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CONTENTS.

ORIGINAL COMMUNICATIONS.

Man's Two Natures, by Hy. Howard, Visiting Physician to the Longue Pointe Lunatic Asylum, 97—On the True Position of the Bladder in the Male, and a few Thoughts on passing the Catheter, both as regards Drawing off Urine, and as

regards "Sounding" for Stone, by C. E. Nelson, M.D., New York, 108—Correspondence . . . 110

PROGRESS OF MEDICAL SCIENCE

Midwifery and Gynæcology; the Prevention and Treatment of Post-Partum Hemorrhage, 111—On

Various Forms of Functional Cardiac Disturbances, by Beverley Robinson, 114—Diabetes Insipidus Treated with Ergot, 118—Surgical Treatment of Epistaxis. 119

EDITORIAL.

London Correspondence. 119

Original Communications.

TO THE READER.

In re-writing this paper for the press, I have not changed it in the slightest degree from the original which I read before the Medico-Chirurgical Society of Montreal, with the exception that I have made it more explicit, corrected some phrases without altering their meaning, and divided the paper into four parts, as each of these parts is in a great degree a separate subject. Part 1. Man's two natures. Part 2. The theory of man's creation by evolution. Part 3. Thinking, how produced. Part 4. Neurology and conclusion.

THE AUTHOR.

PART I.

MAN'S TWO NATURES.

By HENRY HOWARD, M.D., Visiting Physician to the Longue Pointe Asylum.

Mr. President and Gentlemen,

In THE CANADA MEDICAL AND SURGICAL JOURNAL for August, 1880, there is a piece of poetry taken from the *Western Lancet* bearing the title of "De Profundis," and dedicated, I presume without permission, to MR. TENNYSON. I hope when I have read my paper this said piece of poetry will not be applicable to me, or if so be that I should get a little into deep waters, you

will throw me a plank to enable me to reach the shore.

When we undertake to speak of man's animal nature, we can only do so in virtue of our knowledge of the sciences of anatomy, physiology, pathology, and biology, and if we do not truly describe this nature the error is due to our ignorance of these sciences, and not to the fact that it cannot be explained in virtue of these sciences.

When we undertake to speak of man's higher or human nature, we can only do so in virtue of our knowledge of the science of psychology, and here again, if we fail to describe this nature correctly, it is not the fault of the science but our ignorance of it.

Without these five sciences it is impossible for us to treat of man in the abstract, and in this day, when we are not only learning so much of these sciences, but also unlearning so much, it behoves us, when we advance any theory on such an important subject, to do so modestly, and avoid dogmatism.

It is in this spirit that I venture this evening to offer some remarks upon man's two natures, upon evolution, and upon mind.

In the papers I have from time to time, within the last five years, read before you, I have at all times maintained that mind and body are one, in other words, that mind is the product of our mental organization, which is matter, as much so as bile is the product of the liver, and when I say the

mental organization, I mean every fibre of the whole nervous system, the brain being its highest or intellectual portion.

If there were any doubt of the proposition that mind and body are one, and of the material order, that doubt should be set at rest in the mind of every reasoning man by Dr. Maudsley's last edition of the Pathology of the Mind, which in my idea is one of the best works that has ever been written on the subject, notwithstanding the howl that has been set up against it. Dr. Maudsley says, "It is a robust faith which enforces the certitude of a resurrection to life eternal of this mind, which is seen to dawn with the opening function of the senses, to grow gradually as the body grows, to become mature as it reaches maturity, to be warped as it is warped by faulty inheritance, to be sick with its sickness, to decay as it decays, and to expire as it expires."

Dr. Maudsley has in the above quotation spoken a great scientific truth; but if he so pleased he might have added that, as man's *soul* is not mind, there is no reason why a man by faith should not believe in its resurrection to everlasting life, or rather that the soul never dies. But Dr. Maudsley was not writing on religious faith, but on science, and wished to show how absurd and materialistic was the teaching that soul and mind were one, and that the logical inference of such a theory must be that the mind was to rise to everlasting life independently of the material body whence it proceeded.

The sciences of anatomy, physiology and pathology prove without a possible doubt that the mental organization is material, and that thought is one of the products of that material organization, and that the characteristics of thought depend upon what that organization may be either from heredity or its development after birth.

You are aware that to give an abstract definition of anything is under the most favorable circumstances a very difficult task, and it is more particularly so when we try to define man, there are so many different sorts of men. On this point Dr. Maudsley says: "To affirm that all men are born equal, as is sometimes heedlessly done, is to make as untrue a proposition as it is possible to make in so many words. There is as great a variety of minds as there observedly is of faces and of voices. As no two faces and no two voices are exactly alike, so are no two minds exact counterparts of

one another. Each person present a certain individuality, characteristic marks of feature and disposition which distinguish him from any other person who may resemble him ever so closely, and I hold it to be true that every special character which is displayed outwardly is represented inwardly in the nerve centre—that it is the outward and invisible constitution of nerve structure." It is easy then, he says, to perceive that we have, as original facts of nature, every kind of variation in the quality of the mind and in the degree of reasoning capacity; and that it is as gross a mistake to endow all persons with a certain fixed mental potentiality of uniform character as it would be to endow them with the potentiality of a certain fixed bodily standard. If a man's nature have a radical flaw in it he can no more get entirely rid of it by training than the idiot, whose want of parts is incontestable, can raise his intelligence to the average level by much study, or than a short man can, by taking thought add one cubit to his stature. Acquired habits may do much to compensate for natural deficiencies, but the misfortune is that the deficiency often shows itself in a constitutional inability to acquire the habit."

From these stubborn scientific facts, so ably put forward by Dr. Maudsley, you will at once perceive how difficult a task I have undertaken—to define man in the abstract. I will assume that you all know the anatomy of man.

Man is an animal, and, in common with all other animals, possesses a mental organization, divisible into intellectual, moral and emotional faculties, none of which are altogether independent one of the other, no more than is any other part of his physical organization independent of all other parts. In virtue of this animal mental organization, man, in common with all other animals, is intelligent, moral and emotional, differing, however, in degree from his fellow, and from all other animals, because of the perfection or imperfection of his physical mental organization, as do all other animals differ from the same cause from one another, that is, animals of the same species. Dr. Maudsley says, and I perfectly agree with him, that man, in common with the whole of the animal and vegetable kingdoms, has a non-corporal entity but what that entity is he does not define; some of his critiques call it self—*EGO*—but if such were the case *quoad* man we should have the *ego* also in all other animals, and not only in animals but in

all created things, including every tree and plant that grows upon the earth. I cannot conceive how that which is non-corporal, not incorporated in the body, could constitute self, or *ego*; I would call this non-corporal entity, God. Remember I am speaking of man simply as animal. Now, although a non-corporal entity, as its name implies, is not incorporated in the body, there is no reason why there should not exist a union between the body and its entity, and I believe there is. I believe there is a union between God and all created things, and this which unites God with all created things, of which he is the entity, I would say was life. But why life? First, because I cannot conceive of anything else that it can be; secondly, because God is life-giver, and that life emanates from him. I consider it an absurd expression to say God created the world, and all that therein is, out of nothing; something could not come from nothing, from negation. God created the world and all things from Himself, all and everything emanated from Him, and with everything life; and by this life is He, as entity of all things, united to the animal man, and also to all created things. But what is life in the abstract? I do not know, but it is certainly a something that is tangible and explicable, as exemplified in the animal. It is in, but not of, the blood, and the same can be said of the respiratory organs, although both are necessary for its continued sustenance in all animals. I say it is not of the blood because of the physiological fact that in suspended animation the blood ceases to circulate, yet life is not extinct; in like manner it is not of the respiratory organs, for respiration ceases in suspended animation and life is not extinct; and physiological experimentalists know that an animal will live for hours, sometimes as many as twelve, after the division of both the pneumogastric nerves. Again, both the circulatory and respiratory systems are for their action dependent upon the motor nerves, so that it is evident that these two systems are necessary for the continued sustenance of animal life, yet it is not of or from either of these two systems. In what part of our system, then, does it exist *per se*? Physiology proves that it is in the nervous system, as it is in this system is the motor power in man and in all other animals, and not only from this system comes our motor power, but our sense of hearing, seeing, smelling, tasting and feeling, &c. But the nervous system is matter. What is it that is in this system, this tangible something that we call life, the absence of

which causes death? The sciences of physiology and biology prove to us that it is an electric fluid circulating through the whole nervous system. I will have to recur to this subject again before closing my paper.

Man, in common with all other animals, has, in virtue of his physical organization, an animal nature, but, like all other animals, he has two natures, and, like all other animals, this second nature, not in virtue of his physical organization but a something given to him, in virtue of which he is a man, in fact, the animal man, I speak of his human nature, the highest nature possessed by any animal, and possessed by him alone; the term explains itself, human (*humanus*) from *homo*, a man and *natus*, born, to be born a man.

Now, my theory is that this human nature is man's *corporate entity*, whence he derived personality, self, *ego*, soul, free will, and a higher order of conscience than that which he possesses in virtue of his animal nature, consequently a higher order of conscience than that possessed by any other animal, and that it is this conscience which makes man a law unto himself, makes him know right from wrong in the abstract, and causes him to recognise a supernatural power. This human nature I hold to be supernatural of itself, and never to die, but not actually necessary to the life of the animal man. Query, are there animal men who never possessed a human nature? Judging some men by their brutal and inhuman acts, we might be led to the conclusion that there were.

We have such evidence of animal knowledge, and consequent animal conscience, that I need not occupy your time proving that fact, but this animal conscience that we find the best example of in the dog, what is it? It is simply a trained conscience, trained to fear punishment if it does that which it has been taught is wrong, and to look for reward if it does that which it has been taught to believe is right; and such is man's animal conscience, which would appear to be universally recognised, if we judge by the universal moral teaching which man has received and is receiving every day. Are we not taught that if we do good we shall be rewarded, if not in this world certainly in the world to come; and if we do evil, if we are not punished in this world certainly in the world to come. I do not say this is false teaching, but that it is an appeal to our animal nature, and not to our human, it is the same sort of appeal that is made to the lower order of animal, differing only in degree.

My idea is that the human conscience is of a much higher order than the animal conscience—a conscience which approves a man when he does right because it is right, and disapproves him when he does wrong because it is wrong. And here I would most respectfully ask, would it not be better if our moral teachers would appeal a little more frequently to our human nature? that we should hear a little more of humanity, uprightness, integrity, justice, benevolence, of the doing by others as we would that others do by us, a little encouragement to do right because it is right, and for the scientific reason that every good act a man does the act itself produces a good physical change in a man's mental organization, as by every evil act he does he produces an evil physical change in his mental organization,—the terms good and evil being understood to mean the fulfilling or breaking of a natural law of our being.

I said every man, in virtue of his human nature, had a free will—this requires no proof, every man knows of himself that his will is free, no power can bind a man's free will, but we must draw the distinction between a man's human free will and his animal desire, which he has in common with all other animals: human free will and animal desire are two very distinct things, a fact which, if generally known, is very frequently lost sight of by law-makers and judges, aye, and by teachers of the moral law, all of whom—law makers, judges and teachers—speak and act as if, because a man has a free will, he is necessarily a free agent, ignorant of the fact that a man by his free will cannot always control his animal desires, which are the outcome of his mental organization, leading to deeds.

He is a fortunate man whose animal organization is in accord with or in subjection to his human free will. He is a man of an extraordinary physical formation who can bring his animal desires into subjection to his human free will. We hear men talk very flippantly of will-power, and give examples of what men have done by force of will in overcoming animal desire; but perhaps if we knew all the particulars of these cases we would find that animal desire had ceased because of physical change in the animal organization, when indeed it would be very easy to submit to the will,—something like the lady of doubtful character who gave up the world when the world had given her up, or, like those very good old men who write doleful letters to the chums of their youth, regretting

their youthful follies, "although they were pleasant times," but who would not, if they could, return to them again. Of course they would not, but why? Simply because youthful animal desire has been subdued by the physical change in their emotional organization by time, so that they are not what they were. It would be rather a ludicrous affair to see an old man scrambling over a fence to rob an orchard, which perhaps was the strongest desire of his youth.

If we would prove will-power let us take cases where the animal desire and human will are in strong opposition, for example, that of the conscientious man, the man who knows right from wrong in the abstract, and has an honest abhorrence of what is wrong, but is the slave of strong animal sexual desire, or a strong animal desire for drink, either of which desires is his hereditarily. And look at the everlasting struggle between human free will and animal desire, a struggle that tears its victim to pieces, in some cases driving the victim to suicide, in others into a lunatic asylum. Never, indeed, is human free will victorious till a physical change takes place in the man's mental organization—for in all such cases the mental organization is either hereditarily abnormal or diseased from some cause. It is a fearful sight to see the human free will thus struggling with animal disease. Our own sweet poet, JOHN READE," well describes it in the following lines :

" 'Tis easy to cry Raca from within
 " Cold passionless morality's strong tower
 " To those who struggle fiercely hour by hour
 " 'Gainst grim Goliaths of unconquered sin."

and "SHAKSPEARE" seems to have well understood the importance of the subject when he put the following words into the mouth of the unhappy "HAMLET":

" And blest art those
 " Whose blood and judgment art so well co-mingled
 " That they are not a pipe for fortune's fingers
 " To sound what stop she pleases: Give me that man
 " That is not Pasion's SLAVE, and I will wear him
 " In my heart's core, aye in my heart of heart,
 " As I do thee."

You see I differ entirely from Dr. Maudsley, who makes will and desire one and the same thing. I maintain that they are separate and distinct, and come from different sources, desire being derivable from our animal organization, and will from our human nature. If the matter be normal, the desires

are normal ; if abnormal, the desires are abnormal. A man in perfect health rarely suffers from thirst, and when he does his desire for cold water is easily assuaged, whereas a man suffering from fever is always calling for drink, and nothing will stop his craving for drink—this is the difference between the animal organization being in a normal and abnormal state. But the will is always normal. I maintain that there is no such thing as a diseased will ; it cannot be diseased, for it is not of the material order. Man to be what he should be, in virtue of his two natures, must have both natures in harmony, that is to say, the animal nature should be guided by the free will of the human ; but our animal natures are generally so bad by inheritance, in consequence of our progenitors having broken natural laws, and rendered worse by the wrong means used to develop our mental organization, that our animal desires are not normal but abnormal, stronger than our human will, so that we may well say man is what he is in virtue of his animal nature—too frequently not a free man but a slave to his passions, in other words, to his abnormal animal desires.

It is no uncommon thing to hear all our frailties attributed to our human nature. I consider such a statement degrading to our humanity : our faults and frailties are due to our animal nature and only to be corrected by a physical change in our mental organization. I don't mean here to enter into the question of all the means at our disposal for the accomplishment of this, of which medical treatment is not the least important. I would, however, remark with respect to that inexplicable and undefinable something which we call the grace of God, and in which I firmly believe as much, if not more, than many of those who are always talking about it, although I may differ with them to a very great degree as to the means of obtaining it ; I say this spiritual gift, when it makes a good out of a bad man, does so by producing a physical change in his mental organization, and in accordance with God's established natural laws, and not in the breach of them. God does not break His own laws, there is no occasion for Him to do so, He can do all things by these laws ; He created all things by means of them, and by them we live and move and be and die ; and living as we do in the breach of them, sometimes through ignorance, but very frequently through pride and presumption, is the chief cause of man's suffering, the chief cause of crime and insanity.

It is hardly necessary for me to defend my

statement, that man of all other animals is person, indeed of all created things, and has an *ego*, and that in virtue not of his animal but his human nature. In fact, to be what we are, personality is necessary. If we believe sacred history to be a history of events, when God created angels He did not endow them with personality ; they never were persons, whatever else they may be. Personality belongs to man only, and perhaps it is in this particular he resembles God, Creator. Recognising, as I do, that a man's human nature is born with him as well as is his animal nature, yet I maintain that the human nature comes direct from God, and cannot be tainted through heredity. Therefore, while I agree with Dr. Maudsley that no two men, physically speaking, (which includes the whole mental organization, intelligence, &c., &c.,) are born equal. I hold that, humanly speaking, all men are born equal, for to be a man there must be a human nature.

I said that man in virtue of his human nature possesses an immortal soul, that is to say, like self, *ego*, free will and a higher order of conscience ; it is one of the attributes of our human nature. But what is the soul? I don't know. I cannot conceive what it is. I cannot reason upon it. No science nor anything else can give me insight into what it is ; by *faith* I believe in it, as I do in much above my reason.

Before concluding this part of my subject you will permit me to summarise a little, that you may the better comprehend what I have said.

I said man was an animal in virtue of his physical organization, and consequently has an animal nature, and in virtue of his mental organization, which is physical, he is intelligent and moral to a greater or lesser degree, depending upon the high or low order of that organization ; that as an animal, in common with all other animals and the whole vegetable kingdom, he has a non-corporal entity which is God, and that the union between God and him is life. That man in common with all other animals has an animal conscience, and in common with all other animals two distinct natures ; that man's second nature is his human, in virtue of which he has a personality, self, *ego*, a free will, a higher order of conscience and an immortal soul. I said that his human nature, although born with him, was not, like his animal, subject to heredity, therefore, although mentally or physically speaking no two persons were born equal, humanly speaking all men were born equal. That

although man's will, which he had in virtue of his human or higher nature, was free, yet his will could, not under all circumstances control his animal nature, whence proceed his thoughts and deeds.

The logical conclusions of the foregoing propositions are, that man is intellectually and morally what he is in virtue of his animal or physical organization, and whatever the *modus-operandi* may be, whether moral or otherwise, or whether by the consent of the will or otherwise, if man's morals or intellect are to be improved, the improvement must be made by producing a physical change in his mental organization.

PART II.

MAN CREATED BY EVOLUTION.

Where so much has been written by men of the highest scientific standing upon the origin of man, I consider, in connection with the subject I have in hand, that I cannot pass over the theory of evolution without giving my views upon it, for of course I have my own particular views.

You are aware that the evolutionary or so-called Darwinian theory is, that man was evolved from a lower order of animals, and that it took millions of years before this animal became man; and again, that the vital organism in which the process of evolution began was of the earth, either in the form of dust or slime.

I need not enter into all the arguments brought forward by these great men in proof of their theory. Their opponents assume that the theory is in some way alike derogatory to God and man, and contrary to the teachings of "MOSES" as recorded in the book of "GENESIS."

For my part I cannot see that the evolution theory takes anything from the honor and glory of God as first cause and creator, nor yet can I see that it makes man anything more or less than what he is, an animal with a human nature, and to my reading of the 1st Chapter of the book of Genesis—the whole of it—is evolution. The historian says, upon certain occasions, in certain periods of time God did so and so, but he does not say how God did it, in other words he does not give us the *modus-operandi*; he simply says God made man out of the dust of the earth, or, as the Latin Vulgate has it, out of the *slime* of the earth. Now Biblical scholars have been forced by the science of geology to admit that day means a period of time, and what was the length of time in each of the different

periods, we cannot exactly say, but geology gives proof that each period must have contained millions of years. We then may read the passages thus, the evening and the morning was the first period, instead of the first day, and much of the trouble will be overcome towards establishing the theory of evolution to be a scientific fact.

According to Moses, in the fifth period God caused the waters to bring forth fish, creeping things and winged fowls,—if this is not evolution, what is it? From water is evolved fish, creeping things and winged fowls, what name shall we give to this mode of creation, if not evolution?

Then in the sixth period he caused the earth to bring forth the whole animal creation and, amongst the rest of the animals, man: evolution again, and if not, what is it? And when they were all created he did and said to man no more nor no less than he did or said to the creeping things, the fowls of the air, the fish of the sea, and all the animals on the face of the earth, he blessed them and commanded them to increase and multiply, and that all might fulfill this his natural law of procreation, according to the same historian, he caused both the water and earth to produce male and female.

Now, suppose that, in accordance with God's established natural laws, the grain of dust or slime from which man was evolved, and all other animals evolved—but I will only speak of man,—suppose then that this grain of dust was first evolved into an ovum whose seed was in itself, and that it took millions of years, in fact the whole of the 6th period of time, before it became a perfect animal, and then that God endowed this animal with a human nature by which it became man, there is nothing in such a supposition contrary to the teachings of Moses, yet it would be evolution. Then suppose this ovum while gestating in the womb of time for millions of years did undergo similar physical changes that the ovum in the uterus undergoes during nine months of gestation, before there is a perfect child, it would during that time present so many phases that it might be well said that man was evolved from a lower animal. Every student of embryology knows that the very last thing that the foetus resembles during the process of gestation is a child; its first representation is more of a worm than anything else, its second a fish, its third a bird, its fourth a quadruped, and fifthly a child. Surely in procreation man is evolved from the very lowest microscopical organism, very little ovum; and if in obedience to

God's established natural laws this low animal organism is evolved through all these different animal stages, in nine months terminating in the animal child, and then that it takes years of physical change before it is developed into the animal man, and then that the animal man is always undergoing evolution, physical change, till in process of time, that very property, life, by which he is, shall wear out the animal machine, and the animal portion of man shall return to the earth from which it came—remembering all these facts, we will find nothing extraordinary in the theory that the ovum formed from the earth should, in accordance with the same natural laws evolved in a similar way throughout millions of years, terminate by developing into man, and that the disciples of Mr. Darwin would by this reasoning be justified in saying that man was evolved from a lower animal. I believe that all the works of the Creator show design, and that He designed the ovum from which man was evolved to terminate in man.

In this way do I recognise that the evolution theory of creation is more in accord with nature's laws as we now understand them, than that God called man and all other animals in perfect order in a moment of time out of the earth, and there does not appear to me to be anything in this theory of creation to justify those who call themselves anti-evolutionists in giving such a name to evolution as the "gospel of dirt." Before they make use of such an expression they should remember they themselves say man was created from earth, and they should remember what procreation is.

So much, gentlemen, for the theory of the creation of man by evolution, which to me is a reasonable one.

PART III.

THINKING—HOW PRODUCED.

What is the cause of thought, of our thinking? If I remember correctly it was "Carlyle" who said, "some men never think—they only think they think." When this close observer of men and things made the above remark he no doubt meant to imply that there are very many men who rarely make thinking a voluntary action or who ever provide their mental organization with wholesome food for it to think of.

Thought is involuntary, that is to say, we must think whether we will it or not, but each person with a normal mental organization can, to a very

great degree, direct much of this thinking by his free will; and he can provide food for thought by seeing, hearing, reading, etc. A man can make any thinkable subject a matter of voluntary thought, but the moment he ceases this voluntary thinking he will still go on thinking, perhaps of some subject as remote from what his voluntary thoughts had been as it is possible to conceive. Although thought is involuntary when not under the control of the will, yet our mental organization cannot think reasonably of nothing—it must have something to think about, and that something is supplied to it, either voluntary or involuntary, from objective cause or involuntary from subjective cause, and this by means of our organs of sense or our sensory nerves. Of course you all know that the ingoing nerves are the sensory nerves proper, and the outgoing the motor nerves proper, but you must bear in mind that all these nerves are anatomically integrated by ganglionic nerve structure into one nervous arc, and, according to Louis, sensory impulse and motor impulse are the polar aspects of one vital process.

Speaking of the objective we cannot think intelligibly of what we never saw, or felt, or smelt, or heard of. We may have a kind of foggy unintelligible thinking, dreaming in our waking moments as we do in our sleep, sometimes due to some abnormal state of our mental organization, either *sthenic* or *asthenic*; in one case removable by antiphlogistic treatment, in the other by tonics. That sort of thinking persons have who try to think of eternity as if it were a multiple of time, when it is the very contrary, having nothing whatever to do with time, being its negation, so that it is impossible for man to think of eternity, consequently, the effort to do so only weakens the mental organization and finally drives the victim into a lunatic asylum; so it is when we try to think of a time before the world was, which cannot be made a subject matter of thought, seeing there was no time, there was no past or future—a state incomprehensible—time only began with creation.

To think voluntarily and intelligibly there must be intelligible subject matter for thought supplied to the mental organization from either objective or subjective sources. And this is why we can so easily account for the difference there is between the thoughts of different people, and why they cannot think alike, because each man, either from accidental circumstances or by his free will, has his mental organization supplied

with a different subject matter of thought, therefore we have the difference between the thoughts of persons of different religions and of different nationalities, between the thoughts of a man who is well-educated and the illiterate man, between clerical men and lay men, between a man who has travelled and seen much of the world, and the man who was never a mile from the place of his birth, the difference between the thoughts of a physician and lawyer, between the thoughts of a farmer and trader, a soldier and politician, an honest man and a dishonest man, an honorable man and a dishonorable man, of a moral philosopher and a mental scientist.

There is one thinking, however, we all have in common, and that is thought which is the effect of subjective cause. We all think alike when we suffer pain, whether it be from hunger, thirst, disease, mechanical injury, jealousy, sorrow, etc. Our emotional organization produces similar thoughts in all, but not followed in all by similar effects,—I speak of love, joy, likes and dislikes, hopes and fears, many of which are the products of our sexual organization which are more or less marked at different periods of life as the animal nature develops or decays by physical change in our mental organization.

The next question in connection with thought is, how is it produced from this normal living matter? In answering this question we must take into consideration man's whole material organization, and we will find it to be a living animal machine, a perfect whole, all its parts more or less dependent upon one another; and this whole is always in motion, heart, lungs, stomach, intestines, etc., and the motor power for all is electric fluid circulating through the whole nervous system. This has been proven by numerous experiments. DU BOIS RAYMOND, has by his experiments, not only established this fact, but he has done more, he has established the fact that each nerve conducts electricity in both directions. To all these motions thus produced by the electric fluid he has given the term "ELECTROMOTION," and it is this nerve motion that produces all the normal physical changes that are constantly taking place in man's physical organization, causing each organ by its motor power to fulfil its own peculiar physiological functions,—the brain, the heart, the lungs, the liver, the stomach, the kidneys, the intestines, etc.—so we can well understand that any thing that interrupts this motor power must be followed

by an abnormal change of some part of man's physical organization; and here arises the question, how does the human will so control this nerve-force or power so as to change involuntary into voluntary thinking? What connection there is between man's human will and his mental organization I do not know, nor do I suppose any one ever will know, but, as I assumed that God was man's and the whole animal and vegetable kingdom's non-corporal entity, and that life was the union between them, so I might fairly assume that man's human nature was his corporal entity, and its free will the union between it and the animal man by means of life also. This is the only theory I have to offer on this very difficult subject; however, we have positive proof that the free will does, to a more or less degree, control the normal material thought, as it controls our organs of locomotion, which are material also; and as it controls the latter when in a normal state by means of the motor nerves, so I conclude it directs the former by means of motor nerves also, that is, when in a normal state; for the human free will, I maintain, has no more power over the mental organization when in an abnormal state than it has over our organs of locomotion when they are in an abnormal state, it being understood that I speak comparatively as to the different degrees of abnormality existing either in our mental organization or our organs of locomotion. There may possibly be a different set of nerves for voluntary and involuntary thinking, as there are a different set of nerves for voluntary and involuntary motor action in other parts of our animal organization, or they may be the same nerves rendered voluntary under certain circumstances, like many other of our involuntary nerves, as is best exemplified in our respiratory organs. I hold that thinking, whether voluntary or involuntary, is, as I have already explained, the result of nerve motion stimulating the mental organization, and the stronger and healthier is the mental organization, and the stronger and healthier is the nerve force, the more healthy will be our thinking, and the more under the control of our wills. We must not expect to find healthy reasonable thinking in the idiot, the imbecile or insane, neither must we expect it from the *neurasthenic* no more than we would expect from him strong walking or swimming.

It is only as I have explained it can I conceive cause for thought, whether it be voluntary or involuntary; moreover, it has the advantage of

been intelligible, what Mr. Huxley would call a common-sense view of the subject, and consequently a scientific one.

PART IV.

NEUROLOGY—CONCLUSION.

Gentlemen, if you were to ask me the question, how much of the foregoing was original, the result of my own observation and reason, and how much of it contained the views of others, I could not answer the question. A man who has spent the best part of his life in the special study of mind in health and disease, is very likely unintentionally to mix up other men's views with his own. One thing I am certain of is, that the psychological and biological views I have advanced have been of gradual growth, and I could not before now put all the threads together so as to weave them into one web, and now I am surprised that it took me so long to find out such clear scientific truths.

The more important question is, if these views which I have put forward be true, what lessons have we to learn from them?

First.—If a man's growth and decay, his thoughts and consequent deeds in many instances, his emotions and impulsive actions, his sickness and health, be all dependent upon physical change, either normal or abnormal, in his mental organization, wherein does he become a responsible being? I don't speak of his responsibility to his Creator, that I leave to God, it is out of the domain of mental science—but his responsibility to his fellow man. It appears to me self-evident that every man who is not insane, and possesses ordinary intelligence, is, in virtue of his human free will, bound to use every lawful means to bring his animal nature into subjection to his human free will, that he may perform the moral and social duties he owes to society, and what all these several duties are, are summed up in a few words, doing by others as we would wish others to do by us, founded upon the natural law of justice and benevolence. I say every man should do his best, and when he has done this he can do no more.

If by a limited responsibility is meant that a man is partially but not entirely responsible for his act which he does, I do not believe in it, but if it is meant that for one act he is responsible and for another irresponsible, or that one time he may be responsible for an act and at another time irresponsible for a similar act, in this manner I could believe in a limited responsibility. But I believe

every man to be either responsible or irresponsible for each of his separate and distinct acts.

Secondly.—As there is such a thing as a criminal as well as an insane neurosis, for the possession of which a man is no more responsible than he is responsible for his parentage, is punishment the best remedy to improve such a neurosis, to improve a man possessing such a mental organization? I don't believe so. I cannot conceive how punishment, the infliction of suffering, can improve a diseased or deformed physical organization like the mind of man, no more than I can conceive punishment improving a diseased liver or lungs, which are no more nor no less material than is his mental organization.

Thirdly.—Is our mode or system of education the best possible means of developing the mental organization of youth, of developing a "mens sana in corpore sano," which was considered the greatest blessing by our Pagan forefathers? I gave an answer to this question five years ago in a paper entitled "A protest against the present high pressure system of education." I now repeat, no, a thousand times no; by our systems, not by education, we are making our youths criminals or lunatics, or sending them to a premature grave. Hear what that old conservative magazine, "BLACKWOOD" says on the subject:—

INSTRUCTION AND SUICIDE.

Professions do not predispose to suicide, but instruction does. No man kills himself because of his trade, but a good many men kill themselves because of their knowledge. Not only has the revival of suicide almost exactly coincided, in time, with the modern extension of schooling, but suicide is now most abundant in the very regions in which schooling is most expanded. The records establish this beyond all doubt. The inhabitants of countries in which every one can read are precisely those who kill themselves the most. Now this supplies another indication that people do not always make a good use of reading. We knew that fact already, it is true, but we scarcely expected that additional proof of it would be supplied in this strange form. That reading conduces to suicide is a new view of reading, but it is incontrovertibly an exact one—within limits. We could, perhaps, have imagined, if we had thought about the matter at all, that certain occupations might possibly pave the way, under unfavorable circumstances of health, to thoughts of suicide. We

could have wildly guessed, for instance, that newly enlisted recruits, or lighthouse-keepers, or exiles, or public executioners, lead lives in which the self-killing tendency might receive a morbid development; but never, in our senses, should we suppose that village schooling is, indirectly, the most fertile of all the actual origins of suicide. And yet it seems to be so. And if it is not, what is? We have all of us heard so much of "the suppression of crime by education" that we have insensibly acquired the unreasoned belief that education is one natural cure for moral evils. So, perhaps, it ought to be. And—to repeat the question—if it is not, what can be? But evidently, as regards this particular evil, education appears to be a provocative rather than a remedy—at least in the form in which we have hitherto applied it. The books which are now being published about suicide on the continent are all deploring, with consternation, the simultaneity of the spread of the alphabet and of voluntary death, and are asking, anxiously, what can be the connection between them. They seem indeed to be almost expecting that, if we go on as we have begun, we shall soon see suicide officially recognized by Government as an inevitable result of study (like headaches and spectacles), and placed naturally, all over Europe, under the supervision of the inspectors of schools.

—*Blackwood's Magazine.*

Fourthly.—As mind and body are one, and as the mental organization takes in every fibre of the whole nervous system, and as all sensation is in and by and through the nervous system, have we not committed a great error by such a classification as making mental and physical suffering two distinct forms of suffering, and consequently establishing two distinct forms of treatment—when the truth is, mental and physical suffering are one and the same thing, no matter what the causes may be which produce the suffering, whether it be a gunshot wound, producing mechanical destructive lesions, or an unkind word producing irritative lesions: in either case the suffering is caused by the production of an abnormal change in the nerve centre, the shock produced by the unkind words being borne by means of the sense of hearing to the nerve centre, and the shock which is the result of the gunshot wound, being transmitted to the nerve centre by means of the sensory nerves,—and the suffering may be just as great in one case as in the other, and lead to as dire consequences, that is, to death or, what is

worse, to insanity. Although in one case where death is the result the pathologist may not be able to show us the lesion in the nerve-centre it is as surely there as if it were "*microscopic,*" instead of being as it would be, "*ascopic.*"

Seeing that the nervous system or mental is the motor power by which we live and move and be, and that it is such in virtue of its vital force or motor power, by which force or power it governs every portion of our physical organization, every fibre of which it is integrated with, would I be going too far if I said that, as all suffering is mental suffering, so all diseases are mental diseases. I mean that as all diseases originate in nerve structure there is no doubt but that nerve structure suffers in all forms of disease; but the question is, does disease originate in any other of our bodily tissues, or is the first cause in nerve-structure. I know all the objections that can be raised against this theory; but are they not all capable of being answered? I am not at present prepared to go into that question; to do so would require a paper longer than the one I am about to conclude. I would, however, remark that I believe we can point out very few diseases, whether of the pyrexial class, or otherwise, that are not ushered in by asthenic symptoms, shewing that the nervous system is the first part affected. And in my opinion it were better if we treated all such cases when these symptoms present themselves, than to wait for some specific form of disease to be developed, which disease may be insanity, and by our early treatment prevent any specific disease being developed. He is a good physician who so treats his patient as to enable the physical organization to recover from a diseased state, but he is a better physician who prevents in the early stage the physical organization from running into a diseased state. In other words, prevention is better than cure.

For my part I believe there is a nerve centre for each and every of our thoughts and deeds, for each and every of all our different forms of suffering; for each and every of all the different forms of disease by which we are afflicted, and that each and all of these nerve centres can and will in time be localised by the experts in anatomy, physiology and pathology. The sciences of psychology and biology call upon these experts to find out these nerve centres, and, judging by the work done within the last few years there will be no disappointment. They have already pointed out to us the nerve centre for intelligence and emotions, for motion

and sensation, for respiration and digestion, for hearing, seeing, tasting and smelling, with the nerve centre for speech. They have shown us the nerve centre diseased producing different forms of paralysis, and now Dr Dyce Duckworth of St Bartholomew's Hospital, in his plea "for the neurotic theory of gout," gives us the nerve centre for the diabetes accompanying that disease. He says: "The medulla oblongata, the sympathetic and splenic nerves have been found chiefly affected, and the spinal cord likewise in some instances. The point for the diabetic puncture in the medulla oblongata is believed by physiologists to correspond to the vaso-motor centre in the same structure." With all these facts before us we have every reason to hope that the working men of science will gradually draw from nature all her grand secrets. Then will medical men be able to treat the inebriate and the man of abnormal sexual desires as they do the insane, on purely scientific principles. They will recognise that they have a diseased or abnormal mental organization to deal with, whether either of these states be the result of hereditary or of habit, and they will treat the cases accordingly.

They will recognise that although one man by will-power may succeed in subduing his animal desire by producing a physical change in his mental organization, that such a case is the exception, not the rule. That, as a rule, they might just as well expect the paralysed man to walk because he willed it as the inebriate to abstain from drink because he willed it. They will recognise that all the Legislature can do for such cases is to provide an asylum for them, where they will receive proper medical treatment, and where they will be detained, even against their will or desire, till they have recovered, and where, if incurable, like an insane person, they must remain for life. In all these cases physical change must take place before the desire for drink ceases; and, if there be no other remedy, forced abstinence and time will produce that physical change in the majority of cases, but well-directed medical treatment should be the great consideration. Temperance societies are very good, and I have the highest respect for all those well-meaning persons who, seeing the evil results of drink, have been using what they consider the best means to abolish the evil. But the evil is where they cannot reach it, and the removal of it depends upon the medical scientist, and it is time that medical scientists should bend themselves to

work and find out the nerve centre for inebriety and find a remedy for the case; and those generous persons who for so many years have been working for the cause of temperance with, I regret to say, so little good results, should see to it that the medical men are provided with proper asylums, and all available remedies to carry out their work.

I don't think I have gone too far in attributing all our diseases, as well as all our sufferings, to our mental organization, certainly not further than Dr. Maudsley, and although EULENBURG, GUTMAN, DU BOIS RAYMOND, NOTHNAGEL, BUCKNILL and FERRIER have not said the same in so many words, all their writings tend to the same conclusions.

Gentlemen, I have, to the best of my ability, given you my views on man's two natures, on the theory of creation by evolution, and on mind, because these three subjects are so united in the one science of psychology that I could not treat of one without treating of the whole.

I have dwelt more particularly upon mind, at least in its normal state, because I wished to show how important is the knowledge of psychology in the treatment of disease; and I would have you to believe that you cannot study the mind in health without clinically studying it in disease, and more particularly as it develops itself in the different forms of insanity. It is only by comparison that we can learn the normal mind. I wish, however, that you perfectly understand that I maintain that no man can enter upon the science of psychology before he knows its kindred sciences—*anatomy, physiology and pathology*, and the better he knows these sciences and all other sciences the better will he be prepared to enter upon the science of psychology.

The general increase of knowledge in our profession will never prove an obstacle to experts in particular branches of it; and men will always be found who will devote themselves to some particular branch, and it will be always necessary they should do so. But it is necessary that all medical men should know something of all diseases, and I hope the time is approaching when every medical man will be able to answer in the affirmative when the "Shaksperian" question is propounded to him,

"Canst thou not minister to a mind diseased."

ON THE TRUE POSITION

OF THE

BLADDER IN THE MALE,

AND A FEW THOUGHTS ON PASSING THE CATHETER, BOTH AS REGARDS DRAWING OFF URINE, AND AS REGARDS "SOUNDING" FOR STONE.

By C. E. NELSON, M.D., New York.

I must really apologize to my Montreal readers for obtruding my name so often in the pages of the RECORD; but, in my humble opinion, the subject of this article is one of importance, as is evinced in daily practice; and also, with the exception of those who have had an extensive experience in this branch, such as hospital men, many general practitioners are not so well versed in several little points as they themselves might desire,—their time being most busily engaged in general practice.

I also wish to lay before the medical public the idea that in all likelihood the wood-cuts in our anatomical text-books are erroneous; and if that is the case, causing serious errors in our practice, in passing the catheter—in sounding—and in the operations (*séances*) of lithotripsy.

The position of the bladder in the pelvis, which is likely to be the true one.

Erasmus Wilson, in his "Anatomy," says, "the bladder, when *empty*, is *triangular* and flattened against the pubes." As a minor remark, I think the statement that it is *triangular* is open to doubt, the idea being that the urachus holds it up from the top; my ideas on this point will be elaborated further on, where the connection will be seen.

Flattened against the pubes. With all deference to this celebrated man, I think this statement is incorrect; I prefer the "explanation" that will be given lower down.

Apart from the explanation that will be read lower down, I think the chief argument against its being flattened against the pubes when empty, is the utter absurdity of it, when you come to reflect on the matter, likely for the first time.

As a preliminary observation, I will remark that professors, and medical men generally, are too apt to regard the relative position of viscera in the cadaver as being *precisely the same* as in the living subject; one may say, "well, there are the same folds of peritoneum, so-called ligaments, &c.," but the condition of things is very different; in the corpse, everything is collapsed—that is, when it is opened—from the pressure of atmos-

pheric air, fourteen pounds to the square inch; *before* the "body" is opened, another state of things obtains, a little different to that during life, *i.e.*, certain organs are more distended than during life; also, certain portions of the cadaver are swollen from various extravasations, ante-mortem or cadaveric.

As regards medical students examining closely the relative position of the pelvic (or other) organs, they rarely take the trouble; it being infrequent for a student to dissect the bladder and rectum (stuffed with tow, the anus sewn up); and then, as regards the bladder at least, they think a great deal more of cleaning the muscular coat off nicely, than of any relative position of the organs.

Another great obstacle to our arriving at the truth lies, I think, in the fact that we dissect the cadaver *lying down* (for convenience sake); this is very different to the position during life, as we sit or stand nearly all day. When the body is laid down (like in gynæcological examinations as usually conducted, but for which I always ask the patient to stand up), the pelvic and abdominal viscera *recede* from their usual relative position.

We will take Wilson's first wood-cut, where the man is represented lying down (the usual position, in hospitals, of passing the catheter—but I always ask the man to stand up): there is quite a longish space, which is not clearly accounted for, between prostate and pubes; now, if the bladder, when contracting, flattens against the pubes, as is stated, it would of course have to pull along, and over, with it, rectum, vesiculæ seminales and prostate, across the pelvic cavity (4 inches!) to behind the pubes—a thing that is very unlikely to say nothing of the rectum being closely connected with sacrum, and held there by a meso-rectum. What about pulling the triangular ligament over to pubic arch, which is very unlikely; in that case the urethra inside the body would become distorted, which we know is not the case, by passing the catheter.

A few words more:—the terms that are made use of in designating certain portions of the bladder are, I think, apt to confuse, and thereby mislead; for instance, "body," "superior fundus," "inferior fundus," "base"; the student has got to stop and think whether you are sitting the man or laying him down; and even then the terms are very obscure.

THE TRUE EXPLANATION,

I think, is to be found in Dr. R. Nelson's "Trea-

tise on Asiatic Cholera," wherein he states that (p. 104) "the bladder does *not* contract in *all* directions," as popularly supposed; but that "the base lies against floor of pelvis, between pubis and rectum, in the male, where it is *tied down* (anatomically) to this floor, and is *never removed thence*, however much the viscus may be distended with urine; here it forms a *flat, adherent disc*, about 2 or 2½ inches in diameter, from side to side and from before backwards, between pubis and rectum; in *the very centre of this disc* the urethra opens [I go on transcribing the whole paragraph as it is necessary to do). When the bladder EXPANDS by accumulation of urine, it is *the sides and summit* that expand and a portion of the base also stretches to some extent, but *the base never leaves* its attachment *to the floor of the pelvis* (this is different to what our books say), to which it is affixed by pretty close cellular tissue. When bladder IS EMPTY all contracts, summit and sides, as far as lateral limits of the 'base disc.' and in this state the summit forms *another disc*, of *equal dimensions* to the base (lower) one, and comes into immediate *flat contact* with the lower disc."

My comments will come afterwards, in speaking of the passage of instruments.

My father's remark, that the internal meatus urethræ opens in the *very centre* of the bladder disc, certainly staggers me, as we are led by our pictures to believe that it opens into what we call the "lower end" of the bladder; however, he examined post-mortem many cholera patients in Montreal.

PASSAGE OF INSTRUMENTS.

I have just measured the central portion of the pubis of my skeleton, and ascertained the following diameters: vertical, 1¾ in; transverse, 2½ in.; oblique, 2¼ inches; antero-posterior diameter, sacrum to back of pubis (symphysis), 4 inches, so that, if the rectum is empty, consequently easily flattened against sacrum, when bladder is greatly distended,—for the bladder to contract (according to Wilson and others) it would have to traverse the entire pelvic cavity, four inches across. From the anatomical relation of the parts in the *female* this question need not be discussed.

According to Dr. R. Nelson the diameter of the "bladder disc" is (say) 2½ inches every way, that is *more* than the vertical diameter of the symphysis pubis; it would therefore rise above upper border of pubis, so that it can hardly be

said to be flattened (vertically?) against the pubis.

A great deal of trepidation is manifested by operators puncturing bladder supra pubem, on account of possibly wounding the peritoneum, and, consequently, passing the trocar into that cavity; Mr. James Lane, a celebrated London surgeon, assured his class that when the bladder was distended this accident could not possibly take place, as the bladder *lifted* the peritoneum up before it, as it became distended.

Passing the Catheter.—I believe it was Baron Heurteloup who travelled over Europe, showing medical men the easy, deft, and marvellous way in which he passed the instrument, in the most difficult cases. Most beginners suppose it is very easy to do, but in reality it requires a great deal of skill—witness the false passages that are often made by the attendants. After warming and oiling, the general mistake is that they "turn" *too soon*, which brings the beak strong against upper wall of urethra; if the attendant through "mauvaise honte," *persists* in pushing, likely false passage and abscess may supervene.

EXPLORING BLADDER WITH SOUND OR LITHOTRITE.

The curve of a catheter being too large, we (through habit) explore all around, *top*, &c., although we know the calculus can only be on the bottom; this differing where the man lies down or stands, the beak soon gets arrested against the sides, as the transverse diameter (Wilson) is smaller than the vertical. If a doctor will take his catheter or sound, place end in a small bowl, and keep turning it round in different directions, he will see how utterly futile his efforts may be for some time, before he hits it again a pebble placed in the bowl; but we do a rather singular thing: after exploring all around we turn the beak *downwards* to make sure of *that* direction; according to some pictures, and according to Dr. R. Nelson's statement, there can be *no downwards*, unless by that you term pressing the beak on to the floor of bladder, which of course will *give* to a certain extent. When examining floor of bladder, I turn sound right round upside down, exploring with the beak; as the other way it is impossible to detect a calculus.

THE SUPPOSED TRIANGULAR OR PYRIFORM SHAPE OF THE BLADDER.

I should rather be inclined to state, or think, that the shape of the human bladder resembles that of a flat cake, or, more scientifically expressed

like the human placenta; and also that the insertion of the two cords is analogous in both instances, in the centre of course, but a little depressed (or umbilicated). Persons may say, "why do we not see this in the cadaver?" but, on reflection, a "body" is not opened in a dissecting-room until some little time after death; in all likelihood the subject did not die of Asiatic cholera,—by this time, post mortem (cadaveric) changes have taken place; but persons may again say, in ordinary autopsies, held a few hours after death, why do we not see that umbilicated depression? (I) there may be urine in the viscus, in many cases; (II) possibly it is only in cases of Asiatic cholera, where the observer may have the chance (as Dr. R. Nelson had) of seeing it—rom the "spasm" being on, which would remain after death; perhaps, in one or two days after death, if an autopsy were practised on a person who had died of cholera, this appearance would no longer be seen, on account of cadaveric changes.

In the dissecting-room. On sauntering through we may come across a student "dissecting" the bladder; but what is the observed relation of the organs, one to the other? As it is very troublesome dissecting the bladder down below the pubes, we shall likely see the bladder (upper portion) turned out and over the pubes; the bladder has possibly been inflated with air, through a blow-pipe, through an incision; rectum, lower portion, in connection with lower portion of bladder, possibly stuffed with tow, then ligatured and cut off; intestines have been previously taken away, or turned over to one side; now, everything (especially in a cadaver of some weeks), here is very much distorted; relation of the parts, perfectly strained and unnatural: if water were used ligaturing the neck of bladder below the pressure would be *equal* on all sides, and we would then get more likely the true shape.

Certain conditions where the bladder may, in all probability, be flattened against the pubes.—During the progress of *labor* in the female, when the child's head occupies the sacral concavity, before labour comes on, during the last few days, and especially hours, preceding actual confinement, when the woman urinates every few minutes, latterly, I think the bladder is still horizontal; but, on account of being pressed on above, it has to be frequently emptied, simply because there is only room for a small quantity of urine; if, when the head passes, the bladder contains a large

quantity of urine (comparatively speaking), it is almost sure to be torn; of course this cannot take place unless on being flattened against the pubes.

Pelvic tumors, including large fibrous tumors of the uterus, which may have a "process" descending into concavity of *sacrum*,—the action of these would depend on their size, and situation within the pelvis. In these cases, most likely, as the bladder gets filled, it rises, and gets flattened against pubes,—or, in other words, gets jammed between pubes and the hard tumor.

Fracture of ossa pubis.—It would be interesting if those who had these cases to attend would report whether the fractured edge caused extra irritation of the bladder; I do not remember having heard of it, and this therefore further makes me think that the bladder does not flatten behind the pubes in the emptied state; if it were so the bladder would very likely get torn, as there is nothing whatever between, except iliac fascia.

But these are all unusual cases, and my endeavor now is to prove that the bladder is not triangular; of course this view does not militate against the usual representation of the lower zone in our books.

Correspondence.

DR. C. E. NELSON'S FRACTURE CASE.

CORRECTIONS.

To the Editor of the CANADA MEDICAL RECORD.

SIR,—The article on "Operations" is all right. The second one, "Fracture Case," contains several inaccuracies of the printer; an important one, as regards punctuation, about "putting on the stockings," and "not being able to stand without crutches;" these mistakes cannot now be helped, however; but one grave error I shall have to ask you to correct in your next number (December), that is, printer put five inches shortening (!) instead of two; the older readers will of course see that is a mistake, but it will not so readily occur to the younger ones, who might think it strange, my sending a fracture case to the paper having *five inches* shortening.

C. EUGENE NELSON, M.D.,

New York.

Progress of Medical Science.

MIDWIFERY AND GYNÆCOLOGY.

THE PREVENTION AND TREATMENT OF POST-PARTUM HEMORRHAGE.

In a discussion on this important subject at the late meeting of the British Medical Association (*British Med. Journal*), Dr. THOMAS MORE MADDEN, of Dublin, discussed *seriatim* the causes of *post-partum* hemorrhage, and the treatment required by each of these. Having dwelt on the constitutional conditions predisposing to flooding, and the preventive measures by which this might be waded off, even in those who had been habitually subject to this accident on former occasions, he considered the causes of flooding and the management of labour, so as to prevent subsequent inertia or irregular contraction of the uterus. The ill effect, in this respect, of the premature application of the forceps before the full dilatation of the os uteri, and also the production of hemorrhage as the result of undue delay in the second stage, were next referred to. During labour, when there was any reason to anticipate flooding, the preventive measures recommended by the author were: the rupture of the membranes in the first stage; the use of stimulating enemata of a strong infusion of ergot, or the hypodermic injection of ergotine, in the second stage; and a firm unremitting manual pressure over the fundus uteri, from the time the child's head escaped from the vulva until the completion of the third stage, which should never be hastened by traction on the cord, and the permanent contraction of the uterus was secured. In nineteen cases of flooding, the solution of perchloride of iron was resorted to; in eighteen of these the hemorrhage was thus arrested, and in one instance it failed. Dr. Madden, however, considered that the ordinary mode of using this styptic—*viz.*, by a syringe passed up to the fundus uteri—was a very hazardous proceeding, and exposed the patient to great and needless twofold danger of death from embolism or from peritonitis. He, therefore, recommended, instead, the direct application of the strong liquor ferri perchloridi to the bleeding vessels by a sponge soaked in this fluid, and carried up by the hand into the uterus, and retained there until a firm contraction was produced. Some cases were referred to in which hemorrhage, that had resisted all other treatment, was thus arrested; and Dr. Madden, therefore, regarded this as the most effectual method of treating flooding. At the same time, he admitted that it was not free from danger, or even to be adopted without grave necessity. Some of the other remedies employed in the treatment of *post-partum* hemorrhage, including the hypodermic use of ergotine, galvanism, and cold and hot injections, were referred to.

Dr. William Walter, of Manchester, said

that since the method of treating *post-partum* hemorrhage by the injection of hot water was brought under notice by Dr. Atthill early in 1878, he had treated in this way eleven cases in the Manchester and Salford Lying-in Hospital. The temperature of the water used ranged from 110° to 120° Fahr.; and the utmost care was taken that the tube (Hayes's) reached well up to the fundus; and that there was afterwards no impediment to the escape of the water from the uterus. The results in the eleven cases—particulars of which were given—led Dr. Walter to the conclusion that the hot-water treatment offered some advantages, in being generally accessible and not disagreeable to the patient; but that, as a means of contracting the uterus, it was, in his experience, not to be relied on. Nevertheless, he hoped to continue the method; and he advised that the temperature of the water should be ascertained by the thermometer in every case. The recent researches of Dr. Max Runge tended to show that, if success was to follow the hot-water treatment of *post-partum* hemorrhage, the temperature of the water must not be so high as it was in his (Dr. Walter's) cases. In all the cases but one, the injection was followed by relaxation and dilatation of the entire uterus; if contraction occurred, it was but temporary; but, when the temperature of the water did not exceed 104° F., the uterus contracted without being afterwards paralyzed. No appreciable effect was produced on the pulse and general condition of the system. After the failure of the injection, the application of the induced current was successful in several of the cases.

Dr. Atthill, of Dublin, confined his remarks to the use of the four principal agents used for the arrest of *post-partum* hemorrhage; namely, ergot, cold water, warm water, and the perchloride of iron. Ergot was most unreliable: it took time to act, and, though valuable if administered to anticipate hemorrhage, was nearly useless at the time, even if injected under the skin. Cold was perhaps the most efficient of all agents, if used in the proper cases and at the right time; that is, while the patient was warm, and reaction consequently followed. If its use were prolonged, or the patient were cold and exhausted, it was worse than useless. It was at this stage that hot water came in with advantage, not to supersede the use of cold. Dr. Walter recorded cases in which it failed, or did actual harm; but he used it too hot, namely, at 120° instead of 100°; and the experiments referred to at the conclusion of his paper showed that hot water was efficient in causing contraction of the uterine muscular tissue. If used at the proper temperature, hot water was far from being an absolutely efficient agent, but it was valuable; it would not replace the use of perchloride of iron, but it must sometimes render it unnecessary. Perchloride of iron was in some cases absolutely demanded, and was the most certain means of checking *post-partum* hemorrhage. It had, in Dr. Atthill's hands, saved several lives; but, like all other remedies, it was not absolutely

safe. He knew of one case in which it seemed to cause instantaneous death; but he had known death to follow in a few moments from the simple act of syringing the vagina; air entered the uterus and caused death. Might this not have also been the cause of death when the perchloride was used?

PILOCARPIN IN THE ŒDEMA OF PREGNANCY.

Dr. Bidder related (*St. Petersburg Med. Woch.*, Aug. 16) at the St. Petersburg Society of Physicians the following case, which he treated in the way described, having from previous experience assured himself that pilocarpin does not induce pains during labour: A primipara, aged twenty-five, was admitted into the lying-in hospital in her eighth month of pregnancy, suffering from considerable œdema of the face, extremities, and external genitals—the small labia forming shining tumours as large as a fist. The urine contained a considerable quantity of albumen. Various remedies having been tried in vain, and one of the labia threatening to become gangrenous, a Pravaz syringe of a solution (20 per cent.) of pilocarpin was injected twice on the first of the month, salivation following shortly after, and somewhat later profuse sweating. The œdema had already become much less by the next day, and on the third another injection was employed. By the 12th all œdema had disappeared, and the albumen of the urine had greatly diminished. No uterine pains were induced during this treatment, and when her full time arrived the woman had an easy delivery of a large child.—*Medical Times and Gazette*.

MURIATE OF Pilocarpine IN ECLAMPSIA.

Dr. Braun relates, in the *Berlin. Klin. Wochenschrift* for June 16th, a case of puerperal convulsions successfully treated by subcutaneous injections of pilocarpine. The patient was a robust, healthy young woman, who had been recently delivered of her first child. About an hour after the child's birth, violent convulsions set in, and were frequently repeated. When seen by the author, five hours after delivery, she presented all the symptoms of a severe attack of eclampsia. The convulsions followed each other rapidly, and during the intervals the patient was insensible. The bladder was empty; no urine had been passed since her delivery. Large doses of chloralhydrate were prescribed, and a subcutaneous injection of two *centigrammes* of morphia made; but without effect. During the next twenty-four hours the patient's state assumed almost a hopeless aspect; when it occurred to Dr. Braun that, as the eclampsia of puerperal women is caused by uræmic intoxication, a diaphoretic drug would diminish the tension in the arterial system and free the blood of toxic matter. He accordingly made a hypodermic injection of three *centigrammes* of muriate of pilocarpine. This was followed by very profuse perspiration and salivation. During the next half-hour, the muscles of the eye and the face twitched

a few times. No more eclamptic fits came on, and the patient recovered quickly.—*Brit. Med. Journ.*

AUSCULTATION IN UTERINE HEMORRHAGE.

Prof. DEPAUL, in clinical lecture (*Gaz. des Hôp.*, Aug. 26), observes that when hemorrhage occurs during labour, it will generally be found to arise from partial detachment of the placenta, the cord being too short. "I remember," he said, "the case of a young woman whose delivery had gone on very well, when, as the head was approaching the vulva, two or three spoonfuls of blood suddenly appeared between her thighs. I immediately practised auscultation, and found the foetal heart beating irregularly. It was evident that the infant was suffering, and that it was dangerous to await the natural termination of the labour, which might last two or three hours longer. Dilatation was complete; and easily persuading the mother of the necessity of terminating the labour rapidly, I applied the forceps. Immediately after the child was extracted there followed five or six enormous clots, weighing about a couple of pounds. The child was born respiring with difficulty, but soon quite recovered. Never forget, then, whenever you meet with a flow of blood, to assure yourself by auscultation as to the state of the infant, and when dilatation has taken place, hasten to interfere whenever life seems in danger."—*Med. Times and Gaz.*

ERGOT IN THE TREATMENT OF FIBROID TUMOURS OF THE UTERUS.

Dr. William H. Byford of Chicago, in a paper read at the late meeting of the British Medical Association (*British Med. Journal*), laid down the following propositions, and offered arguments in support of them. 1. When properly administered, ergot frequently very greatly ameliorates some of the troublesome and even dangerous conditions of fibroid tumours of the uterus, *e. g.*, hemorrhage and copious leucorrhœa. 2. It often arrests their growth, and checks hemorrhage. 3. In many instances it causes the absorption of the tumour; occasionally without giving the patient any inconvenience; while, at other times, the removal of the tumour by absorption is attended by painful contractions and tenderness of the uterus. 4. By inducing uterine contraction, it causes the expulsion of the polypoid variety of the submucous tumour. 5. In the same way, it causes the disruption and discharge of the intramural tumour. He said that, in administering ergot in cases of fibrous tumour, the action of the drug would depend on the degree of development of the fibres of the uterus, and on the position of the tumour with reference to the serous or the mucous surfaces: the nearer the mucous surface, the better the effect. A good result might be expected under the following conditions: smoothness of contour of the tumour, denoting uniform development; hemorrhage; a lengthened uterine cavity; and elasticity of the tumour. He would expect large fibro-cystic tumours to resist the action of ergot; and a good

result was not to be expected in cases of uneven nodulated tumour, absence of hemorrhage, shortness of the uterine cavity, and hardness of the tumour. It was not essential to give ergot hypodermically, though this was a very efficacious method; it might be given by the mouth, in suppositories, etc. If the object were to cause painless absorption of the tumour, the dose should be moderate, and not too frequently repeated; if it were desired to have the tumour expelled, full and increasing doses should be given often, and continued till the object was attained. The preparation which he used was Squibb's fluid extract of ergot. He said, in conclusion, that he disclaimed any expectation that ergot would supplant all other modes of treatment.

EXTIRPATION OF A CANCEROUS UTERUS.

Dr. Von Massari relates a case of extirpation of the cancerous uterus followed by a fatal result. The patient was fifty-three years old, the mother of nine children. Menstruation had ceased at the age of forty-three. A vaginal discharge had existed for two years, for six months irregular hemorrhage had occurred, and the discharge had become offensive. There was no pain, and the general condition was good. The cancerous cervix was hollowed out into an ulcerated cavity which admitted the finger, bled readily on touching, and from which a scanty offensive discharge flowed. The uterus was quite freely movable, and no trace of the disease could be discovered in the pelvis.

The operation was performed on February 1, 1879, in a room disinfected by thymol spray, and the patient was placed with her head towards the window, the thighs flexed and abducted. A mixture of chloroform 100 parts, ether 30, and alcohol 20, was used for anæsthesia. The vagina was syringed with 5 per cent. solution of carbolic acid. An incision having been made from umbilicus to pubes, the author succeeded with difficulty in pressing the intestines and omentum up into the upper part of the abdomen by means of compresses dipped in warm thymol solution. The edges of the wound were then held apart by means of a kind of clamp invented by the author, so as to allow a free view into the pelvis.

The operator then placed himself between the patient's knees, and introducing the left hand into the vagina, introduced the lowest loop of the sutures for the broad ligament at each side in a manner similar to that adopted by Freund, the needle being inserted at a point 1 cm. from the lateral border of the lip of the cervix, and entering successively the anterior and posterior pouches of peritoneum at a point 1 cm. from the border of the uterus. The first loop at each side inclosed the lower third of the broad ligament, and two more loops secured its middle and upper thirds respectively, the uppermost loop being placed outside the ovary. In closing the wound the author adopted a different method from that of Freund.

Three sutures were passed from the vagina into the peritoneal cavity, between bladder and uterus, and a similar number of loops were passed from vagina into pouch of Douglas, intended to draw down the ends of the sutures after removal of the uterus, and so complete the loops, to be tied in the vagina, and so unite the anterior and posterior cut surfaces. Two of these loops, however, were cut in separating the uterus, and the two corresponding sutures had afterwards to be passed by a straight needle from above into the vagina. During the separation of the uterus, the fundus was drawn upwards, or to the side, by means of Luer's forceps. As soon as it was cut away, the pelvis filled rapidly with blood, and the uterine and some smaller arteries were found to be spirting, and to require ligature. The cut surfaces were then brought together by the sutures before mentioned, and intermediate gut-sutures were inserted, and tied on the peritoneal side. The peritoneal cavity was sponged out, and four drainage tubes inserted, antiseptic dressings being applied. The operation lasted an hour and a quarter, and, at the end of it, the patient's condition was good; pulse 96. In the evening the pulse had risen to 118; temperature 38.3 C., and vomiting had occurred once. On the second morning, temperature 38.6 C., pulse 120; evening, temperature 39.3 C., pulse 140. There was now frequent vomiting of watery fluid, and the features had become drawn. On the third evening, temperature had risen to 41 C., pulse could not be counted. Death occurred about midnight.

At the autopsy, the peritoneal cavity was found to contain about ten c. c. of semi-purulent fluid, and the peritoneum was coated thinly with lymph. The right ureter was found to have been cut across about three cm. above its opening into the bladder, and its upper portion was included in one of the ligatures. The pelvis, and calices of the right kidney, as well as the ureter, were slightly dilated. In the removed uterus the inner two-thirds of the wall of the cervical canal was found to be infiltrated with medullary carcinoma.

To avoid the risk of wounding the ureters, the author proposes, in future, to pass bougies into them, as a preliminary to the operation. He finds, however, that Simon's method of sounding the ureters is too difficult and uncertain, and therefore proposes to dilate the urethra, pass into the bladder Simon's urethral speculum, and by its aid to sound the ureters. In one trial, he has found this easy to accomplish with the aid of an ordinary lamp light and reflector.—*Centralblatt für Gynäk.*

Dr. F. J. Kochs, of Bonn in the *Archiv für Gynäkologie*, B. xiv. H. 2, relates a successful case of extirpation of the cancerous uterus. The patient was thirty-nine years old, the mother of two children. She was in good health, and menstruation was regular up to January, 1878. After the menstrual period of that month, a discharge

commenced. Occasional hemorrhage, but not to any considerable degree, had also taken place, and but little pain had been felt. When she came under the author's observation, at the beginning of the following April, the cervix was found to be hollowed out into a deep crater, and enlarged by malignant growth, which reached up to about one cm. from the vaginal insertion, but nowhere overpassed that boundary. The uterus was about as much enlarged as it would be in acute metritis, and was movable, although not quite freely so. Microscopic examination of a small portion of the growth showed it to be carcinoma. The tendency to hemorrhage was considerable.

Menstruation came on on April 19th, lasting seven days; and on April 28th the operation for extirpation was undertaken. The patient was placed with her head towards the window, and lower than the pelvis. The anæsthetic was chloroform, given by Junker's inhaler; and care had been taken to administer purgatives for several days previously. Carbolic spray of a strength of one per cent. was used at the operation. The incision was made from the mons veneris to about two finger-breadths above the umbilicus, and the edges of the wound were held apart by retractors. It was found possible to hold back the intestines in the upper part of the abdomen by means of a handkerchief dipped in carbolic solution.

The three loops of strong silk ligature were placed on the broad ligaments at each side, from above downwards, the last loop entering the vagina. Each loop was doubled, so that the innermost thread was close to the uterus, and the outer one about one cm. from it. The threads of the inner loops were cut short. A simple long, slightly curved needle was used in passing all the ligatures. The lowest loops became slack after division of the upper part of the broad ligaments, and had to be replaced. The lowest loop on the left side had again to be replaced after complete separation of the uterus from the right broad ligament, and from the bladder and rectum. In passing the loops, in order to avoid lesion of the bladder, the finger was passed into that viscus, after dilatation of the urethra. The ovaries were removed, the mes ovaria being tied with silk. A supplementary ovary was noticed on the left side, situated from one to two cm. within the left ovary. This was removed in like manner. The bladder was separated from the uterus by using the scalpel from above, guided by the finger within the bladder. The knife was also used to pierce the vagina from the pouch of Douglas, and the opening so made was enlarged to either side. The ends of the ligatures were drawn down into the vagina, after Freund's method, and the wound of the peritoneum was brought together in a transverse line by six fine sutures. The vagina was finally washed out with carbolic solution, but no tampon placed in it.

Some vomiting occurred the same evening, and it was necessary to use the catheter about ten o'clock, no incontinence of urine having followed

the dilatation of the urethra. Temperature 38.2° C.; pulse 120. On the second day, temperature was 37°; pulse 140. The same evening the pulse rose to 160, but after this improvement took place, although vomiting was frequent for several days. On the fifth day the pulse had fallen to 96; temperature 37.8° C. From this day the vagina was washed out with carbolic solution by means of a speculum. On the eighth day, on the removal of one of the sutures, a small collection of pus was evacuated from the neighborhood of the puncture. Convalescence went on undisturbed till May 24th, the twenty-seventh day, when rigours came on, followed by febrile symptoms. On the 26th, a considerable discharge of pus took place by the vagina. Recovery was steady from this time. At the last examination reported, which was made on June 6th, a funnel-shaped depression remained at the summit of the vagina, with some small protuberances; but these did not show, microscopically, any sign of cancer. There had been no recurrence of menstrual molimen.

To simplify the operation, and avoid the difficult process of placing the lowest loops of the sutures which are to secure the uterine arteries, the author proposes, in future, before placing these loops, to separate the uterus from the bladder and the pouch of Douglas, which will not, he thinks, cause much bleeding. The loops of suture can then be easily carried by a long, strongly curved needle, like an aneurism-needle, from the pouch of Douglas into the vagina, and thence into the anterior pouch of peritoneum through the opening so made.—*Obstetrical Journal of Great Britain*, Sept., 1879.

ON VARIOUS FORMS OF FUNCTIONAL CARDIAC DISTURBANCES.

BY BEVERLEY ROBINSON, M.D., Lecturer upon Clinical Medicine at the Bellevue Hospital Medical College, New York.

GENTLEMEN:—Functional or neurososal conditions of the heart differ essentially from those which are organic or inflammatory in their nature. In the one case we have no evident lesions when the heart is examined post-mortem, and in the others we have usually, if not always, some obvious change in valves, or orifices, or heart-walls. During life they differ also, with structural diseases. Their symptoms are more variable, more painful and distressing frequently, and they are continually forcing themselves upon the patient's attention. About their importance no one can doubt, since they are frequently confounded with permanent lesions, and yet are themselves amenable to wise, careful, judicious treatment. Functional trouble of the heart may be temporary and passing, or it may be permanent in character. It may be part of a general nervous temperament, or it may be dominated by some purely accidental circumstance. It may be primary and essential and then, so far

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 musculi 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

rapid, and it is not remarkable to see it mount to 120 or 130 beats per minute.

The extremities perspire easily, and have a cold, clammy feeling, which is an additional proof of general nervous prostration. These patients are at times affected with severe dyspnoea; and yet, when we count the number of respirations, we do not find them increased so as to be above the normal. It is a remarkable circumstance that this affection has been many times confounded with pulmonary phthisis. I can understand many reasons why, even after careful research, one might properly hesitate between it and hypertrophous dilation—the more too, as irritable heart is often accompanied with or followed by this form of organic change. But it appears to me somewhat far-fetched, with the signs above given, that any one should be in quest of consumptive evidences. All physical signs, moreover, of lung disease are absent; and the irritative cough present, with the slight and interrupted spitting of small pellets of blood-stained mucus, are not sufficient properly to withdraw one's attention from the heart.

The prognosis of irritable heart is favorable if the whole disease consist of temporary exhaustion of the sympathetic; but if, in consequence of repeated over-exertion, the heart becomes organically affected, then we have to do with an affection which is almost always prolonged and sometimes serious. Such cases are reported as having followed an affection of the uterus, and also the inveterate use of tobacco. Usually the signs of the resultant lesion are similar, viz: there is extended impulse and increase of precordial dullness on percussion—both of which point to the existence of an enlarged heart. An analogous form of heart affection may be caused in individuals who have undergone very intense exertion without having previously been in training for it. Such an example is that of Clifford Allbutt, who has given a full account of his own experience in an article upon "The Effects of Overwork and Strain on the Heart, etc.," in *St. Geo. Hosp. Reports*, vol. v., p. 23. Dr. A. had made a pretty lofty ascent, and was about to go still farther and higher when he was taken suddenly with a stifling sensation and painful cardiac pulsations in the epigastric region. Unable to proceed, owing to the distressing sensations from which he suffered, he lay flat on his back for a while, and then, feeling better, attempted once more to continue his ascent on foot. The same painful feelings returned almost immediately, so that he was compelled to delay his onward march some time and send his companion in advance to secure lodgings for them during the night. Finally he was able to go on. When he again reached level ground his normal feelings returned, and that same evening he was able to eat his supper with appetite and go, without discomfort, to bed.

During the night, after several hours of sound sleep, he awakened with similar painful sensations to those he had experienced during his afternoon walk. In this instance there had evidently been

over-distention and temporary debility of the muscular walls of the right ventricle, which had been brought on by an acute strain upon the heart strength. Over-exertion, without preliminary training, here occasioned but passing dread, with intense oppression, while there can scarcely be a doubt that, under like circumstances, rapid death has been the frequent and sad result. We should bear in mind an example like this whilst remembering that heart disease can ordinarily be traced to the pre-existence of rheumatic fever, of scarlatina, typhoid, typhus, etc. Still, mechanical causes are at times equally injurious, and affections of the orifices or cardiac walls may thus be occasioned. It is a singular fact that but little emphasis is laid upon these causes by the majority of English and foreign authorities. Even so accurate and complete an analyzer as Hope barely alludes to them, and such men as Jenner write, as late as 1869, only to deny their influence. Doubtless, as remarked by Allbutt, the practice of this distinguished clinician did not lead him in the way of encountering many such cases. In the view of Clifford Allbutt it is regrettable that, although so much has been published in regard to cardiac pathology, the character and mechanism of bruits, the therapeutical bearings of numerous cases, this equally important subject has been almost completely overlooked. And yet certain occupations do undoubtedly give rise to organic cardiac disturbances. Heart disease among soldiers has been fully described by Myers in 1870. Peacock mentions it in a special manner as existing among those who work in tin and copper mines, and Da Costa among those who make excessive expiratory efforts, as glass-blowers and cornet-players. Most of you saw the lad I presented at this clinic only a few weeks since, who had already acquired considerable hypertrophy of heart, with obstinate recurrent attacks of hæmoptysis, due to nothing else than the continuous fatigue and strain in his trade. The gist of this matter has evidently been ascertained by Da Costa with that clearness and correctness of insight which stamp his observations. He shows conclusively, in his monograph on this subject, that it is not so much *interrupted* exercise which does damage to the heart, even if it be of violent nature, as it is the professions in which the circulation is constantly impeded or hurried. Of course it is not affirmed that violent games will not produce both functional disturbance and occasional organic difficulty—notably hypertrophous dilatation, for examples of the contrary are shown. Thus, among what are ordinary amusements with young people, such as dancing, rowing, base-ball, we find instances of functional trouble which finally pass into organic heart disease.

Still when these latter could be vouched for, they have occurred first in those persons who were predisposed to have irritable heart, and second, among persons who had no let-up in their active amusements. With base-ball players Da Costa cites two cases of hypertrophous dilatation. But

here again the injurious results followed almost continuous play, and not play that was interrupted during several days or weeks at a time.

In volume xviii. of "Ziemssen's Cyclopædia," Dr. A. Brayton Ball, of this city, has contributed an excellent article on "Physical Exercise," and under the division of "Results of Over-exertion" shows that, so long as muscular exertion conforms to the law of rhythmic action, it develops the muscles and augments their strength; but, if the exertion become continuous, then it decreases their power, and finally leads to atrophy, or, worse still, to degeneration. Applying this to the heart, it is not difficult to appreciate that through over-exertion we shall inevitably diminish the duration of cardiac repose by encroaching upon diastole through increased rapidity of action. Thus we approximate to a condition of almost continuous work for this organ, which must occasion the same detriment to it as it does ultimately to any one of the purely voluntary muscles which is being constantly called upon after an analogous manner. Doubtless the heart is sooner and more injuriously affected among those who are poorly fed, breathe an impure atmosphere, and are victims of alcohol, than among those who suffer from no such pernicious circumstances.

Dr. Ball makes a few forcible remarks against the senseless habit of long-distance walking which is so intensely the fashion of the moment. In it he finds a useless expenditure of reserve force, which can only be made with the certainty of causing future permanent injury to the contestants. According to this author, the best way probably to prevent bad consequences to health resulting from active physical exercise is to appoint a competent medical man in each one of our large institutions of learning, where there are many students, and, therefore, many who engage in outdoor sports, whose duty it shall be to examine each young man with respect to his physical condition. After this examination has been thoroughly made, only those of vigorous build, and who at the same time enjoy good health, shall be permitted to engage in games or contests for which just these attributes are essential, so that harm may not result from indulgence.

In regard to the treatment of all such cases of irritable heart, or of those in which debility has already shown itself by some dilatation, special importance must be attached to rest on the back; and with "heart-weary" people it is a great point gained to have them avoid just those professions which are calculated to increase their disease. Above all, let the thorough-going, typical, too rapid American be perfectly assured, as Da Costa remarks, that constant running to catch a boat or a train, or "bolting" all meals, is bound to injure his heart as much and more than the coats of his stomach. Sexual excesses are also a frequent cause of irritable heart, and functional disturbance thus caused is not the price paid only by men or women of profligate habits. Moral men—men whose duty to the state is properly shown by a vigorous and increasing family—are sufferers, and

have become so by an apparent ignorance of the fact that because indulgence is not socially censurable it is individually of possible injury to health. Such individuals (clergymen, farmers, lawyers, etc.) often owe their general lack of energy and bodily activity to irritable hearts thus occasioned. We all know many of the disastrous consequences which are the immediate outcome of drinking to excess. Among these none are more frequent than the weakened heart and soft, weak, rapid pulse of the steady drinker, or of one who frequently "makes a night of it." To some persons tobacco is relatively innocuous; to others it is a poison, even in mild and minute doses. To many, mild cigars are not injurious, but strong tobacco completely unnerves them. How many young men suffer cardiac palpitation which are attributable to no other cause? The close student is often just the one who is thus affected. After the excitement of examination is passed, then it commences to tell, and he can scarcely walk a block at a rapid pace without feeling his heart leap into his mouth. At night he hears his arteries throb, his heart beats in a very irregular manner, and sleep is prevented for several hours. To remedy this, whatever else be done, tobacco must be put aside for several months.

The green-tea drinkers of our mothers' and grandmothers' days were certainly more numerous than they are in our own day, and, I judge, must have had very irritable hearts. For even now, and when English breakfast tea is pre-eminently a lady's drink, still attacks of painful palpitations are common among them, and to remedy them we must adopt Fothergill's plan of prescribing *cocoa* as a beverage, with a doubting faith, however, lest they soon again relapse into their former pernicious habit of excessive tea-drinking. To show the influence of the mind over the action of the heart, Fothergill cites the case of a medical student who, when asked a question, the answer to which required thought, had immediately a changed cardiac rhythm and intermissions of the pulse-beat. Whenever the answer was given without thought, the action of the heart remained undisturbed. We are all of us aware how much our heart-action is influenced by emotions or temporary excitement, but we are not all aware how much control of the cardiac centre may be acquired by an effort of will. The accomplished statesman is, however, able to control every utterance which indicates emotion, and this is, perhaps, as great a proof of regularising heart-action as the others familiarly cited of the finished coquette or the winner at Creedmoor.

In his usual brilliant way, Fothergill touches the keynote of this matter in saying there are "stout-hearted" and "faint-hearted" people—those who can be relied upon in an emergency and those who cannot—those, in other words, who can control their hearts under circumstances of great excitement or impending danger, and those who then become powerless and useless.

There are many other causes of cardiac palpi-

tations that we have not as yet alluded to. Among the frequently encountered are plethora, anæmia, dyspepsia, and gout. We have already seen that an overtaxed heart becomes irritable. So in a certain way do we find the heart of an individual whose blood is in excess. The muscular fibre of the heart is unduly excited, the origins of the pneumogastric trunks receive too much blood, and there are frequent and violent palpitations as a result of the preceding conditions. These symptoms are apt to occur among individuals who, for one reason or another, have abandoned active and abstemious habits of life for those of ease and self-indulgence. There is no more prolific source of functional heart trouble than an anæmic state. We are constantly encountering it in city practice. Numerous causes may be assigned for the presence of anæmia, but once present it will often become the source not only of cardiac palpitations, but also of many secondary phenomena, which indeed appear to be very similar to those we find in connection with organic heart disease. The prognosis and treatment being so very different in these two conditions, it should make us very cautious in affirming our diagnosis. Usually, functional heart disorder, due to anæmia, is accompanied by numerous other symptoms which fully establish its etiology. Such are headache, intercostal neuralgia, cold extremities, leucorrhœa, etc. Palpitations are often aggravated, if not directly occasioned, by the presence of atonic dyspepsia. Wind accumulates in the over-distended stomach after a meal, and soon the heart is pushed aside and its circulation is directly interfered with and becomes markedly laborious. This same mechanism will account for cardialgia which is so apt to show itself in hysterical women during a paroxysm. In both cases the immediate exhibition of a carminative, such as the compound tincture of lavender, aromatic spirits of ammonia, or melissa water, will, by bringing up the wind from the stomach or causing it to be belched, give almost instantaneous relief. In speaking to you at a previous lecture of the effects of gout upon the capillary system, I pointed out to you how sudden palpitations might be produced in a wholly unexpected manner, owing to spasm of the arterioles. Formerly this effect upon the rhythmic beats of the heart was presumably due to an accumulation of lithic acid in the blood, and even in the last edition of the work of your eminent Professor of Practice it is thus described. But within a few years, thanks to the distinguished researches of Sutton and Sir William Gull, but more especially of George Johnson, of King's College, London, it is now accurately determined that there is hypertrophy of the muscular fibres in some cases, of the fibrous tissue of the walls of the arterioles in more numerous instances, and of a combination of both changes in a very limited number of examples, which accounts for gout palpitations. Doubtless uric acid is still to be found in excess in the blood, but it does not seem to be the proximate factor in

causing spasm throughout the capillary system. This once again is due to an evident, determined pathological lesion. Why it is that gouty palpitations come on during the night particularly I am not prepared to say. After all, in the consideration of cardiac palpitations, we must not lose sight of the fact that cardiac excitability varies very much with different individuals: some there are whose heart palpitates from even the slightest emotions; others bear with the greatest stoicism, or rather most perfectly calm, quiet circulation, all sorts of sudden shocks or dreadful occurrences. All the causes which affect merely the rapidity and force of the cardiac action, influence it through the sympathetic system; those which act through the pneumogastric alter the rhythm of cardiac movements. This is distinctly shown by the results of the experiments of sectioning these nerves.

While we can separate in our experiments the control which belongs to each system of nerves, this is not always possible with certain morbid agencies. The symptoms present often show conclusively that they have acted through both systems. While the nervous trunks no doubt usually carry the impressions and modifying stimulus to the heart, it is often true that the nerve-centres themselves are primarily disturbed.

Apart from the symptoms which can be localized, and, therefore, attributed to the heart directly without much reason for uncertainty, there are many general symptoms which manifestly must differ according to the different cause or pathological relations of the cardiac disturbance.

(To be continued.)

DIABETES INSIPIDUS TREATED WITH ERGOT.

In the *British Med. Journal*, Dec. 25, 1875, is recorded the case of a man who suffered from diabetes insipidus, and was successfully treated with ergot, after the failure of jaborandi and other remedies. Half a drachm of the liquid extract of ergot, every three hours, reduced the urine in twenty-four days from twenty pints to a pint and a half, increased its specific gravity from 1,002 to 1,017, and removed the excessive thirst and other distressing symptoms from which he had suffered for two years. A few days ago the reporter of the case, Dr. Murrell, accidentally met the patient and was told that he had never had a day's illness since he left the hospital, four and a half years ago. His urine was normal in quantity and he did not suffer from thirst. He was strong and well in every way, and able to do a good day's work. The ergot cured him completely, and Dr. Murrell adds that it is to be regretted that this mode of treatment is not more commonly employed in these cases.—*The Brit. Med. Journ.*, May 8, 1880.

SURGICAL TREATMENT OF EPISTAXIS.

Dr. Edward Hamilton, in a communication to the *British Medical Journal* (vol. i., 1880, p. 691), denounces the ordinary Bellocq's canula as a frequently useless and sometimes pernicious instrument. He himself takes a strip of linen material three feet long, with a width in proportion to the fineness of the texture, perhaps an inch on the average. This may be soaked in some domestic astringent at hand,—tea, alum-water, saturnine solutions; oil may be used, but it should be sparingly, for, although it greatly facilitates the introduction of the material, yet it interferes with the imbibition of moisture, and thus prevents the subsequent expansion of the plug, which is useful in checking the escape of blood by its compressing effect. The best of all fluids, if at hand, is a saturated solution of gallic acid in glycerine, which may be kept for the purpose. This has the advantage of combining astringency and styptic quality with lubrication. This strip of linen should be regarded as consisting of three parts, each intended for its own special position in the nostril. The end of the first portion should be grasped in the blades of a dressing-forceps, and conveyed along the floor of the nostril to the posterior termination of that cavity; the remainder, about one foot, should be rapidly "paid" by the finger and thumb into the cavity of the nostril. The solid mass thus formed should be forced along the floor of the nose, first with the little finger and then with the dressing-forceps or a pencil, until it is found to occupy the posterior nostril, and distinctly felt in it by the finger, hooked round the soft palate. This is far the most important part of the entire proceeding, being as it were, the basis of operations. The second portion should now be paid into the nostril in the same way, and pressed by the finger and forceps into its position,—the roof of the nose. The third and last portion should be pushed into the nostril so as to occupy a position in front of and below the other two, and, being caught within the edge of the alar cartilage, will usually retain its position without trouble. Dr. Hamilton thinks it desirable that the material should not be cut, but retained as one continuous piece for facility of subsequent removal; but too much care cannot be taken in disposing of the first portion. The nostril being thus perfectly and thoroughly packed, every portion of the lining membrane is steadily and firmly compressed, and the escape of blood is rendered physically impossible. In the course of about forty-eight hours the plug begins to loosen, the end falling from the nostril. Directions should be given to the nurse or attendant on no account to pull it, but simply to cut the projecting part on a level with the nostril according as it drops, until the entire plug comes away. There is little fear of the plug remaining too long as, when the natural secretion is restored, it becomes quickly loosened and unpacked, and falls away through the anterior nostril.

LONDON CORRESPONDENCE.

The age of miracles is not yet over it appears. A gang of thieves was brought up at one of our chief police courts in the metropolis a short time since, charged with breaking into a house and ill-using the only inmate, a lad of seventeen, who had been dumb from birth, but who was so frightened at their treatment that he, I was going to say recovered, but at all events he found his speech! and I believe, on good authority, that there is no doubt about the fact.

A case was tried at the Marylebone County Court the other day of considerable interest to the medical profession. The defendant, apparently a member of the Hebrew persuasion, was sued by his medical attendant for a sum of money for various visits to his wife after her confinement. The defendant contended, first, that the plaintiff had agreed to attend his wife in her accouchement, and for a month! after, for the sum of four guineas; and, secondly, that the after-illness was caused by the doctor's neglect and want of skill, in not having ascertained that the patient had passed no water for four days, which for several days after necessitated the use of the catheter twice daily. The judge promptly sat upon the attempt to disparage the plaintiff's professional skill, and gave him a verdict on the ground that the after-attendance was, as he observed, *outside* the original contract, and that no man in his senses would undertake to attend a woman in her accouchement for a month for four guineas. (Of course the plaintiff utterly denied this part of the compact.) But it rather appears to me as though this case is another illustration of "if you want a thing done well, do it yourself," in other words never trust too implicitly to the statements of the nurse. Talking of nursing, the lamentable state of affairs still continues at Guy's Hospital, and has culminated in the resignation of the senior Physician and Surgeon, and one of our oldest and most useful institutions in this huge overgrown city is rendered well-nigh incapable of carrying out the benevolent intentions of its founder. More than one inquest lately has demonstrated the impotency and incapability of the present system. The affair seems to me to lie in a nutshell, are the nurses to obey the doctors or not? In private practice, a nurse who chuses to disobey orders would very promptly be sent to the—well, home to her mother.

The fact that the revenue in this country derives more than two hundred thousand pounds per annum from the stamps for the sale of patent medicines deserves more than a passing mention, and more than a passing thought. England is the best quacked country in the world, and the colossal fortunes that have been and are being amassed by the vendors of pills, and ointments, and blood mixtures, surpass all belief. When men can afford to spend many thousands per annum in advertising alone, their profits must be immense indeed. The endowment of hospitals, &c., &c., in latter life from some of the huge sums made carries one back in thought to the times of and prior to the middle ages, when the robber barons of those days, after during nearly their whole existence leading a life of robbery, murder, violation, and of committing every vile thing they could do on the face of this beautiful earth, would on their deathbeds think to make their peace with Heaven by building a church! or endowing a monastery. Verily "History repeats itself, and there is nothing new under the sun." English Physicians and Surgeons are, it is universally admitted, second to none; the examinations they have to pass are as, if not more, stringent than any under the sun. The expense of acquiring their diplomas is very great, and when they have obtained them, what does a munificent state and a beneficent country do for them? Mulcts them in a fee of five guineas for a registration sham, sneers and jeers and ridicules them (even the Poet Laureate has no better taste than to have a fling, and state what a moment's consideration must have shown him to be a monstrous untruth), allows any fool who can scrape a few coppers together to flood the country with advertisements of his wretched nostrums, which when they do any good are, as in one notable instance, filched from a physician's prescription. The munificent state also allows any booby (either with or without a bogus diploma), who can get a qualified man (and I am sorry to say there are many unscrupulous enough to do so) to "cover" him, to drench the unfortunate gulls, and trust to luck to carry them through. Within a few yards of where I am writing, there are two of these so-called Dispensaries doing a flourishing business. London is full of quacks and impostors, who openly and unblushingly carry on their nefarious trades. The public suffer equally or more so than regularly qualified and registered practitioners, and the law

seems powerless to protect either the one or the other. Truly they "manage these things better in France." There neither nostrum nor quack, nor unqualified practitioner is allowed to flourish.

We are as far off as ever apparently from finding a specific for the cure of cancer. The much-vaunted chian turpentine, which was introduced with such a flourish of trumpets, appears to have most ignominiously failed, after having been given a fair and lengthened trial in several cases. I am sorry to confess that in my practice it has completely failed to do what it was asserted so confidently it would do—cure cancer.

LONDON, 8th December, 1880.

THE MIDWINTER (FEBRUARY) *Scribner* has always been a special number, as rich as the choicest literary matter and the most beautiful wood engravings can make it. Of last year's midwinter number the London *Times* said: "It is a really magnificent triumph of American pictorial art and literary genius." The English publisher of *Scribner* has telegraphed for 17,000 copies of the present number,—an advance of 6,000 upon his orders last year, and the largest edition of an American magazine ever sent to England:—in fact, it is said to be larger than the monthly sales of *any English Magazine*. The American edition of *Scribner* has grown during 1880 about 20,000 copies.

Since 1878 the sales of Wyeth's Beef, Iron and Wine have quite doubled in amount, owing to the appreciation by Physicians of its claim that the preparation really deserves the preference on account of the Purity of the Wine, the Fresh Beef used, together with the fact that the Iron is held in solution, a condition to insure ready assimilation. If Physicians will test it by simple taste, they will find an entire freedom from the mawkishness that must characterize it if made from Extract of Beef, resulting in a disagreement with the delicate and sensitive stomachs of the class of patients for whom this combination is specially indicated.

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