

Under this treatment she gradually lost all pain. The opium was soon discontinued, but she slept well, and the medicine was at length omitted, in consequence of the disagreeable metallic taste. Her medical attendant, Mr. Curtis, favoured me with a favourable report of her since, and she is now taking quinine and iron under his direction.

The carbonate of iron was considered to have a kind of specific action in such neuralgic cases, and was prescribed in spoonfuls; but I think it a clumsy way of giving medicine; being nearly an insoluble powder, and any quantity of course may be given that will pass off by the bowels. The more soluble salts are certainly the most effective, and none more so, or more agreeable than the vinum ferri as prepared at Apothecaries' Hall; but the sulphate or hydrochlorate, or the ammoniated tincture, will answer equally well. The chalybeate waters are even more certain in their effects than any of our medicinal potions, and this is a fact not so generally recognised as it should be. It matters not whether the water be natural or artificial. Small doses largely diluted are more readily absorbed and diffused than larger and more concentrated doses; and I am sure the experience of all practitioners who have had the opportunity of observing it, will accord with my own in this respect, that some persons who have taken the pharmaceutical preparations with little or no effect, have been unable to persevere in the use of the natural ferruginous waters, from their immediately affecting the head.

The anæmic appearance, usually observed in periosteal disease, would seem to point naturally to iron preparations, and though they do not seem directly to control the morbid action going on during the activity of nodal deposit, as both iodide of potassa and mercury, in their appropriate cases, are observed to do, yet their indirect influence is very decided, and when the acute symptoms are relieved, it is most desirable to alternate the iodide of potassa with iron preparations; and there is one form of iron which is especially applicable, viz. the iodide, which is best given in the form of syrup.

Quinine is an important agent in the treatment of this disease. Periosteal disease is rife in the aguish districts of Kent and Essex, and although the iodide of potassa will control the paroxysms, the relief must be followed up by such remedies as restore the constitution to a normal state, which the iodide will not do, and without which the relief can only be temporary. There is a morbid condition popularly recognised in those situations under the term "dumb ague." No distinct paroxysm of ague is observed; but it is evidently dependent upon the same influences which may develop fever in its intermittent or remittent form; attended with much debility; sense of chilliness, emaciation, and anæmia; and its victims are constantly the subject of periosteal disease. The women cease to menstruate, and the men are despondent; the anasarca swellings indicate an obstruction in the chylopoietic vessels, whether in the liver, spleen, or kidneys, and Bright's kidney is no unfrequent attendant, evinced by albuminous urine. Without hoping to restore the kidney to its normal function when that is evidently degenerated, much good accrued from the exhibition of quinine, either alone, or in combination with sulphate of iron, dissolved in dilute sulphuric acid.

And here I hope I may be allowed to interrupt the order of my paper to refer to the effect of large doses of the disulphate of quinine in the treatment of the common continued fever of this country. It was first pointed out to me two years ago by Dr. Leslie, an eminent physician at Rio, who prescribed it in doses of ten grains every two hours in the treatment of the remittent fever of that climate. An opportunity was afforded him of trying it on a large scale during his late visit to this country and Ireland, and from his reports, unpublished, I was induced to try it. At the same time it was tested at the Northern Hospital at Liverpool, by my friend, Dr. Dundas, formerly of Bahia, whose great experience in the treatment of disease in various climates, and sound philosophic caution, render his testimony of great value, and I hope shortly, with the editor's indulgence, to give the readers of this periodical a more fully detailed statement of my own clinical observations upon the subject, for there is much to be said concerning it that would lead me now too far from my subject. It is sufficient for my present purpose, that I mention that the effect of the quinine in fever, exhibited in frequent and large doses, is perfectly safe. It equalizes the circulation, relieves the visceral congestions, checks the diarrhoea, and whether the form of fever be the severe synochus or the low typhoid, the results are equally satisfactory and decided.

But the object I have in view is to show, that in the treatment of disease something more is to be attributed to quinine

than a mere tonic influence, and I believe it to be a most important agent in restoring certain morbid conditions of the constitution to such a normal state that the organism may become less obnoxious to specific forms of disease, amongst which the periosteal is prominent. Where a simple tonic is required, quinine is not the most efficacious, and is often observed rather to oppress than invigorate the digestive functions, (I am acquainted with two persons in whom severe inflammation of cellular tissue is the result of a grain dose of quinine;) but some of the simple bitters, with ammonia, are often found more useful. This holds good mostly in tipplers—I do not mean absolute drunkards, but those who are constantly drinking small quantities of wine, dilute spirits, or even beer, at all times and seasons, and in cases where constitutions have been debilitated by residence in the tropics, or by the exhausting passions. I have not been able to satisfy myself that there is any reason for preferring one bitter rather than another. I have prescribed gentian, quassia, cascarilla, cusparia, and simarouba, each for a stated time, in order to watch their comparative effects, and I am inclined to think that any preference is rather a matter of fashion than founded on any carefully and extensively watched clinical observation; but taking our Pharmacopœia preparations, I think I may safely say that the dose should never exceed half an ounce in an ounce and a half draught.

Concerning topical applications: I have already referred to the efficacy of issues and blisters, and in the severer forms of cephalalgia arising from the disease of the dura mater, I prefer them; but I may also recommend the application of spirit of wine, the most convenient mode of using which, is, to wet some lint with the spirit, and having applied it over the head or other painful part, to prevent evaporation by covering it over with oil-silk: it produces a copious sweat in the part, and with very great relief. I need hardly mention that eau de Cologne, or any strong spirit most readily procurable, will answer the purpose. Old nodes may be painted with the tincture of iodine, or rubbed with the iodine ointment, but these are not convenient applications to the scalp, and the latter is objectionable where there is much tenderness.

There is only one more remedy which I must not omit to mention—that is, guaiacum. It is by no means universally applicable, but in some cases most decidedly useful, and especially where there is a cold dry surface, and languid pulse, and where the iodide too readily produces catarrh. Lest I should confound such cases with the catarrhal rheumatism affecting the head or other parts, I have been cautious to draw my inferences only from cases in which tibial or other easily recognised nodes are seen and felt. It is still possible that frequent catarrhal affections of the mucous surfaces of the nose and forehead, together with their depressing influence, may not only determine the neighbourhood of periosteal nodes, but prevent them from readily yielding to specific remedies; and it may be on that account that the guaiacum is found so serviceable in particular cases, for it is a practical fact, not half so generally known as it deserves to be, that the common cold in the head, however severe, may be at once relieved by guaiacum. These are cases in which a physician is not often consulted; but in my own person, and in my family, and the circle of my intimate acquaintance, I have for a long time had recourse to the remedy with invariable success.

(To be continued.)

## ON A CASE OF ELYTROCELE IMPEDING DELIVERY.

By ROBERT NEWMAN, Esq., M.R.C.S., Cheltenham.

I AM induced to send this case to you on account of its being very rare, and at the same time believing it would perplex most men if met with for the first time in the last stage of labour.

About eight years ago I attended Mrs. D—, then aged thirty-one, in labour with her fourth child. On my arrival, the pains were very urgent, and upon examination, I found what I at first took to be the membranes protruded, and about to break; for in volume, in feel, in tenseness, the tumour exactly resembled it. Fortunately I hesitated before proceeding to rupture, and, after careful examination, discovered a large vaginal hernia!

The practical bearing of this record is, in my humble opinion, interesting, just as far as the diagnosis may be allowed to be difficult.

I have attended this patient in parturition three times since this dilemma, and on each occasion have had to contend

with some difficulty in the management. The last occasion occurred on the 11th instant, at six A.M., when I found unusual difficulty in keeping back the hernia during the expulsive action of the uterus.

My own impression is, that the attenuated intestine (distended to the uttermost with flatus, &c.) would have given way if it had got wedged in the hollow of the sacrum during the descent of the head of the child; therefore, my utmost endeavour was directed to the prevention of such an untoward event by keeping up constant pressure on the sac, not daring to desist one moment. Happily the head came down upon the perinæum in about an hour, and the labour terminated favourably.

Cheltenham, December, 1851.

## OBSERVATIONS ON THE IMPULSE OF THE HEART.

By ROBERT CARTWRIGHT, Esq., Surgeon.

THE cause of the impulse and sounds of the heart still lies in the greatest obscurity; each successive writer brings forward, like an advocate defending a bad case, an ingenious and fine-spun theory, merely to be torn in pieces by his successor. This extraordinary discrepancy appears to me to proceed from the fundamental error, that the impulse occurs during the systole; and the difficulty can only be solved by returning to the theory formerly advocated by Drs. Corrigan and Stokes.

The theory that the impulse takes place during the contraction of the ventricles rests entirely on vivisections and experiments on dead hearts; I am not aware that a single physiological reason has been advanced in favour of it. All those experiments led to the following conclusion, "that the heart during its contraction is elongated, and strikes against the chest by raising the apex;" but latterly it is generally agreed, that the heart during its contraction is shortened, (a fact I knew twenty years ago,) and that the appearances in those experiments were misunderstood and incorrectly explained: consequently, if the conclusion drawn from those experiments is erroneous, the theory based on that erroneous conclusion naturally falls to the ground. The latest theory is Dr. Kiwisch's, "that the impulse is caused by the swelling of the muscular substance of the heart during its contraction;" but this explanation is untenable, as the external layer of muscular fibres are spiral, and not longitudinal; consequently, their contraction, being concentric, simply diminishes the cavity of the heart without any swelling or external elevation, as in the muscles of the extremities: but granting that there is an external swelling, the diminution at the same time in the circumference will prevent any nearer approximation to the surface of the chest; and granting, again, that an impulse were produced by such a swelling of the muscular substance, it would occur in the third or fourth, and not in the fifth intercostal space.

In 1830, being then a student in Dublin, I heard of Dr. Corrigan's theory, that the impulse occurs during the diastole. On returning home, I opened a rabbit, and not wishing to cause the animal unnecessary pain, I gave it a gentle rap on the head, sufficient to cause a depression of the bone. On opening the chest, I saw the heart beating quietly and regularly; after about half a minute, it became agitated, and during these agitated movements the heart appeared to be elongated, and its apex to be turned upwards, at the same time giving a kick, as it were—an expression much in favour with lecturers on anatomy twenty years ago. After about a minute the action of the heart became quieter, and the last movements resembled the first. A month ago I examined two rabbits under the influence of chloroform: no irregular or spasmodic action occurred in either case; the heart appeared to dilate and contract in its natural manner. During its contraction the heart was evidently shortened and narrowed—that is, less in circumference; the apex was somewhat flattened, and appeared once to be actually drawn inwards; but during the diastole the apex shot out again with some force. These appearances are in perfect harmony with the anatomy of the muscular substance of the heart: the muscular substance of the left ventricle, for instance, may be to a considerable extent separated into two layers,—an internal, consisting of longitudinal fibres, running from the apex towards the basis, and an external, consisting of a network of fibres, running principally in a spiral direction. The contraction of the longitudinal fibres shortens the heart, and their consequent swelling fills up the space previously occupied by the blood driven out by their contraction; at the same time the spiral or circular fibres, by their contraction, force out a certain quantity of blood, and press in relative proportion the internal surfaces towards one another, so that a contracted heart is shorter and less in circumference than a heart

dilated and full of blood; and as the heart lies in a sloping direction from above downwards and forwards, and with a part of its surface in close apposition to the inner surface of the chest, I must conclude that the impulse occurs during the diastole, when the heart is increased not only in length but also in circumference, and consequently presses closer to the inner surface of the chest than it does during the systole.

The following case, about a child a few days old, and in which the sternum was deficient, is reported by Dr. Skoda. I will first copy his own words, and then give a literal translation:—

"Mittelst der aufgelegten Hand konnte man sehr leicht wahrnehmen, dass das Herz vertikal gelagert war; und mit jeder Systole nach abwärts und vorwärts, mit jeder Diastole nach aufwärts und rückwärts, sich bewegte. Man fühlte nämlich mit jeder Systole des Herzens den stoss desselben unmittelbar oberhalb des Insertion des Zwerchfells, mit jeder Diastole dagegen in der Höhe der zweiten Rippe, wenn man daselbst die Finger hinreichend tief gegen die Wirbelsäule senkte. Der Stoss der Diastole war eben so stark als der Stoss der Systole. Legte man zwei Finger in dem Abstände auf, dass mit der Systole der unter, mit der Diastole der ober Finger den Stoss empfand, so ergab sich, dass das Herz während jeder Systole gegen einen Zoll nach abwärts rutschte."—"By applying the hand one could easily perceive that the heart was vertically placed, and moved with each systole downwards and forwards, with each diastole upwards and backwards. The impulse was felt with each systole of the heart, immediately above the insertion of the diaphragm; with each diastole, on the contrary, as high as the second rib, if the fingers were sunk sufficiently deep towards the spinal column. The impulse of the diastole was just as strong as the impulse of the systole. On placing two fingers in such a manner, so that with the systole the lower, with the diastole the upper, finger felt the impulse, it was found that the heart, during each systole, glided about an inch downwards." There can be no doubt that Dr. Skoda has here made a slight mistake between systole and diastole; it is quite past my comprehension, how a heart during its contraction could move downwards and forwards, and during its dilatation, upwards and backwards; and how the impulse of the heart, shortened by its contraction, could be felt immediately above the insertion of the diaphragm; and during its dilatation, when it is not only increased in circumference but also in length, an impulse should be felt nearly under the second rib, and then only by sinking the finger sufficiently deep towards the spinal column; it would almost seem that Dr. Skoda had recorded this case in anticipation, as a refutation of Dr. Riviset's theory, and as a proof of the diastolic theory. Dr. Albers, in his work, principally compiled from Davies's Lectures, states, that the heart must elongate itself several lines, so as to produce the impulse in the fifth intercostal space.

The ventricle is a sucking-pump, and sucks the blood in; its dilatation is quite independent of the contraction of the auricle, which is proved by the following experiment: I cut the auricle through, the blood flowed into the chest, and the ventricle dilated several times afterwards. The heart also pulsates after it is cut out and placed on the table. This active dilatation of the ventricle is caused by the elasticity or tone of the muscular fibres. What I understand by the elasticity or tone of the muscular fibres is the power by which they return to their natural position; thus if a muscle is stretched by an abscess underneath it, or by any other cause, on removing the cause, the muscle immediately returns to its natural position. This act is not contraction in its usual meaning. Also when a muscle, be it a voluntary or involuntary one, contracts, this occurs through the agency of a higher power; and when this power ceases to act, the fibres of the muscle do not remain relaxed in the same identical position, but return with a certain degree of force to their natural position. This is apparent in the biceps humeri, but still more so in the vastus internus and the gastrocnemii. This action—namely, the muscle returning to its natural position from a state of contraction, or extension—depends on a principle resident in the fibres themselves, call it elasticity, tone, or by any other name; and it is through this principle that the dilatation of the heart takes place.

The semilunar valves are never pressed against the sides of the artery, otherwise they would be retained in that position by the continuous stream of blood; and it also appears to me, from observations on the hearts of animals in a state of spasmodic contraction after death, that certainly not more than a half of its blood is expelled out of the left ventricle during each systole. With reference to the sounds of the heart, I may state, that the first is heard most distinctly at the apex; it appears to come towards the ear; whilst the second is acknowledged to arise at the semilunar valves, and to be carried along the aorta; this harmonizes completely with the diastolic theory; while the first sound is caused by the passage of the blood through the auriculo-ventricular opening and the valve towards the apex; and the