

as our knowledge to-day extends, seated in the cardiac ganglia. It may be of reflex origin, or dependent upon some remote disease of the genito-urinary system, especially in women. Such are those cases which are found with a prolapsed or displaced womb, or with an ovary the seat of chronic inflammatory change. Further, functional trouble of the heart may be closely allied, or connected with, all those different pathological changes as they effect the blood, the central nervous system, and the stomach. Finally, we have "irritable hearts"—hearts which are weary and worn, owing to the cares and anxieties of life, to long night-vigils, to overwork, both mental and physical. In this latter category we shall have to consider the hearts which have become irritable in men of the best type—in those who strive and struggle for their own and others' rights or happiness, and who are the prey, as it were, of their personal self-abnegation and sacrifice: such an one, at times, is the overworked and too conscientious family practitioner. Functional disturbance of the heart is marked by cardiac palpitations. These palpitations may be violent and accompanied with strong, rapid pulsations, or they may be moderate and conjoined with weak and slow beats of the radials. Almost always with an attack of cardiac palpitations, we have a lack of regularity or proper rhythmic succession in the cardiac sounds. Palpitations may be brought on by more or less physical exertion, as the fact of going upstairs, or lifting a weight of some magnitude. Again, they may be brought on by an incident of an emotional character, which has disturbed greatly the nerves which govern the heart's normal movements. Too often they come on without assignable cause and at times when one might least expect them. In the middle of the night a patient is frequently awakened from a peaceful sleep and is suddenly tormented with most distressing palpitations, and at the same time very gloomy forebodings. This condition is encountered particularly, however, with persons passed middle life, who have somewhat enlarged hearts and atheromatous arteries. They have, when they awake, an attack of true cardiac asthma. In searching for the proximate cause, we shall be able at times to affirm that it lies in a dyspeptic condition. The stomach is at fault, and when its deranged digestion is quiet and better ordered, the attacks of cardiac asthma are cured. You all know of the disease described by Graves and Basedow—of the three principal classes of symptoms: first, those which pertain to the prominent eyes; second, those belonging to the enlarged thyroid gland; third, those which are annexed to the overacting heart. In such patients there is no counting the pulse accurately with the fingers at times, so fast does it go. Well, this disease is by some located in the sympathetic system, and it is this location, doubtless, which explains the rapid cardiac contractions. Of course, all heart trouble in this disease is not purely functional, for we find in its advanced stages that the

heart becomes enlarged—how much owing to continued overaction, I am not wholly prepared to say. In an analogous category with Graves's disease come those murmurs at the apex, and rapid, irregular beats of the heart which are met with in chorea. We can but attribute these symptoms to the want of synchronism about contraction of the intrinsic cardiac fibres, and particularly of the muscoli papillares. And now I wish to draw special attention to the condition known as "irritable heart." This name was first given to it in our late civil war, by Prof. Da Costa, of Philadelphia, and to those who wish an interesting and highly scientific consideration of an important subject, I refer them with strong emphasis to his writings in the United States Sanitary Commission Reports, 1867, in the *Am. Jour. Med. Sciences*, 1871, and in the Toner Lectures for 1874.

Such reading will be very profitable, for it will be noted and acquired that what was a frequent form of disease in the army, owing to overmarching, to diarrhoea, to fevers, is also becoming frequent in civil life, owing to tobacco, tea-drinking, sexual excesses, and inordinate physical exercise in the way of dancing, rowing, and baseball. Under this name is included what Fothergill has described as "hyperæsthesia" and sub-paralysis" of the heart. This affection is marked by irregularity of the cardiac rhythm, overaction of its movement, pain in the precordial region, and a feeling of faintness. In the milder forms rest will, in a brief period, greatly ameliorate this condition. In aggravated cases it renders the patient unfit for the routine duties of business or professional life, and remedies affect it favorably only by very slow degrees. Upon more than one occasion hypertrophy of the cardiac walls was evident both before and after death. Never thus far, however, have either the muscular or nervous fibres been found degenerated. During life the heart beats very rapidly, the impulse is more diffuse, though not perhaps increased always in force, and there is a moderate blowing murmur covering the first normal sound, and heard with greatest intensity at the apex. This is not invariably true, however, as the first sound is at times only more abrupt than usual, but is wholly free from the presence of a murmur.

The second sound is clear, but, according to Fothergill, not as markedly so as in a dilated heart. There is almost invariably a feeling of oppression around the præcordia, and the brain is apt to be attacked with vertiginous sensations. The patients are taken occasionally with sudden and painful palpitations, and it is no unusual thing for this to occur in the middle of the night. Sleep is at times much disturbed, and these patients are unusually restless. They cannot lie on the left side on account of the increased pain caused by this decubitus. There is evidence of cardiac debility in the very frequent and depressible pulse. Often upon the slightest exertion, this, from relatively quiet and tranquil, will become agitated and extremely