia Medica*, will afford a comparative analysis of the remedies we have at our command.

It is probable that all those medicines included in the Aconite group, viz., *Gelsemium*, *Veratrum viride*, *Veratrum alb.*, and *Cactus grand.*, are in many cases homoeopathic to this malady. *Digitalis*, *Hydrocyanic acid*, *Kalmia*, *Laurocerasus*, *Prunus*, *Thea*, *Tabacum*, may each be found useful if we select them with a full knowledge of their pathological action.

My experience leads me to prefer *Cactus*, *Digitalis*, *Lycopodium*, and *Collinsonia*, as being most generally useful in this complaint.

DIGITALIS has succeeded best in my hands when the excessive excitement was an idiopathic affection consequent on nervous depression secondary to some excitement; or was the result of previous inflammatory action in the system which left the heart itself in a debilitated condition, or hypertrophy with thinning of the walls; or was caused by loss of fluids, or was present in convalescence from acute disease.

CACTUS is most useful in affections of the motor and sensory nerves; when the increased action alternates with spasms of the tissues of the heart, and congestions of the head and chest occur as complications or results.

COLLINSONIA, although it has been of great value to me in this disorder, has not been sufficiently subjected to physiological experiments on the health to enable us to explain its method of action. It is a little strange that Dr. Burt did not observe any cardiac symptoms; nor have those patients who have been treated by large doses observed any derangement of the heart. It may be that it should be proven in the higher potencies in



order to bring out these cardiac symptoms which certainly appear to belong to it, if we can judge by its curative action.

Dr. Fenner says: "I have tried as yet only the Collinsonia, not having had occasion to go beyond this agent for the relief of this affection. In every instance in which I have used it improvement has followed its administration." He gives it in doses of 10 to 30 drops every three or four hours, if the case demands. I have not found it necessary to use more than 5 or 10 drops of the first decimal dilution. The symptoms cured by Dr. Fenner are these:

Periodical spells of faintness and oppression.

Pulse 140 per minute, steady and quick.

Attacks of syncope, with fullness of the chest and difficulty of breathing.

The slightest emotion or excitement of any kind would aggravate the symptoms.

Pulse very strong, 128 per minute, and intermittent.

Severe attacks of dyspnoea, with great weakness.

We shall not venture to theorize on the probable method of action of this remedy, but it will do no harm to place before the physician some facts relating to its effects on disease.

I. It relieves headaches consequent on suppressed haemorrhoidal discharges—at least under its action the hemorrhoids return and the headache disappears.

II. In preliminary hemorrhages the Collinsonia arrests the bleeding, but brings back the haemorrhoids which existed before the hemorrhage.

III. In cardiac disorders, such as palpitation, irregular action, and excessive action, this remedy relieves; but under its action haemorrhoids appear, or a suppressed menstrual flow returns.

These three facts seem to show that the reflex action on the nerves controlling the circulation are in some way controlled by Collinsonia in a remarkable degree.

The symptoms existing between congestion of the pelvic viscera and the heart, are always worthy our attention. Collinsonia is not inferior to



any remedy when this complication obtains. In such cases it is the rival of *Aloes*, *Aesculus*, *Nax vomica*, and *Sulphur*.

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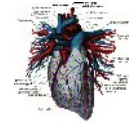
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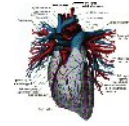
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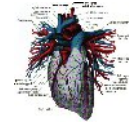
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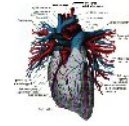
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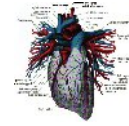
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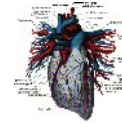
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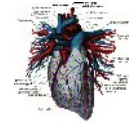
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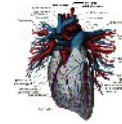
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