to me sufficient for rejecting the use of refrigerating applications. Only look at the cases of gunshot wounds which we have in the house—would the treatment of these have been improved by the use of cold water? It would merely have prevented or diminished an inflammation of which we were not at all apprehensive, and which has been very trifling with all our patients, without one single exception. But I ask, would it have prevented purulent absorption? Would it not have exposed all these poor fellows, already weakened by their wounds, and not possessing any re-actional vigour, to contract diseases with which their debilitated frames would have been unable to cope? I think I may fairly conclude by maintaining that cold applications do more harm than good, and that it is wiser to refrain from them altogether.

Lectures ON PARTURITION, AND THE PRINCIPLES & PRACTICE OF OBSTETRICY.

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LECTURE XIV.

III. *The stage of Propulsion. Description of a contractile pain in this stage.*—IV. *Stage of Expulsion; Delivery.*—V. *Supplemental stage. Review of the order of motor action. Decline of anaesthesia in obstetric practice. Labour placed at the boundary between physiology and pathology. Distinction between physical pain and physical shock. Paralytic condition of the bladder and rectum after labour. Aggregation of reflex arcs in the medulla oblongata and the medulla spinalis inferior. Application of transcendental Anatomy to the spinal system.*

In the last Lecture, I treated of the Preliminary stage of labour, and the stage of Dilatation. I now come to—

III. *The Stage of Propulsion.*

At the time when this stage of labour commences,—namely, the point at which the liquor amnii is discharged, and the os uteri becomes fully dilated,—the motor force of parturition is applied in quite a new direction. The direction in which the foetus has now to pass is in that of the axis of the outlet of the pelvis, which is outwards and downwards. It is at this point that the respiratory muscles come into play, particularly the abdominal muscles, and thus the new direction is provided for. Before the dilatation of the os uteri, we had to consider the foetus as an ovoid mass, and the axis of this ovoid was the same as the axis of the uterus, and as the axis of the inlet of the pelvis. After the dilatation, we may speak of two axes of the foetus—one the axis of the head, in its long or occipito-mental diameter, the other the axis of the body of the foetus. Now the axis of the head, in a natural presentation, is the same as the axis of the outlet of the pelvis, through which it has to traverse; and the foetal body being flexible, readily passes, as it descends, from the direction of the superior to that of the inferior pelvic axis. All these correspondences cannot fail to strike your attention, but they are only a few of those which accompany this stage of parturition.

I have already mentioned to you the advantage given to the uterus by the rupture of the membranes. The same circumstance is equally favourable to the action of the abdominal muscles. A further adaptation, therefore, becomes visible in the precise time at which the liquor amnii is discharged. When the bulk of the uterus is increased by the liquor amnii in addition to the foetus, the abdominal muscles are so distended that they could only act with difficulty. But after the diminution of the size of the uterus by the discharge of the waters, the abdominal muscles are more free to act, and it is now that they are called upon to aid in the expiratory actions which propel the head of the child through the vagina. When voluntary movements of expiration are unadvisedly made during the stage of dilatation, they are always awkward and fatiguing to the patient; but during the stage of propulsion, the contractions of the abdominal muscles are so powerful as to be no inconsiderable stimulus to the uterus itself. I mean that, besides their direct expulsive power, the pressure they exert upon the uterus excites this organ to more powerful action. Thus, in this stage of labour, when the uterine contractions flag, they can sometimes be renewed by voluntary contractions of the expiratory muscles.

But there is a cause for the intervention of the respiratory

system, as well as the signs of its utility. I mentioned that, in the stage of dilatation, the ovarian and uterine nerves were the excitator nerves of the motor actions which then occurred. As soon, however, as the foetal head, protruding through the os uteri, begins to press upon the vaginal surface, a new set of excitator nerves become implicated. These nerves are the excitors of the expiratory actions of parturition. As long as the internal surface of the uterus alone is irritated, whether by the foetus, a polypus, or other bodies, the uterus contracts by itself; but as soon as the vagina is impinged upon, the expiratory force is brought to bear. Another point worthy of observation is, that the excitator nerves of the uterus, except at the extreme dilatation of the os uteri, when the stomach was disturbed, were in connexion with the lower portion of the true spinal marrow only; but the vaginal excitator nerves are in relation both with the lower medulla and the medulla oblongata. By the lower medulla, and the excitator and motor nerves in relation with it, reflex actions of the uterus are produced by excitation of these nerves; and upon the medulla oblongata, all the reflex actions of the respiratory system depend. If the spinal marrow were divided in the middle, there could be no respiratory action in parturition. I have already referred to cases of this kind in actual practice. Voluntary efforts, and the forcible efforts of emotion, are often mixed up with the pains; but the essential acts of this stage of labour are truly reflex in their nature. The expiratory actions occur during the insensibility of puerperal convulsions, when emotion and volition are both suspended. If they were not reflex and physical in their nature, the exhaustion following a strong labour would be far greater than it is. We see even weakly women making powerful efforts, perfectly refreshed between the pains, and after several hours of severe labour, easy and composed, complaining of nothing but the mere soreness of the muscles consequent upon their energetic contractions.

But I proceed to describe, *seriatim*, the motor phenomena of the contractile part of a pain in this stage. At the coming on of each pain, the patient takes a deep inspiration, as a preliminary. Expiration takes place slowly and forcibly, in a succession of gasps, and when the air in the thorax is diminished, it is suddenly renewed by hasty inspirations. Each pain consists, as far as the respiratory muscles are concerned, of several sudden and deep inspirations, followed by prolonged and laborious expiratory efforts, with the glottis partially or entirely closed. At the acme of a pain in this stage of labour, the glottis and cardia are entirely closed, the glottis only opening partially at intervals, and the abdominal and all the other ordinary and extraordinary muscles of expiration are forcibly contracted. The diaphragm remains inert, as in vomiting, with the actions of which, except that the cardia is closed instead of opened, the actions of the expiratory muscles in labour may be compared. All obstetric writers have taught that the diaphragm contracts in this stage; but if it be considered for a moment, that the diaphragm is a muscle of inspiration, while the actions of parturition are expiratory, the fallacy of such a view of the action of the diaphragm will at once appear. Of the contraction of the abdominal muscles during this stage of labour there can be no doubt; and the actions of the diaphragm and abdominal muscles are antagonistic. It is true that the floor of the diaphragm, instead of being arched, as in an ordinary state of relaxation, remains plane, during the efforts at inspiration, with the glottis closed; but this is from the mechanical distention of the chest by the contained air, not from an active contraction of the muscle itself. Besides these actions, which are all involuntary and reflex, the patient voluntarily aids in fixing the thorax, by holding some fixed body with her hands, or planting her feet firmly. More than this, she increases all the expiratory actions by strong efforts of the will, and by that emotion of labour which impels her to brave every suffering to effect the birth of the child. At length, when the pain can no longer be borne, the short gasp or groan is exchanged for a cry which dilates the glottis, and the pain and contractions subside. The cry is a motor action, excited by the emotion of pain, and instantly relieves the uterus of all extra-uterine pressure. Thus, the glottis may be compared to a safety-valve, which is thrown open by emotion whenever the pressure becomes more than can be borne with safety. By the influence of volition we have this valve entirely under our control, to open or close it, as may be necessary. When the expiratory actions are weak, we can enjoin the patient to hold her breath, and when they are too intense or too long continued, we can encourage her to cry out, which is of course equivalent to dilating the glottis, and expiring the contents of the thorax. During all this time the uterus contracts powerfully.

IV. *Stage of Expulsion.*

This stage of labour is the shortest of the whole progress, but it is the most important and decisive of all. It often compresses into a few moments as much suffering and as much concentrated action of mind and body, as would go to an age of ordinary life.

All the actions of the propulsive stage continue with unabated vigour. The uterus contracts with full power, the respiratory muscles act with immense force. The intervals between the pains diminish as the close of the struggle approaches; and there is often a perfect storm of uterine contractions, without sufficient intermission to enable us to say distinctly where one pain ends and its successor begins. When the foetal head is actually passing the ostium vaginae, a new set of actions make their appearance. The perinaeum, after being distended to the utmost, is now retracted over the head by the action of the levatores ani; the sphincter ani and sphincter vesicae dilate suddenly, the vagina contracts upon the advancing mass, and the head glides rapidly into the world. The dilatation of the two sphincters, between which the vagina is placed, compensates admirably for the absence of a perfect sphincteric muscle at the outlet of the parturient canal. The effect of this double dilatation is, that at the precise moment when there is the most imminent danger of laceration, there is a sudden and considerable removal of tension from the parts endangered. The dilatation of the sphincters is partly dependent on the sensation and emotion of severe pain, and partly on the reflex dilatation peculiar to the sphincteric muscles. This view of the subject gives interest and importance to an action which has never been looked upon but as a very disagreeable *contretemps*. Physiology here, as in many other instances, transmutes the meanest actions of the economy, rendering them noble by virtue of their uses! At the same moment that the orifices of the rectum and bladder are thrown widely open, there is generally a dilatation of the glottis. Even from women who restrain the expression of their emotions during the rest of labour, a cry of pain escapes at this juncture; this cry is necessarily accompanied by an open state of the glottis. The opening of the glottis is not at all accidental or voluntary, but is as regular and involuntary as its closure during the propulsive pains. Its effect is suddenly to take away the expiratory pressure from the expulsive action. Without this combined action of the glottis, and the sphincters of the rectum and bladder, for the defence of the ostium vaginae, recto-vaginal laceration must be a very common accident of parturition. Such would inevitably be the frequent result of closure of the abdominal and thoracic cavities at all points, except that of the exit of the foetus, in the final throes of labour.

Altogether, it must be conceded that parturition is the most voluminous of all the motor functions. The human uterus contracts sometimes sufficiently to render the hand of a strong man powerless. In order to illustrate the wonderful muscular power of the heart, the circulation in the whale or the elephant is often referred to by physiologists; but enormous as is the power of the heart in these animals, the parturient actions by which they bring forth their enormous young give us the most colossal idea we can entertain of the power of muscular action. In the human subject, too, there is a certain grandeur in the combined efforts brought into play in parturition. In women even of moderate strength and stature, every voluntary muscle of the body is in strong action; the excito-motor force is in a state of the greatest activity; the uterus, unseen, and without any participation with the will, is making its immense contractions; and emotion imparts strength to both voluntary and reflex actions. At this juncture it is that the accumulated efforts of a natural labour pass most readily into the convulsions of the puerperal state, the most tragic spasm we can ever witness, often more terrible than even tetanus or hydrophobia.

A temporary calm follows the energetic actions which issued in the delivery of the mother. After the excessive action in which nerve and muscle seemed strained to the utmost pitch, there comes a sudden and profound repose; there is perfect freedom from pain; every fibre is relaxed; only the uterus now contracts of all the muscles which were so lately struggling. Like some ship which turns from a tempestuous sea into a safe and quiet harbour, the new mother passes from the storm of travail into the calm haven of maternity. In the pathetic words of Scripture, "A woman when she is in travail hath sorrow, because her hour is come: but as soon as she is delivered of the child, she remembereth no more the anguish, for joy that a man is born into the world."

V. *Supplemental Stage.*

When the body of the child is born by the motor actions I have been describing, the contracting uterus follows closely upon it in its descent, and the action of the uterus, excited at this time from the immense irritation of the vagina by the advancing foetus, is frequently sufficient to throw off the placenta, and lodge it in the upper part of the vagina. When the placenta is not separated in this way by the last expulsive pain, it remains quietly in the uterus until the appearance of the first after-pain. During this interval the uterus contracts with tolerable firmness, under the influence of the excitement of the act of expulsion. If the placenta has been expelled into the vagina, its presence in this situation excites, after awhile, bearing-down pains and contraction of the vagina, similar to those of propulsion and expulsion, only far more inconsiderable, generally requiring slight traction of the cord to complete its removal. When the placenta remains in utero, it becomes separated from the uterine surface by the contractions of the uterus, and by the arrest of the circulation in the umbilical cord. It is then removed by a miniature copy of labour itself; there is a dilatation of the os uteri, and there are the propulsive and expulsive actions of the uterus and the expiratory system, on a small scale.

After the expulsion of the foetus, the first act of the uterus is to contract, so as to prevent the occurrence of hæmorrhage. This contraction is induced, in the first instance, by the concluding irritation of the vagina and perinaeum, on the exit of the foetus. It is subsequently ensured by a succession of stimuli. Of these, some are uterine, others are extra-uterine. The bulk of the placenta and membranes irritate, in the first place, the now contracted uterine surface. When placental separation has occurred, the abraded surface of the uterus is intensely excitor; and as the placental mass passes through the vaginal passage and ostium vaginae, excitation, which insures full uterine contraction, is supplied. It is a peculiarity of the utero-vaginal canal, that at the termination of labour, all the surfaces are more instantly excitor, and the answering motor contractions become more rapid and more easily provoked. During severe labour, irritation of the os uteri, or of the vagina, will often increase the pains only in a moderate degree; but now, the introduction of the hand into the vagina, and irritation of the os uteri, will excite instant and forcible contraction of the uterus. The extra-uterine exciters of uterine action now come into play in a remarkable manner. During the whole of labour, the uterus has been acting upon the mammæ, causing them to become irritable and tumid. In return, as soon as the child is put to the breast, this slight irritation of the mammary excitor nerves excites distinct contractions of the uterus. This reflex relation from the breast to the uterus continues for several days after parturition, until, in fact, the uterus has returned to the natural state. As soon as the secretion of milk is established, there is, at every afflux of blood to the breasts causing the sensation termed by women "the draught," an answering contraction of the uterus. A reflex relation between the stomach and the uterus is also now set up. Every time the patient drinks her gruel, or takes her tea, sharp contractions of the uterus, after-pains, in fact, are excited. Emotion is another aid to the permanent contraction of the uterus. Any emotion of the mind will generally produce an after-pain, but the maternal emotion especially. The emotion produced in the mind of the mother by the suckling her infant induces contraction. A day or two after labour, merely presenting the infant to the mother, without its actual application to the breasts, will excite the sensation of the draught in the mammæ, accompanied by a sudden secretion of milk, and also the contractions of the uterus. Besides these various sources of excitation to the uterus, the ovarian stimulus continues, and it is to this latter, I believe, that the lochial secretion is due. Thus the close of labour, the return of the uterine system to the quiet of the unimpregnated condition, is as plentifully provided for as the commencement or any of the various stages of the process. For some days after labour the contraction of the uterus is of an active sphincteric kind, but its vascular and other tissues rapidly diminish in size, and it soon becomes a non-motor organ, as it was before the time of conception.

We can now review the order of the nervi-motor actions of labour, the series of excitor surfaces involved one after the other, and the regular succession of stimulus and contraction in the different stages of the process. First in the order of events, there is the excitation of the ovarian nerves, followed by the equable and continuous contractions of the uterus. Then there is the pressure exerted by the foetal head, as yet

defended by the liquor amnii, upon the os uteri, and the consequent excitement of the official nerves, with the answering and intermittent contractions of the uterus. In the next place, the vaginal excitor nerves are irritated by the pressure of the now advancing and undefended head, or presenting part of the fœtus, an irritation which calls forth the respiratory action of labour in addition to the uterine contractions. Then we have the excitation of the nerves of the ostium, vagina, and the remarkable modifications of motor action thus produced. After the expulsion of the fœtus, the placenta remains to supply an intra-uterine stimuli, sufficient to affect the now exalted excitability of the uterine nerves, and thus to cause its expulsion. When the placenta has been expelled, the excitation of the uterine surface, from which the placenta has been separated, the excitation of the mammary nerves by suckling, and by the secretion of milk, and the excitation of the pneumogastric, now in excito-motor relation with the uterus every time food or drink are taken, are, with the aid of emotion, and the continuing ovarian irritation which has been present during the whole of labour, perfectly sufficient in normal cases to prevent hæmorrhage, and gradually to effect the return of the uterus to the contracted and comparatively small size of the unimpregnated woman who has borne children.

A year ago, and all women were promised safe and perfect exemption from the pains of childbearing. Now, however, the anæsthetic elixir proves to be but a cup of Circe, instead of the true birth-help. At the present time, therefore, when the febrile excitement of the medical mind upon this subject is rapidly passing away under the influence of the fatal cases which have occurred from the use of anæsthetic agents, there seems a more than ordinary necessity for dwelling upon the manifold wisdom with which the act of parturition is surrounded. Women will certainly derive truer comfort, and a greater measure of safety and freedom from unnecessary suffering, from physiology, than from a wild therapeutics, which, in her hour of trial, only offers a choice betwixt poison and pain.

Parturition is undoubtedly a physiological process, and one exhibiting the most liberal provisions for its safe and regular performance. The Final Cause argument is visibly written upon every stage of delivery. There is quite enough of design in human parturition to furnish a new Paley. Yet the function stands, as it were, at the boundary between physiology and pathology, being attended by more pain, and being liable to a greater number of accidents, than any other physiological act of the economy. Labour is a drama, painful to the individual, and exerting painful interest in those around her: in the great majority of cases it ends happily, and all the parties come forward with smiling faces at the close; but at any act or incident the curtain may fall upon a tragedy. A profound acquaintance with its physiology is the best guarantee of its safe conduct, and the relief of child-birth accidents. Obstetric practice affords one of the most striking examples in medicine of the near relationship between physiology, living pathology, and true therapeutics.

The physical pain of labour, as distinct from the muscular contractions, is undoubtedly depressing in its effects; but still it is unlike other and purely pathological pain, inasmuch as it may be very distressing, and yet disappear entirely during the intervals of the pains, so that in a painful labour the patient may sleep or remain quite cheerful between the pains, and at the close of delivery may not feel an amount of exhaustion proportionate to the intensity of her suffering. After operations, or in very painful diseases, death may be caused apparently by the simple effects of excessive pain. But in death occurring after delivery, or during the course of prolonged parturition, the merely physical pain of labour must never be considered alone; it must be viewed in connexion with the physical shock of labour as distinct from physical pain. Pain affects the cerebrum; shock affects the spinal centre, which does not feel pain. Every severe throes of a protracted labour is a distinct blow to the brain, in so far as it is painful; and it is also a distinct blow upon the spinal centre, as much so as though this organ had actually been struck. The brain is more resilient, as it were, under shock than the spinal centre; and when parturient women die of sinking, it is from the effects of the successive shocks of the pains of labour upon the medulla spinalis rather than upon the cerebrum. This view of the subject leads to important modifications of the treatment of sinking, and the effects of shock in parturition.

There is an unpublished experiment, of great interest, by Dr. Marshall Hall, not performed with reference to parturition, but during his electrogenic researches, which may be brought to bear upon this point. He took two frogs, divided

the spinal marrow in both, and then immersed them in a solution of strychnine till they became tetanic. When allowed to become perfectly still, they would remain without spasm if carefully defended against all external excitation. When in this state, one frog was kept in a state of perfect repose; the other was irritated from time to time, so as to produce strong tetanic action. Of these two frogs, the first would recover perfectly in a few days, the second would die very quickly. There was here no sensation of pain, because the spinal marrow was divided; the exhaustion was therefore purely of a spinal or physical kind. Dr. Marshall Hall himself applies this experiment to the treatment of tetanus; but it has also an application to the physical pains of parturition. When women die from prolonged labour, death occurs, not merely from exhaustion by physical suffering, but from exhaustion caused by the strong muscular contraction of the uterus and its associated organs. The discharge of the vis nervosa and the vis insita in the muscular contractions of each pain has a depressing effect quite distinct from, and independent of, the mere painfulness of each uterine action. Each of the great contractile efforts of labour has an exhausting effect; but when more severe, or continued longer than usual, every returning pain is a distinct shock. A woman insensible to pain may still sink, and perish from the spinal shock of labour.

One effect of this shock is in a degree to paralyze the rectum and bladder. Inability to empty the bladder is very common for some days after a severe labour; and in rare cases, the atony of the vesical nerves becomes chronic. This state of the bladder is commonly referred to physical injury of the cervix vesicæ, rather than to any nervous shock, but though local injuries do occasionally occur, causing retention or incontinence of urine, I am convinced that the inactivity of the bladder after parturition is, in the majority of cases, the result of nervous shock. The rectum is similarly and even more constantly affected after labour, and from the same cause. Constipation is so constant, that it is almost a matter of routine to prescribe a laxative two or three days after delivery. I am given to understand that homœopaths leave the bowels to chance, or give globules of arnica,—much the same thing, according to our belief,—and the result is, that the bowels are often not moved until eight or ten days after delivery—a practice which must necessarily predispose the subjects of it to puerperal fever or convulsive attacks. It is as proper to relieve the bowels as soon after labour as it can be done without disturbing the uterus, as it is to relieve the bladder when retention occurs. Not only the shock of parturition, but other forms of excitation, affect the rectum and bladder in the same manner. Excessive sexual excitement produces inactivity of the rectum and bladder, and these organs are among the first to be affected in *tabes dorsalis*. Such facts are useful, as illustrating the effects of parturient excitement upon the spinal endowments of the other organs of the pelvis.

The lower part of the spinal marrow may be considered as the analogue of the medulla oblongata. In the one, there are congregated the keys of the motor arcs of deglutition, inspiration, expiration, closure of the eyelids, &c., with all their various morbid actions; and in the other, the centres of the motor acts of parturition, defæcation, micturition, and conception, as far as the pelvic organs are concerned. Probably in the interval between these two congeries of reflex spinal arcs in the medulla oblongata and the inferior medulla spinalis, the cervical and thoracic portions of the spinal marrow are devoted to the reflex arcs belonging to the trunk and the lower extremities. The excitor nerves of defæcation and micturition are also in relation with the centre of the reflex respiratory actions in the medulla oblongata, and thus the expiratory actions excited in defæcation and micturition are to be explained. The reflex arcs concerned in parturition are still more extensively diffused. The vagina, the uterus, and the ovaria, are, as we have seen, in relation with the spinal marrow through the medium of the sacral, lumbar, abdominal, and probably also the thoracic intercostal nerves. The actions excited in parturition are numerous in a corresponding degree, and we may compare parturition in some respects to respiration in the libellula, where each segment of the insect is a centre of respiratory action. There is another point of view in which we may consider these reflex arcs of the medulla oblongata and the lower medulla spinalis. In those of the invertebrata which admit of separation into distinct segments, each of which may live as a distinct animal, every ring possesses an independent centre of physical motion. As the vertebræ of the vertebrata, are analogues of the rings of invertebrate animals, there should also belong to each vertebra the representative of a spinal centre. Are not the reflex

arcs collected together in the medulla oblongata the spinal centres of the cranial vertebræ? and are not the reflex arcs of the lower medulla the spinal centres to the pelvic rudimentary vertebræ? This view brings the reflex motor arcs of the spinal centre into harmony with the splendid ideas of Oken, Goëthe, and their distinguished successors in archetypal anatomy.

Hospital Reports.

HOPITAL DE LA CHARITE.

M. VELPEAU'S WARDS.

THE wounded were not brought to this hospital until the 24th of June; some were so severely injured, that they died very soon after admission. Amongst these, a national guard, of Monthéry, may be mentioned, whose abdomen was completely run through by a ball, the course of which was from left to right, and from below upwards. The aperture of exit was situated on a level with the great trochanter of the right femur, whence it had driven out a fold of the small intestine, four or five inches in length, which had been cut by the projectile. There was also a young man who, on the 24th, had received three balls, of which one had shattered the humerus, the other the femur, and the third the sacrum. This poor fellow sank a few hours after admission. A soldier of the line had his bladder perforated by a ball, and who died soon after, from very acute peritonitis, induced by the injury. There are at present fifty-two wounded in M. Velpeau's wards, and from forty to fifty in M. Gerdy's. Amongst the patients of the former, those who present the most interest, in a surgical point of view, are the following:—

Ward of Ste. Vierge.—No. 7. A national guard, struck by a ball in the knee, without affecting the articulation.

No. 26. A soldier of the line. The ball has entered the chest, and is lodged in the left lung.

No. 29. A comminuted fracture of the right humerus. Amputation performed by M. Velpeau.

No. 31. A national guard. The ball has shattered the lower jaw, and has left a large wound of the submaxillary and sublingual regions, and intense glossitis and dyspnoea.

No. 39. The ball has penetrated the calf of the leg, and has injured the posterior tibial artery. Alarming hæmorrhage, which could not be controlled; the femoral artery was tied in the temporary hospital, and the patient brought to La Charité three days afterwards. The leg being attacked with gangrene, M. Velpeau amputated at the thigh; state very precarious.

No. 40. A national guard. Pieces of paving-stone, shattered by artillery, have inflicted a severe wound of the face. The inferior maxillary suffered so comminutive a fracture, and the centre of the body of this bone was so detached, that it had to be extracted. There is a large wound in the neck, communicating with the mouth, through which the saliva is flowing; there is, besides, a wide and deep wound in the left arm, with loss of substance.

No. 44. Wound of the knee. The ball entered by the popliteal space, without injuring the vessels or nerves of that region, and issued in front.

No. 49. The ball, fired from a window, entered just above the left clavicle, and ran obliquely from above downwards to the spine, in which it lodged, thereby inflicting an injury on the spinal marrow. Complete paraplegia followed immediately, and the patient died the day after admission.

No. 51. The ball entered the back of the shoulder, and issued in front of it, without penetrating the chest.

The *St. Ferdinand Ward*, usually occupied by M. Cruveilhier's patients, is now filled with wounded insurgents, who are in the custody of a strong body of national guards. We find in these thirty cases none of sufficient interest to be recorded.

Four insurgents, having been taken ill in the vaults of the Tuileries, were brought to La Charité on the 28th. They were in so exasperated a state, that they were separated from the rest, and put by themselves in a small ward, where they all were secured with the straight waistcoat. Several soldiers appointed to watch them were, in the night, obliged to use their bayonets to master them. They were howling that they wanted to eat the flesh of a national guard, prepared in the blood of a "garde mobile."

HOPITAL SAINT LOUIS.

St. Augustine Ward.—We extract from the list which has been published, the following cases:—

No. 4. Contused wound of the elbow-joint. Amputation of the arm.

No. 6. Wound of the right shoulder. The ball has penetrated anteriorly, shattered the head of the humerus, and issued posteriorly.

No. 7. Wound of the leg. The ball has lodged in the tibia.

No. 15. Comminuted fracture of the right arm; gangrene; disarticulation of the shoulder-joint.

St. Louis Ward.—No. 20. The ball has penetrated the front of the femoro-tibial articulation, and has lodged in the tissues. Considerable effusion in the joint; severe inflammation. Leeches; cold applications. The patient is doing well.

No. 23. The external edge of the tibia has been grazed, and the ball has lodged in the calf of the leg. Considerable swelling; muscular hernia; large incisions.

No. 31. Penetrating wound of the right knee. Fracture of the patella; effusion; arthritis. Leeches; venesection; poultices. The patient is doing pretty well.

No. 32. Penetrating wound of the abdomen. Protrusion of a fold of intestine; reduction of the same. Sutures to the abdominal parietes; death.

No. 33. The ball has entered the chest. Hydro-pneumothorax.

Napoleon Ward.—No. 7. Penetrating wound of the chest. The ball entered posteriorly; no aperture of exit. Considerable effusion.

St. Julien Ward.—No. 31. The ball lodged in the thickness of the tibia, which latter is fractured. The ball was extracted four days after the reception of the injury; gangrene produced by tight bandaging; violent inflammation on the removal of the compressing apparatus; extensive swelling. Numerous incisions to free the distention. Going on satisfactorily.

No. 37. Concussion of the brain. Deafness produced by the detonation of a piece of ordnance. Abnormal sensibility of the retina, caused by the passage of a ball before the eyes. All these ailments have been removed by copious blood-letting.

No. 39. The ball has penetrated the lower part of the abdomen, traversed the pelvis, and perforated the ilium. It has been removed from the right glutæus.

No. 44. Penetrating wound of the chest. Effusion; pneumothorax; death.

St. Charles Ward.—No. 39. The ball has entered three or four inches above the ligament of Fallopius, run through the pelvis, perforated the ilium, and has issued through the right glutæus.

No. 49. Shot in the left hand. The wrist-joint has been traversed from without inwards.

No. 56. Wound of the right hand. The ball entered on the ulnar margin of the wrist, issued on the radial margin, and passed behind the articulation.

No. 73. The forearm fractured by the butt-end of a gun.

St. Martha Ward.—No. 72, (a woman.) Fracture of both malleoli of the right leg by a ball; the joint is laid open; amputation a little above.

PALACE OF THE TUILERIES.

SURGEONS, MM. RICHEL, HUGUIER, AND FILHOS.

Hardly had the last men, who had been wounded in February, been discharged from this late royal residence, now transformed into an hospital, when its doors were again opened to those who had suffered in the late conflict. Among the serious injuries inflicted there was a thrust of a bayonet, which had penetrated the abdomen, and probably the œsophagus, causing a protrusion of part of the liver, lung, and intestine; several penetrating wounds of the chest, without issue of the ball; and a great number of gunshot injuries of the abdomen, with destruction of intestinal folds. Of eighty patients admitted, ten were dead at time of report, and several others are very likely to share the same fate. There have been six capital amputations; one disarticulation of the thigh-bone, followed by death within twenty-four hours; and several other cases, the most important of which we subjoin.

Diana Gallery.—No. 29. The ball has penetrated the knee-joint below the patella, traversed the articulation, and issued through the popliteal space, without injuring any important vessels or nerves.

No. 19, in *M. Huguiet's Ward.*—The ball traversed the right arm obliquely from above downwards, and from before backwards. The entrance is on a level with the anterior part of the shoulder, and the aperture of issue in the external and median part of the arm.

Billiard Room.—No. 73. A ball had struck the malar bone,