the instruments and regulate the pressure. This may be exerted by some firm body, by compression, by a spring or elastic substance; but the only way to produce a perfectly uniform amount of pressure at all times is to employ *gravity*—the plan mainly relied upon in this case. This is the chief advantage in Dr. Carte's apparatus.

Cases of popliteal and femoral aneurism occur in the proportion of about seven to one; and forty times in males to one in females. They are generally found in persons between 20 and 40 years of age. Sir A. Cooper records an unique case of popliteal aneurism, in a man of 80. The length of time during which pressure has been successfully applied varies much: thus, in thirteen cases, it was from seven hours to as many days; and in four cases, from seventy to ninety-three days.

Original Communications.

FUNCTIONAL AFFECTIONS OF THE HEART.

By C. M. DURRANT, M.D., one of the Physicians to the East Suffolk and Ipswich Hospital.

CASES of this class are constantly presenting themselves to the notice of the physician, whether engaged in hospital or in private practice. In the agricultural districts, the labourer, as well as the anæmic girl, become equally prone to the attack; and in no class of individuals does it assume more severity, or give rise to greater apprehension as to the result, than in the case of the medical practitioner, who is naturally disposed to draw unfavourable surmises from symptoms obtaining in his own person. Among the labouring portion of the agricultural class, the chief cause giving rise to functional irritability of the heart's action is disturbance of the digestive organs; and this occurring especially in those whose labours are of a solitary kind, *i. e.*, where the individual chiefly works without companions. Among these are the shepherd, the gardener, the hedger, the wood-cutter, etc.; in whom, if the mind becomes fairly concentrated upon the abnormal sensation, the most nervous apprehensions as to the results quickly follow.

There is another class of persons who are particularly subject to functional irritability of the heart's action. These are persons of both sexes, whose complexion is atrabilious, with a naturally feeble organisation, and in whom the hepatic functions are very prone to torpidity of action. Very many cases of this latter description have come under my notice, and some, indeed, in which the symptoms, always severe, have been aggravated by a doubtfully or erroneously expressed professional opinion. The irritability of the heart's action in these cases is excessive, and the greatest care and circumspection are necessary in the formation of a correct diagnosis.

The impulse of the heart is increased; but this is more apparent than real, inasmuch as, on continuing the examination, especially if the attention be diverted, the force of the action will be found to diminish, and to differ in a marked degree from the steady heaving impulse of hypertrophy. The sounds of the heart are loud, clear, and ringing, often with a metallic tone: this is caused by the impulse of the organ against the parietes of the chest. The extent of surface over which the sounds are audible varies exceedingly: in some, it is almost limited to the præcordial region; while, in others, it is audible over the entire chest.

In the class of cases which we are now considering, we may have, in addition, slight embarrassment of the respiration, tendency to syncope, and a general feeling of incertitude of action, both in reference to mental as well as physical exertion.

In addition to this, I have very generally found severe pain referred to the region of the spleen. This assumes more the character of splenalgia than intercostal neuralgia, and, by its persistence, becomes often an obstinate symptom.

Another and a severe form of functional irritability of the heart is presented in the anæmic, over-worked, and ill fed, of both sexes. The books of the hospital are seldom without instances of this variety. In these cases, the heart is weak and insufficiently nourished, and, like the palpitation arising from scurvy, it is less apparent to the observer than distressing to the patient.

In addition to the foregoing symptoms, we sometimes find in these cases which are of a more passive character, considerable dyspnoea on exertion, some oedema of the face and ankles, without albumen in the urine, and often a vague apprehension of sudden death.

Another cause of functional, or rather sympathetic palpitation, is gout. The due discrimination of this affection is highly necessary, and much care is required in framing the diagnosis, inasmuch as, the patient being generally more advanced in life, and organic disease of the heart not unfrequently coexisting with gout, a correct analysis of what is real from what is merely functional will be most important. A warm alkaline aperient will sometimes materially aid in clearing the diagnosis.

Toxæmia in all its forms, but more particularly those arising from granular kidney, will give rise to functional disturbance of the heart's action. In doubtful cases, even without oedema, it will be always well to examine the condition of the urine.

In rheumatic subjects, the heart is very prone to attacks of palpitation, accompanied by considerable pain in the præcordial region, and sometimes extending down the arm. This may, and does obtain, without any disease of the organ itself, and arises from irritation of the cardiac nerves, probably excited by rheumatic action, and, as such, may be included in the toxæmic palpitation. Dr. Watson, in his interesting *Lectures*, mentions the case of a barrister, in whom tea was found to produce the most painfully exaggerated and fluttering sensation about the heart. On abstaining from this beverage, the heart resumed its healthy tone and action; but, on tea being again taken (which experiment was often tried), the same severe functional disturbance was invariably the result. On renouncing tea altogether, both the palpitation and the apprehension to which it gave rise were got rid of. A precisely similar instance obtains in the case of a friend of my own, who is equally compelled to renounce his favourite beverage.

I allude to these instances as possible to occur, and, as such, should not be overlooked when seeking the cause of functional disturbance of the heart's action. I by no means, however, bring them forward in support of a prevailing dogma of the present day—a favourite one, I am told, with the homœopaths—*viz.*, that all tea-drinkers are undergoing a process of slow but no less sure poisoning.

Uterine or ovarian irritation, acting through the spinal and sympathetic nervous system, is one very common cause of nervous disturbance of the heart's action in young females; to which may be added hysteria, whether originating in moral emotions, or dependent upon excessive and debilitating discharges. In the opposite sex, we as constantly find that the most distressing cardiac disturbance is attributable either to excessive sexual intercourse, or more frequently to masturbation. The distress of mind to which these causes give rise is very great; and it is among these victims that the unprincipled so uncompromisingly work upon the moral feelings and the purses of their unfortunate dupes.

Tobacco in excess may, by weakening nervous energy, be productive of disturbance of the heart's action; and those who are prone to an easily excited nervous palpitation, or more especially to a functional irregularity of this organ, will unquestionably do well to abstain *in toto* from its use.

One of the most frequent causes giving rise either to palpitation, or to an enfeebled and irregular action of the heart, is an impaired and atonic condition of the digestive function, accompanied by flatulence and torpidity of the bowels. This is a very common occurrence, but one that is in general speedily relieved by appropriate treatment, directed to the exciting cause.

There is perhaps no condition of the organ which gives rise to so much anxiety and alarm in the mind of the patient as this disturbed nervous derangement, characterised by irregularity and occasional apparent cessation of the heart's action. Other causes, such as excessive muscular exertion, pregnancy, or diseases of the viscera of the abdomen, may also be cited as occasionally giving rise to functional disturbance of the cardiac movements. I have recently witnessed the most distressing palpitation of the heart, itself otherwise healthy, dependent upon an aneurismal enlargement of the arch of the aorta.

Moral emotions are by no means to be overlooked as an exciting cause of cardiac irregularity. This is particularly observable in the time of commercial difficulty. Loss of property, disappointed schemes, and a variety of moral agencies, by depressing nervous power and inciting venous congestion, and thus altering the general balance of the organic system, often prove serious and sometimes irremediable causes of this affection.

A correct diagnosis between organic and functional disturbance of the heart's action, whether in the form of simple palpitation or rhythmical irregularity, is by no means always easy.

All the circumstances of the case, both collateral and direct, must be attentively considered; and even then it is arrived at rather as the result of constant clinical observation and tact, than by the most careful study of the differential characters laid down by authors on these diseases. The patient and his friends will press strongly for a positive opinion upon the first visit; but if doubt exist, it will be prudent to withhold it until a repeated physical examination, under different circumstances and at varying periods of the day, justify our doing so with tolerable certainty. Although nervous palpitation is very generally relieved by taking exercise, still, if anæmia exist, the contrary result will obtain; and thus the diagnosis may be rendered doubtful, particularly if œdema of the ankles, from debility, exist at the same time.

The force of the action in nervous palpitation varies greatly. It may be scarcely perceptible to the examiner, while to the patient it very frequently gives rise to the most distressing anxiety. At other times, the pulsations are sufficiently violent to shake the bed.

Palpitations, to which the patient is sensible, are often functional in character; while those that occur with force, without the patient's attention being attracted by the circumstance, are more frequently of organic origin. The sounds of the heart in palpitation arising from functional disturbance of its action are sharp, loud, and ringing. The first sound is loud and abrupt, and is sometimes even audible both to the patient and the physician, without contact of the ear or stethoscope. The second sound is occasionally doubled; but this occurs generally as a temporary phenomenon only, and is not of material assistance as a diagnostic guide.

The impulse of the heart excited by inorganic causes is sharp and "slapping"; and sometimes a metallic ringing sound, produced by the energy of the contraction and smartness of the shock, is audible at the apex.

The existence of murmur will obviously require great care in forming a diagnosis, especially if the patient have formerly been the subject of rheumatism, and is now suffering from an impoverished condition of blood. Inorganic murmur is for the most part soft and blowing: it may, however, under great vibratory disturbance, become musical and somewhat harsh in its tone. It seat is usually at the base of the heart, over the aortic or pulmonic valves, from the former of which it is communicated to the aorta and carotid arteries.

The coexistence of a basic systolic murmur, with a continuous humming sound in the veins of the neck, affords strong presumptive evidence that the case is one of inorganic disease. Although it was formerly considered an established fact that inorganic murmurs were limited in site to the base of the heart, it is now admitted, and I can also verify the statement, that a murmur, varying in intensity and constancy, may exist over the apex, quite independently of organic disease. With all this, however, it must be admitted that there is no certain character by which an inorganic can be distinguished from an organic murmur; and it consequently behoves the examiner to weigh accurately all the existing and collateral phenomena of the case, lest, on the one hand, he inadvertently alarm his patient, rendering him more or less miserable for life; or, on the other, he find his diagnosis falsified, and his reputation injured, by the sudden and unexpected death of the individual in whom a functional disorder was alone suspected. I have already alluded to the irregular rhythm of the heart's action, as dependent upon derangement of the digestive organs, moral causes, etc.; but, in all cases of *permanent* irregularity of the heart's action occurring late in life, even though no physical sign of organic mischief be present, a guarded prognosis is called for, as not unfrequently the irregularity will be found to depend, not upon perverted function, but upon a softened or fatty degeneration of the muscular texture.

In the treatment of functional disorders of the heart, more may often be effected by judiciously observed moral advice and hygienic regulation, than by medicine. At all events, premising that the cause is fully ascertained and the diagnosis accurately determined, the particular selection of remedies may be left to the judgment of the medical attendant. As a rule, unless the heart be congested, venesection, in any form, is to be strictly avoided.

In that class of persons to whom I have referred—viz., the atrabillious—and in whom palpitation is very common, steel and tonics are in general not well borne, and the cardiac disturbance is rather increased than lessened by their use. Small continued doses of blue pill, with the compound galbanum pill, together with alkalies in combination with the compound tincture of valerian and henbane, I have found to be of the

greatest service. Wine also, mixed with water, will agree better with patients presenting these features of the disease, than malt liquors in any form. In the toxicæmic variety, if much headache prevail, a blister to the nape of the neck will be found useful, and it indirectly quiets the disturbed action of the heart. In the young female, whether the cause be a spæmic condition from deteriorated blood, or whether it be attributable to uterine irritation, the necessity for wearing warm flannel clothing, and taking regular exercise, short of producing excessive fatigue, must be strictly inculcated.

TUMOUR OF UPPER THIRD OF THE THIGH SUCCESSFUL AMPUTATION AT THE HIP-JOINT.

By WILLIAM JAMES CLEMENT, Esq., F.R.C.S.E., Shrewsbury.

MRS. DAVIES, aged 32, of slight figure and fair complexion, is the mother of four children; the eldest nine, the youngest two years old. Her family on the maternal and paternal side were healthy. Her mother died in childbed; but her father and grandmother, aged 84, are both living.

About three years ago, according to the patient's statement, she first observed a small tumour situated in the upper and inner portion of the left thigh. It was soft, moveable, and free from pain or tenderness. Its growth was at first slow and almost imperceptible; but after the birth of her last child, it increased with great rapidity.

I was desired to see her on April 2nd, shortly after her discharge as incurable from a public institution. I found a very large tumour occupying the entire upper third of the thigh, and extending within two inches of Poupart's ligament. The tumour was elastic to the touch, not nodulated, but having an even surface. Pressure caused no uneasiness, but the patient complained of acute darting pains through the substance of the tumour and numbness down the limb. There was no discoloration of the surface; but on one spot where an exploring needle had been introduced, the skin was red and inflamed. I made a careful examination of the parts above Poupart's ligament, but could discover no enlargement or affection whatever of the deep-seated glands. The stethoscope also failed to detect anything wrong in the lungs and heart. There was no great amount of constitutional disturbance, and the countenance had not that peculiar anxiety so common to patients labouring under malignant disease.

Taking into consideration the age of the patient, and the absence of all internal organic affections, I came to the conclusion that removal of the limb at the hip-joint was a justifiable proceeding. The only serious obstacle to the operation was the extension of the disease so close to Poupart's ligament, preventing the formation of an anterior flap. The tumour, however, did not encroach upon the posterior part of the thigh, and the muscles and integument there were apparently sound.

On June 9th, I was requested to perform the operation. A great change had taken place in the condition of the limb since I saw it on April 2nd. It appeared that soon after my first examination of the patient, ulceration of the surface commenced at the point where the exploring needle had been used, and rapidly extended. The skin had entirely disappeared from the surface of the tumour, and a large livid mass occupied the whole upper portion of the thigh, resembling in appearance putrid liver, and exhaling a most intolerable stench. There was not quite an inch of sound skin between the lower edge of Poupart's ligament and the upper part of the diseased mass. The patient was greatly emaciated since my former visit, the tumour having discharged daily more than a pint of bloody serous fluid. The pulse was very feeble, beating 140 in the minute. The pain was excessive, and large doses of opium failed to give any relief. The tumour, one inch below Poupart's ligament, measured thirty-four inches and a half, being two inches more than double the circumference of the opposite limb at the same place.

The rapid and successful removal of the thigh at the hip-joint depending so much upon the assistants and their simultaneous action, I was most fortunate in having the services of my friends, Mr. Heathcote, Mr. Keate, and Mr. Pidduck.

Chloroform was administered, and the patient was kept under its influence until after the last ligature was applied. The knee being slightly bent upwards on the pelvis, I thrust in a long knife at about an equal distance between the anterior superior spinous process of the ilium and the trochanter major, deep