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PRACTICAL REMARKS

ON

AMPUTATIONS,

FRACTURES,

AND

STRICTURES OF THE URETHRA.

BY

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AND

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PREFACE.

THE observations now published are the substance of Lectures and Clinical Instructions delivered at different times to the Assistants and Pupils of the Royal Naval Hospital at Plymouth; and are the result of many years' practice and experience, whilst the Author was First Surgeon of that extensive establishment.

It has not been thought necessary to alter the form, but to publish them as they were orignally given, the intention being to convey such minute directions for practice, as it is the object of the following pages to communicate.

36, CAVENDISH-SQUARE,
November 1829.

PRACTICAL REMARKS

ON

AMPUTATIONS IN GENERAL.

AMPUTATION OF THE SUPERIOR AND INFERIOR EXTREMITIES.

The subject of my lecture to-day will be the different amputations of the superior and inferior extremities; and I hope you will not consider me tedious in also entering fully into our manner of dressing stumps, being convinced that many a good amputation has turned out unfortunately from not sufficiently attending to the mode of applying the dressings and bandages.

We will begin with an amputation of the thigh, about the middle third, as with very little deviation the same method will be applicable in its performance a little higher up, or a little lower down, towards the knee. The part having been first well shaved, the patient is to be placed sitting on a table

of such a height that the operator can conveniently make his circular incision without much stooping: bring the patient's nates well over to the edge of the table, and let a man sit behind him, so that he may lean back against his chest, having his hands securely held; apply a circular calico roller from around the loins, so as to cross the groin and upper part of the thigh three or four times, to prevent the tourniquet from pinching up the skin. Let there be a firm piece of leather under the screw. Your compress should be a little flattened, and not too thick; for, by using one of a circular form and of a large size, should it not be accurately placed over the femoral artery, or if it in the least degree slips, or changes its situation, you will not effectually stop the flow of blood, particularly if your patient be very muscular, as the web, in passing over this large compress, how tight soever your tourniquet be screwed, will leave a space on either side of it sufficient to allow of the blood flowing down the artery; and it is not a good plan to place the tourniquet immediately over the compress: let it be fixed on the limb, so that the screw may be on the outer side, which will give a facility in getting at it, and the compression will be greater by merely having the web over the pad. Let a second tourniquet be placed loosely around the limb, above the first, particularly in muscular subjects, so that it may be ready to be screwed, at a moment's notice, in case any accident should occur to the other;

for I have more than once seen a tourniquet, and a new one too, break, and considerable embarrassment arise to the operator, and much alarm to the patient; and this precaution is more necessary to be observed by those who are called upon to perform operations at a distance in the country, where but little professional assistance can be given to the operator. Some will even remove a limb without a tourniquet; but this you should never do, if there be sufficient space on the limb to allow of one being conveniently applied, and which will not interfere with the retraction of the integuments; for certainly the tourniquet stops the blood better than any other means; and though you may be able with the thumb to cause such pressure at the groin as to prevent the blood passing down the femoral artery, yet it will flow by the obturator, and those vessels which come out at the posterior part of the pelvis; besides, it entirely engrosses the attention of one assistant, who might, when a tourniquet is used, be more advantageously employed; and he is very much in the way of the other, who has the charge of drawing upwards the integuments and muscles; moreover, any sudden movement of the patient might throw off the assistant's pressure, and some quantity of blood might be lost, which, in a greatly debilitated habit, might be of the most dangerous consequence. An assistant is then to sit down on a stool, in front of the patient, taking hold of the knee-joint; so that the foot may be either supported on

the edge of the stool, or resting in his lap: the former is the better plan, from the less liability to change: either way, the knee should be kept extremely steady, and in a direct level with the upper part of the thigh; the advantage of which you will readily discover by the regularity of your circular incision, as well as in sawing through the bone, for if the knee be depressed too much, the bone will be liable to be splintered, from the weight of the parts below, and if it be too much raised, the saw will be clogged. Above all things, therefore, select an assistant on whom you can depend for the perfect steadiness of the knee-joint. For the removal of a right thigh, stand on the outside; and for the left, on the inner; which will give you the advantage of using your left hand in retracting the muscles. Select an operating knife of the largest size, which will give you a greater command of the limb, so that you can make your incisions with more rapidity and precision. Every thing being thus far arranged, let your assistant stand on the outer side, close up to the edge of the operating table, so that he may be a little higher than the hip-joint, whether it be for a right or a left amputation, and give him the power of leaning a little over the thigh: let him firmly grasp the limb with both hands, so as to draw the integuments from below upwards, putting them completely on the stretch, keeping his fingers just clear of the knife when you are making the circular incision, which

should go only through the integuments; and in a very muscular subject, as soon as they are divided, let the assistant force them upwards by the gripe of his hand, about half an inch from the muscles underneath, but never permit of their being turned back. Let your next incision go boldly all around through the first layer of muscles, close to the edge of the drawn-up integuments, the assistant still pulling upwards,—so that the next cut of the knife (which should be applied about an inch and a half to two inches higher up than you made your incision through the integuments) is to reach down to the bone, the muscles adhering to which are to be separated by the point of your amputating knife, so that your leather retractor may be applied about another inch higher up, more or less, according to the size of the thigh; and when your assistant has placed the retractor, should any portion of muscle be in the way of the saw, divide it with the same knife, taking especial care not to detach the periosteum, but just sufficient to allow of the working of your saw without lacerating it; for if the bone be denuded above where the saw is applied, you run a risk of an exfoliation, or perhaps lay the foundation of a necrosed state; so, on the other hand, if the teeth of your saw lacerate the muscles or periosteum, you will have a sloughing of those parts, though often not sufficient to cause a separation of the lips of your stump, yet enough to retard for a few days the healing process; and this state is known by the

formation of one or two little sloughy circular holes, with a white pouting margin. The bone being now sawn through with rapid and short motions, the limb is removed; and if the end of the bone is not quite smooth, take away any portion of it that is rough with the nippers, or Hey's saw.

Should the patient be much emaciated, we make the following alteration in the mode of operating:—The assistant will grasp the thigh, but not put the integuments on the stretch till after the circular incision of them be completed, when he is to draw them upwards with some degree of effort; and as soon as this is done, go down by a bold stroke of the operating knife from the very cut edge of the retracted integuments to the bone itself, any muscular attachments to which are to be cleared by the point of the same knife, so as to give sufficient room for the retractor, recollecting that the bone is to be sawn through about two inches to two inches and a half from where we made our first incision in the skin.

If the patient, however, be to the extremest degree emaciated, we put the integuments on the stretch, but then we immediately go down with our circular incision, not only through them, but all the muscles, quite down to the bone,—so that in this case there is no separation whatever between the muscles and integuments. The other parts of the operation are performed in the same way as was before described for a muscular subject. All the

cutting part being finished, bring forward the retracted muscles for a moment, to see how your stump is formed, and if you are satisfied with it, expose freely its face, and let the surface be well sponged with warm water; secure all the great vessels before any slackening of the tourniquet takes place. The mode of tying arteries shall be discussed hereafter. The hæmorrhage being stopt, remove the tourniquet with the circular roller, and clean the limb with a sponge and warm water; raise the patient's body upright, so that he may fairly sit on the breech, and make him drop the stump into the hands of an assistant, by whom its end is to be held securely, though without pressure: by thus lowering the stump the muscles will be greatly relaxed, and afford much facility in the application of the adhesive plaister: pass a roller of five yards in length, beginning it by twice around the loins, and crossing it at the groin; let it be expended on the thigh; the assistant at this period drawing well down the integuments and muscles, so as to cover effectually the front of the stump. The object of this roller is to prevent the retraction of the muscles; and I cannot impress too strongly on your minds the necessity of attending to this point, as on it in a great degree depends the success of your operation. In very muscular subjects I have in this way expended two or three rollers, merely to prevent the muscles retracting, and drawing the face of the stump against the end of the bone;

they should be passed sufficiently tight, from the groin downwards, till they come within two inches of the edge of the front of the stump; and if a probe can go round between these rollers and the limb, they are not too tight. Sponge the face of the stump,—arrange the ligatures, so that they be not entangled or twisted; bring them out either about the middle or towards the lower end of the limb, as may be the nearest and most convenient for them: wipe dry the edges of the incisions, which are now to be brought accurately into contact: apply slips of adhesive plaister, so as to reach from about two inches on either side of the stump: use no force, and in their application alternate them till the whole surface is covered; and in those straps that would press over the ends of the ligatures, as they come out from between the edges of the incisions, let there be a hole to allow them to pass, taking care that no portion of the face of the stump be uncovered by adhesive plaister, nor that the lips of the incision be drawn to one side, out of a direct line. Some surgeons, by way of greater security, will apply a tight adhesive plaister *around* the end of the stump, with the view of preventing the others slipping. Let me beg of you never to permit this to be done: you can have no idea of the mischief which this apparent trifle produces. Several times, however, have I seen stumps thus put up, swollen and inflamed to the greatest degree, not only on their faces, but on all the parts below this circular

strap, or, as it might be more properly called, ligature. Inflammation, tension, and pain, are brought on to such an excess, that unless you had witnessed it, you would scarcely believe it possible; and often it has been the means of preventing the lips of the stump from uniting, in consequence of the unhealthy condition it has brought on. Let me advise you always to bring the lips together in a longitudinal direction, the advantages of which over a transverse or a puckered one are incalculable: in a longitudinal one, we have a dependent opening for the matter, and there is no underweight to be supported: in the transverse, the pus burrows, and if the union should not be at the first dressing very firm, and particularly if the greatest care be not taken to support the underhalf of the stump, at every time that it is raised within the first fortnight from the pillow to be dressed, it may give way and break open, from its own weight. With respect to the method of puckering up, and bringing the integuments into one central point, I believe it has now no advocates, nor do I fancy it ever had many; I employed it once many years ago, and miserably disappointed I was. The straps being adjusted, apply a thick layer of spermaceti ointment, spread on lint, so as not only to cover the face of the stump, but that it may reach a good way up the limb: over this lay a cushion of lint, securing all with a cross and a thin bandage. When you remove your first dress-

ings, you will find it much easier to do so when an ointment has been applied next to the straps than if dry lint only had been used, which, by the oozing of the blood which sometimes takes place in the first hours after the operation, will have hardened it into a firm mass, forming on the stump a stiff troublesome case, painful to the patient, and extremely difficult to remove. Before your patient is returned to bed, place a tourniquet loosely on the limb, in readiness to be screwed at a moment's notice, should any hæmorrhage come on; and this precaution has the advantage of impressing the patient with the necessity of keeping the stump very quiet; but I have long remarked, that if bleeding does not take place within six hours of the operation, from the neglect of an artery not having been tied, you will have no trouble on that score, and that all the vessels necessary to have been secured, have been so.

Let the patient be placed either on his back, or a little turned over on the hip of the operated limb, which is to be laid on a soft pillow of such a height as best accords with the patient's feelings, taking care that the edges of the stump do not press against it: pass a roller across the bed, going under the sound limb, so that it may lay over the stump in such a way as to form some little check, if any spasmodic movements come on: use a tin cradle, to keep the weight of the clothes off.

Whilst the patient is on the operating table, let a little wine, or wine and water, be cautiously given,

according to circumstances; but you should not intrust the quantity to the unprofessional attendants, who are very apt to gratify the patient by large draughts, with the view of keeping up the spirits; but the practice is extremely prejudicial, and its ill effects will be felt soon after the person has returned to bed, if not before. Beware also that he has not clandestinely taken laudanum a short time before the operation, with the idea of deadening his feelings; but this is a mistaken view. I have seen patients stupidly influenced by opium, whilst under the knife, whose conduct did not shew that it had been any way beneficial in diminishing their feelings at the time, and afterwards it produced headache, thirst, and many unpleasant sensations. Should the patient, after having been settled in bed, complain of severe pain, provided he had not taken opium previously to the operation, let him have forty drops of laudanum, with a drachm of the liquor amon. acetat. together with diluent drinks, effervescing draughts, &c.; and unless the pulse be very weak, and the debility extreme, we do not give any wine till after the stump has been once dressed, and then the treatment is to be regulated according to the appearance it presents, with the effects on the constitution generally. If on the day following the operation, there be much pain in the stump, with a degree of fulness, cut a few turns of the circular roller, without disturbing the limb; and on the third day, whether there be pain or not,

remove the cross and the bandage which confined the dressings, just to see whether there be any tension on the stump; if so, cut through a few more turns of the circular roller that was put on to prevent the retraction of the muscles: if any of the adhesive straps seem to press too much, slacken them by raising their edges a little, or snip them with a pair of scissars, as they cross the face of the stump; but on the fourth day, at the latest, completely dress the limb, by first cutting through all the circular turns of the bandages, and then cautiously raise it from the pillow, supporting it in every way that you can, to hinder any tremulous motion taking place; and whilst an assistant draws forward the integuments and muscles, apply one or two rollers, as before directed, from around the loins, crossing the groin, and expending them by turns on the thigh, to within two inches of the end: when this is done, lay the stump down, and remove the straps *one at a time*, sponging away any matter, and cleaning the surface; reapplying a fresh one, before a second be taken off; thus going on till all be finished, leaving every here and there a little opening, in the line of the incision, for the matter to steal away; when the stump must be again gently raised, and the face of it covered with the spermaceti pledgets and layers of lint, secured with a cross and a circular turn or two of a roller.

Should the stump turn out well, the same method of dressing is to be followed once every day, re-

moving or not the preventive retracting rollers, as they become loose or soiled; for the object throughout of this roller is to keep the integuments and muscles well forward on the face of the stump, so that no part of it may unnecessarily press against the end of the bone. If you find, on the removal of the first dressings, that your stump is much swollen and inflamed, and its lips not inclined to unite, still I advise you to apply the adhesive; but the bandages are to be kept thoroughly wet with cold water. Should the lips of the stump be separated, and appearances become such as to require poultices, let one or two wide straps, with a central hole, be laid on, so as to leave a space between them, merely to keep the sides of the stump somewhat together, over which your fomentations and poultices may be applied,—the object of the adhesive being to give support, and frequently it will prevent the full exposure of its surface, and the central holes will permit the matter to escape.

As my object in calling your attention to the subject of Amputations in general was with the view of pointing out the method that we pursue, it will not be necessary for me to enter at this time into the medical treatment after the limb has been removed, and therefore I shall confine myself to the mode of amputating different limbs, to the tying of the vessels, and the application of the dressings.

From what we have stated as the method of removing the thigh about the middle third, you will

easily see the principle that guides us in forming our stumps,—which is, to detach the integuments from the muscles only just sufficient that they may be a little longer than them, so as to allow of their meeting in an exact line on the face of the stump, to preserve such a quantity of muscle as to form a good cushion, and to saw the bone high up.

To accomplish these three points, you see that the integuments are put well on the stretch, so that the first circular incision frees them so as to allow of their being drawn up about an inch from the muscles underneath, so that the muscles may be cut through about this space higher up than the integuments, which will allow of their meeting on the face of the stump; whereas, by dissecting back too freely the integuments, you cut off the communication between them and the muscles, leaving for the nourishment of the former only the cuticular vessels, without being able to get any support or supply from the parts underneath, and in consequence you must remove, or what I call scoop out, too much of the muscular substance, so that there is hardly any left to cover the end of the bone, having a great cavity in front of and between it and the integuments, whereas by leaving a good quantity of muscle, and sawing the bone high up, should the stump not heal by the first intention, the bone at all events will not be seen again, as a sufficiency of muscle will have united to conceal and protect its end; and when there is a profusion of

integuments and scarcely any muscle, the adhesion of the incised edges of the integuments will be so imperfect or so slight, that the lips will give way, and if they do the bone will be seen; the muscles having been so much removed, that it will protrude, and frequently a portion of it exfoliate, or may be, terminate in necrosis. There should be left in a stout thigh about two inches of muscle in thickness, to cover the bone, and only just integuments enough to be brought with a little exertion into exact contact in a line in front of the stump; and when all this takes place, you will have no reason to be dissatisfied with your operation.

How frequently do we see, where the common method of operating, by dissecting back and turning up the integuments, and then cutting through the muscles, has been followed, and where the lips of the wound have been united on the first dressing, that that union has soon given way, the adhesion having been so slight, though at first sight apparently so perfect, yet the whole surface of the stump has become exposed, and the bone brought into view; so that the patient will never be able to walk on a wooden thigh, there being no muscular cushion on which he can rest.

Recollect that, in process of time, the very best formed stumps, of which any surgeon may have been proud, have become so pointed, from the retraction of the muscles, as to prevent the wooden thigh from ever being used. This, in the greater

number of instances, might have been avoided, by the patient from the very first having worn a bandage carefully put on the limb, sufficiently tight to prevent the muscles from retracting.

Having gone through our observations on the method of removing the thigh at the middle third, the same principle will guide you, in forming your stump, either higher up or lower down. When you are obliged to operate very high, but still enabled to allow the head of the bone to remain in the socket, with the capsular ligament untouched, it will very much lessen the danger; you must, therefore, be exceedingly careful not to cut into that joint by wounding the investing ligaments, unless it be your intention to remove the limb at the hip; and if you operate lower down towards the knee-joint, be cautious not to go too close, as you may suffer great inconvenience, and your stump not turn out well, from amputating too near the knee, from the bursa mucosa and the tendinous portions of the four extensor muscles of the leg: by going an inch or two higher up, you will be free from all these impediments, particularly to be attended to, if your amputation is in consequence of a disease of the knee-joint, where a flabby glutinous condition of the parts surrounding the bursa and the ends of these muscles frequently extends further than you expected, and it would be wrong to be involved in difficulties for the sake of your stump being an inch or two longer.

When the thigh is to be removed very high up, there will not be room to apply a tourniquet—your pressure must be made on the femoral artery at the groin, either by the thumb of a strong person, or what is preferable, with the bowl of a key. When it becomes necessary to remove the thigh at the hip-joint, you must be prepared to encounter an operation of the most formidable nature, which not many years since was thought almost hopeless to undertake: now, however, should it be necessary, any surgeon who possesses sound anatomical knowledge, has been accustomed to operations, and has the command of the knife, would never shrink from performing, as there have been several successful instances where the patients must have died had they not submitted to the operation; and although I have never performed it, yet some years ago I assisted, and took up the arteries in the one that was so ably and so skilfully removed in the Military Hospital, opposite to this, by Mr. Brownrig, the army surgeon, whilst in charge of the surgical department of that establishment; and although no stump could have been more perfectly formed, nor terminate more successfully, yet I should not be disposed to follow exactly the mode of operating adopted by that gentleman, and I will give you my reasons. In the removal of the thigh at the hip-joint, you only have the power of compressing the femoral artery at the groin; consequently, if all the muscular parts on both sides are divided before the

bone is taken from the socket, which was the case in this operation, you must cut through the obturator artery, as well as those branches which come out of the pelvis at the posterior part, consequently you have several vessels bleeding at the same moment, without the power of compression; and from the thigh not being removed from the acetabulum, you have only the slight space formed by the gaping of the cut muscles all around the bone to wedge in your hand, and get hold of the mouths of the bleeding vessels,—which mode of operating places you between two difficulties, either of allowing several of these arteries to bleed, whilst you are employed in cutting open the capsular ligament, dividing the round one, and removing the thigh from the joint, or of attempting, through this narrow muscular space, to secure the vessels; and should there be any loss of time from their retraction within the muscles, or from any of the impediments which every now and then occur in the taking up of arteries, a considerable quantity of blood may be lost, which, if not immediately fatal, may so far debilitate the patient as to render him incapable, should the stump not heal kindly, of struggling through long periods of suppuration. Now, the method I should recommend would be this:—I should place my patient on a table, with his body half-raised, leaning back against the breast of a person sitting behind him; the patient's lower limb should hang over the edge, so that the groin

should be fairly exposed, and on the stretch; the thighs are to be separated, so that I might, if I chose, be able to sit down on a stool in front, with my foot resting on the bar of the table, of such a height as to allow the right elbow to rest on the knee. I should direct a steady assistant to place three fingers of his right hand close to the femoral artery, on its iliac side, as it emerges from under Poupart's ligament, pressing them down, so as in some degree to protect the vessel, and, if necessary, to be in readiness to make pressure on the artery: I should then make an incision merely through the integuments with a scalpel of the largest size, from the iliac edge of my assistant's fingers, carrying it downwards and outwards to below the trochanter major, so as to form the line of the outer flap, which is to terminate near the tuberosity of the ischium: this being done, the assistant should shift his fingers to the pubic side of the femoral artery, with the same view of protection as he did before on the iliac side; then I should mark out the intended flap on that side by an incision merely through the integuments: these lines would very nearly join in front, excepting that part over the femoral artery covered by the assistant's fingers, but they are to meet behind, carrying them higher or lower, according to the muscularity of the subject. If I was then satisfied that this track through the integuments offered a fair chance of forming a good stump, I should follow it; if not, I should alter my line, by carrying it a little

further up or down. This being settled, the assistant's pressure is again to be on the iliac side of the artery, when, by a bold stroke, I should go down by the line already made in the integuments to the bone on the outer side, and immediately dissect up, and turn back the muscles, to form the outer flap, and should secure in my progress any arteries that might be troublesome. The next steps would be to cut through the capsular ligament, so as to lay open the joint,—then to divide the round ligament, and the limb would immediately drop a little ; when, with a smaller scalpel, carried as close to the bone as possible, the attachment of all the muscles should be divided ; and as soon as I could lay hold of the head of the femur with my left hand, I should draw it outwards from the joint, so as to allow of passing a small amputating knife close to the bone, on its inner side, to be carried down till I came to the line of my inner incision, and then resigning the head of the femur to an assistant, I should place the fore-finger of my left hand on the point of my knife, and dash it directly out in the groove previously made in the integuments, so that the femoral artery would not be cut through till the moment of the separation of the limb from the body ; then instantly seize hold of the artery, directing the assistant to keep strong pressure on it as it lays over the edge of the pubis : at this time the other assistants might be pressing on, or securing the mouths of the other vessels, which would not be long in tying after the femoral artery was

in safety; so that, in fact, by this method, none of the more important arteries would be cut through till the division of the muscles on the inner side, which is to separate the thigh; and then we should have an open surface, and nothing to prevent our meeting the bleeding vessels fairly: these being all tied, the lips of the wound are to be brought together, either transversely or longitudinally, whichever at the moment appears the easiest and most convenient direction; and let them be kept in contact by adhesive straps, with central holes, to allow of the ligatures to hang out, and any matter to escape. Spermaceti ointment, spread on lint, is to be applied, and over it a square piece of calico, which is to be fastened by tapes to a circular roller on the loins. In Mr. Brownrig's case the lips of the stump were brought together transversely, and they formed a most perfect line. An assistant should be constantly by the bed-side of the patient till the ligatures are away; the period and method of dressings are very nearly the same as those for an amputated thigh. It has been recommended, that after the arteries have been secured, the cartilaginous lining of the acetabulum should be scored with the scalpel, with the view that this process might cause an inflammation on the surface of this cavity favorable to the adhesion of the muscles, which would now be brought into contact with it; but be assured that it is a very erroneous practice, and should not be adopted either on the removal of

the hip or shoulder joints; in the latter I can speak decidedly against it, from what I have seen arise from cutting or scoring the cartilaginous covering of the glenoid cavity. You should leave them alone; Nature will do her part better than when they are scarified or cut. Some surgeons advise that you should begin by cutting down and securing the femoral artery, which we would not recommend; it not only prolongs the operation, but subjects the patient to an additional risk, and by the assistant's fingers being placed in the protecting situation we have pointed out, there is no danger of any injury being done, and no hæmorrhage can take place till the final cut which separates the extremity from the body.

The next operation that we will describe shall be one of the leg below the knee, and let me urge you very strongly, whenever you possibly can, to take off the limb below instead of above the joint; its advantages are very great: supposing that the limb be removed above the knee, should the stump not turn out very favourably, or the end of the bone not be well protected by the muscles, it is ten to one that the person will ever be able to wear a wooden case, or an artificial thigh. You see that in the thigh the stump must either rest on its face or the pressure must be received on its sides, or on both, unless it be a patient in such affluence as can command a complicated and expensive machine; consequently if the bone be not well protected, it

must always give pain, and the covering will frequently yield and ulcerate, and if the greater part of the pressure be thrown on the sides, the muscles must retract, and by degrees the end of the stump will become conical, and unequal to support the most trifling weight; but when the limb is removed below the knee, even should the stump turn out so unfortunately as to have an exfoliation of bone, the patient will, in time, be able to wear a wooden leg, as the pressure would be made on the sound knee-joint, which, being bent, the person rests it on the wooden leg with the end of the stump turned back, so that its face is free from any annoyance; and even with its surface ulcerated, the patient is frequently able to walk about with the greatest freedom on his wooden leg; and if you were to take indiscriminately fifty persons with amputated thighs, you would find that by far the greater part are obliged to throw aside, every now and then, for a time, if not entirely, the assistance of an artificial limb. Not so with an amputation of the leg, where almost every one is able to employ it; and as by far the larger proportion of people who suffer the loss of limbs are from that class of society who are obliged to labour for their daily support, you will readily perceive of how much moment it is to preserve the knee-joint in all possible cases, without even taking into account the greater degree of comfort that is felt by a person who can walk about with a common wooden leg over one who puts on an artificial thigh, but many

of whom are obliged to go on crutches, on account of the impossibility of the stump bearing an artificial limb; and even if both operations could equally well receive the wooden assistance, pray look at a man who has lost a thigh and one who has lost a leg; and even if both stumps should have turned out very well, the comfort and ability of the man who has had the limb taken off below the knee-joint, compared with the one above, is very striking, and ought to make us run the risk, in a doubtful case, of ascertaining whether it be not practicable to cut off the limb below the joint, even supposing that in one of such cases out of ten we should, after having made some progress in our amputation, discover that the operation must be done above, the surgeon would be perfectly justified in having made an attempt, which, if successful, would have tended so much to the advantage of the patient. This once occurred to me several years ago, when, after having sawn through the bone, it was discovered to be so diseased in its under part that, although another portion of two inches was removed higher up, yet I was obliged instantly to amputate above the knee-joint, and the patient did well. Since this period, I have cut off some legs where the risk was not less of meeting the same thing, yet none such has occurred; and by this mode I have happily succeeded in saving some knee-joints, without which hazard the operation would have been performed above. When you amputate a leg, let the tourni-

quet be applied on the thigh, as near the joint as the condyles of the femur will permit ; as you know that in removing a limb all the blood in the vessels below the tourniquet must flow out, consequently the higher it is up the more must be lost, and in an extremely emaciated subject the recovery of the patient sometimes may be rendered impossible by the loss of such an extra quantity of blood as is found between the groin and the knee : and how often do we see the tourniquet applied as high as the groin, even in very debilitated patients, without reflecting that all the blood below it must be lost.

To remove a leg, stand on the outside for the right and on the inner for the left, which gives you the command of your left hand, to retract the integuments. Place the patient on a table of a suitable height, and if he be greatly exhausted, allow him to lay back on blankets, with the shoulders a little raised, or, if he should prefer it, he may be permitted to sit up, leaning his back against the breast of an assistant ; in either way about four inches of the lower part of the thigh should be beyond the edge of the table ; the lower part of the limb is to be given in charge to an assistant, who, sitting on a stool in front, is to hold it so that he may bring, if possible, the foot on a level with the knee, but this can scarcely ever happen, excepting in recent accidents, from the contracted state of the ham from the flexor tendons of the leg ; if we cannot do it to the full extent, we must be satisfied with it as far as

we can: another assistant standing on the inner side of the thigh, and leaning forward so as not to be in the way of the operator, takes strong hold, with one hand on each side of the calf, of the integuments of the leg, about four inches below the tubercle of the tibia, so that the knee also may be steadied between his wrists; then pulling the skin upwards on the stretch, the surgeon makes with a full-sized amputating knife, a circular incision through the integuments only, whilst the assistant draws them upwards; the circle being finished, he dissects with the point of the same knife the integuments from the tibia, so as to free them for an inch or more, adapting it to the muscularity of the subject, tucking them upwards without entirely rolling them back; then, with the knife applied close to the edge, which will be about an inch from where they were first forced up from the muscles, he should make a bold stroke so as to divide the muscles all around, down close to the bone, and after freeing them a little more from the outer side of the fibula, a catlin is to be passed between the bones, at the uppermost part, corresponding with their circular detachment; the bones being liberated from the muscles, a retractor is to be thrust in between the tibia and the fibula, and drawn forcibly upwards in such a way as to protect the integuments and muscular parts from the saw. Whichever leg it be, the knee is to be turned inwards, with the view of sawing through the fibula first, about half an inch shorter than the tibia:

as soon as this bone is divided, which two or three movements of the saw will effect, the leg is to be placed with the tibia fairly uppermost, so that it may be sawn half an inch lower than the fibula, which ought to be as close as possible to the edge of the turned-back integuments, and where the periosteum must have been previously divided. The limb being removed, the muscles and coverings are brought forwards, to ascertain the nature of the stump, and after again exposing the surface, the arteries are to be secured. Every thing being ready for dressing, bend the knee joint, and let a circular roller be passed from about the middle of the thigh downwards, leaving the point of the knee exposed, with the view of ascertaining whether inflammation and tension are coming on, between the period of amputation and the removal of the first dressings. Let the roller be expended till its last turn comes about two inches from the face of the stump, during which the integuments and muscles are not only to be well held by the assistant, but drawn towards the front; the roller being applied, the edges are to be brought together in a longitudinal direction, and kept accurately in contact with adhesive straps, allowing the ligatures to hang out in the most convenient and nearest direction to where they were tied, and the other parts of the dressings are to be conducted as was described in a former lecture on amputation of the thigh. The patient is to be put to bed with the thigh and ham so raised and

supported with pillows that, with the knee bent, the face of the stump may be clear of the bed, yet to have some little resting on the surface without admitting of pressure: the precautionary tourniquet, the mode of treatment, subsequent dressings, and removal of ligatures, are to be managed on the very principles formerly detailed. Whilst dressing the stump, be exceedingly cautious not to raise it, in its early stage, too much from the pillows, for fear of bringing on a tremulous motion; by not attending to which I have seen such violent shaking of the limb come on as to break open adhesions, which had never certainly been very firm, yet quite enough so to promise, by proper treatment, to be permanent. Our principle, therefore, in amputating a leg is the same as for the thigh,—first, to separate the integuments by a circular incision, and then to draw them up from the muscles, just touching, if necessary, their cellular connexion with the point of the knife, so as to detach them, more or less, according to the muscularity or emaciation of the limb. It is more necessary to have a greater freedom of integuments to cover the face of a leg than a thigh stump. In order to avoid the sharp edges of the tibia, we prefer sawing the bone separately, so that the fibula may be somewhat shorter than the tibia, the benefit of which you will discover in dressing up the stump, particularly if the limb be greatly emaciated; when, by the common method of sawing both bones at once and making them of

the same length, you occasionally find the point of the fibula projecting against the inner side of the integuments, so that it brings on pain and inflammation, and sometimes the bone will ulcerate through, unless you take the greatest eare, when you bring forward the integuments to the central longitudinal line of your stump, not to make pressure on it. If you intend to saw the bones separately, it is better to get through the fibula first, which avoids the risk of splintering that small bone, which might happen by the weight of the limb on turning it to get at the fibula, supposing the tibia had been sawn through. For comfort and convenience, a stump below the knee cannot be too short; taking care to keep clear of the joint, and that it may be so formed that the tibia may be cut through about an inch and a half to two inches below the tubercle, which will keep you free of the tendinous insertion of muscles, which, if divided, might slough. Sailors have frequently requested me to make their stumps as short as possible, so that when the knee-joint rested on the wooden leg, there might be but little projection from behind; for, when the stump is long, its weight and swinging about retard and fatigue in walking: two men, who had lost their legs in the East Indies, came to me in this hospital at one time, whose stumps were so long, having been cut off just below the calf, that they were rendered almost helpless, and at their earnest entreaty I removed them to the usual shortness, for which

they were very grateful. Take care, however, not to go too close up to the knee; I had once a patient sent to me eleven days after his leg had been amputated on board in the heat of battle, and so close was it done to the head of the tibia, that the joint was freely exposed, and it became necessary to cut off the limb above the knee, to save his life. We are of opinion that it is more to the comfort, besides incurring less risk, for all persons to have the limb amputated at the usual place below the knee than to perform it, even in such cases as would admit of it, any where below the calf; people of affluence who can afford an expensive and complicated artificial limb, instead of the common wooden leg, may be disposed to have the operation lower down, but for others not similarly situated, there can be no doubt of the spot that is best to be selected, and the risk is certainly less, with a better prospect of a sound stump.

Removing the arm at the shoulder-joint was, some years since, thought a much more formidable operation than at present, for it is not more than twenty-five years ago that one of our best anatomists and operative surgeons stated in his great surgical work, that it was not practicable to make such pressure on the subclavian artery as effectually to prevent the flow of blood through it, and although you might not be able to detect the pulsation at the wrist, yet the first cut of the knife would, he said, convince you that stopping the pulsation of an

artery was a very different thing from preventing the flow of blood through it. No doubt pressure may be so modified as to overcome the pulsation of an artery, and yet allow of the flow of blood; but in the subclavian we well know that we do possess the power, both above and below the clavicle, of not only stopping the pulsation of that artery, but of preventing the passage of a single drop of blood. Before taking away an arm from the shoulder-joint, you should well reflect whether it be not practicable to avoid that operation, by leaving the head of the bone and capsular ligament untouched, and sawing through the humerus close up to the cervix, not with the idea of the shoulder-joint operation being so much more hazardous, but when you remove the arm at the shoulder you detach so many muscles that the person ever afterwards leans so much to one side as to make the body awry; and from the frequency that some surgeons have performed the shoulder-joint operation, as compared with others who have had twenty times the number of surgical patients under their charge, there is too much reason to suspect that the arm has been taken away at the joint which might have been perhaps amputated below; and those surgeons ought to consider that should the shoulder-joint stump turn out unfortunately, the patient, perhaps, is lost, from not having any resource, whilst in amputation below the joint you still have a remaining chance at the shoulder.

At the time of operating, it is better to lay your patient on a table, with the arm supported over the edge, by which you have him more under your command; pressure being made on the artery above the clavicle, by forcing down the bowl of a key, protected with a layer of lint; preference being given to the patient being on a table to sitting up in a chair, from having seen a person during the operation shrinking from the pressure above the clavicle, and gradually sliding down from the chair till he was nearly on the floor; and although compression can be equally as well made below as above the clavicle, yet there is much less chance of its slipping, when made above, than when it is on the artery, as it emerges from under the collar-bone over the first rib. Begin your incision with a strong scalpel, just at the edge of the coracoid process, carrying it outwards and downwards, through the deltoid muscle towards its insertion, when you are to proceed upwards and backwards, regulating the length and breadth by the muscularity or emaciation of the subject, so that it may form your flap. When your incision is finished, strip upwards the deltoid, so as to expose the capsular ligament, which being cut through close to the edge of the glenoid cavity, lays open the joint, and allows of the tendon of the long head of the biceps to be divided, when the assistant is to take hold of the head of the humerus, drawing it outwards, whilst he pushes the elbow inwards, towards the side of the body; the surgeon

will carry a small amputating knife over the head of the humerus, cutting as close as possible to the bone till he comes opposite the hairy part of the axilla, when he will instantly dash it through, which will separate the extremity from the body ; and you will find, that if the artery has been properly compressed, it will not have thrown out a single drop of blood ; draw it out with the tenaculum from among the nerves, and secure it with a ligature of six threads ; take up any other vessels that may be required, but you will seldom have more than two or three, and sometimes not a single one, beyond the principal artery, though sometimes you will be obliged to secure a small vessel from the centre of the axillary plexus, which must be carefully drawn out from the surrounding nerves, and tied free of any filaments. Bring the lips of the wound together transversely with the adhesive, and secure all by a roller around the body, having first placed a square piece of calico over the dressings in front of the stump. Conduct the after-treatment on the plan directed in amputation of the thigh, and between the twelfth and the seventeenth day the axillary ligature will be thrown off.

You will find, by the above method of operating, that it is neither difficult nor tedious to remove the arm at the shoulder-joint : sometimes it is necessary to amputate at the shoulder, when the deltoid muscle is either diseased or has been carried away, or torn up by a gun-shot ; so that you must seek for your

flap from underneath; but when it is practicable, the deltoid forms the best, otherwise you must make it from whence you can, to conceal and protect the joint in the best way. Let your bandages be put on to support, but not to compress the parts, so as to keep them in close contact with the glenoid cavity. If the stump goes on well, the patient will speedily be cured.

We will now describe an amputation of the upper arm. If there be room for a tourniquet, let it be placed so that its pad may be on the artery close to the axilla; but if the amputation is to be very high up, the pressure must be made above the clavicle, in the same manner as in removing the arm at the shoulder-joint. If the patient is much debilitated, let him lie along on the table, with the shoulders comfortably raised, so that the arm may be brought over, and free from its edge; or should the patient prefer sitting in a chair, let him have one without arms and with a low back: an assistant, either standing or sitting, as may be most convenient as to height, is to secure well the elbow, whilst another supports the fore-arm, so that, when the bone is sawing, the arm may be kept extremely steady; another assistant will stand on the outer side, and grasp the limb with both his hands, putting the parts on the stretch; and the surgeon, standing on the outside for the right, and on the inner for the left operation, will make with a full-sized amputating knife a circular incision of the integuments; and if

the patient be muscular, they are to be detached from the parts underneath by the point of the knife, whilst the assistant is forcibly drawing them up till they are freed about half an inch, when the whole of the muscles are to be boldly cut through down to the bone, with a circular dash of the knife; and as soon as it is exposed, with the same knife free the parts attached to it for at least an inch and a half, whilst the retraction is aided by the hands of the assistant: apply your leather retractor, by forcibly drawing up the muscles with it, so as to saw your bone as high up as the edge of the leather will permit. If it be a very emaciated subject, let the assistant, in grasping the arm, put the integuments a little on the stretch; but whilst the surgeon is cutting them through, they are not to be forcibly retracted, so that when the circular incision of them is finished, they will be drawn up a very little way, and from their edge the knife is to be carried boldly down with a circular cut to the bone, which is to be further freed a little, so as to allow of the retractor being applied and the bone sawn, without lacerating any muscular fibres or portions of the periosteum,—our object being, in a very emaciated subject, just to draw the integuments a little from the muscles, so that ultimately they may be a trifle longer, to meet in front; then, by one bold incision, to reach the bone, so as to save all the muscular parts, to make the best cushion we can, and the bone is to be sawn higher up than the cut muscles. The

ligatures being tied, the parts are to be drawn downwards and forwards, to cover the face of the stump, and held whilst a circular roller is passed from around the body, and expended turn after turn from the shoulder downwards, to prevent them retracting, till it be finished within half an inch of the edge of the stump: the lips of the wound are to be brought together in a longitudinal direction, arranging the ligatures and dressings according to our former plans, placing the patient in bed with his shoulders raised, and his body turned a little over towards the amputated side, so that the stump may rest on a pillow, filling up the hollow under the loins with soft pads, resting the opposite nates on a folded sheet, so that, by canting the body a little over, the shoulder may rest fairly on the bed, and the stump lay conveniently, without any part being in a strained position.

In amputating the fore-arm, the tourniquet had better be placed on the humerus, as near to the elbow as the situation of the condyles of that bone will permit, that as little blood may be lost as possible; not that, in general, it is of so much consequence here to be so very careful of a few ounces of blood, as it is in the position of the tourniquet on the thigh, in amputating the leg. The longer that the stump of the fore-arm is made the better; and I am never afraid of getting as close as I can to the carpus, from any danger of the tendinous parts sloughing; for if

a stump be equally well formed, it will unite as readily, when your first incision is made close to the wrist, as higher up. Let your patient sit on a form, so that an assistant may have room behind to allow of his leaning backwards against his chest; the elbow is to be half flexed, and very securely held by the hands of the assistant, who is to grasp the integuments of the fore-arm, whilst another is to hold the lower parts, either by the hand or wrist, as he may find most convenient, so as not to interfere with the disease or injury, for the removal of which the amputation is performed: the fore-arm is to be then held half supine, the integuments being on the stretch. If the operation is to be near the carpus, let the first incision go at once down to the bones, the assistant at the same time retracting forcibly the parts; and when they are free from the radius and ulna, and drawn upwards about an inch and a half, you are to pass in your catlin between the bones at the upper part of the retraction; otherwise, if you insert your knife lower down, you will have to slit up, as it were, the muscles from between the bones, which would embarrass you, not only by cutting the interosseal artery higher up than it would be easy in all cases to secure it, but also the muscular parts would be too much divided: your retractor is then to be inserted, but the arm is to be turned prone when you saw through the bones, which will give you the power of getting through both at the same

time: the vessels being tied, bring down the lips of the wound over the face of the stump, and prevent the retractive power of the muscles by a roller begun from just above the elbow, and continued down to within an inch or two of the edge of the stump: secure the lips in a longitudinal direction with adhesives, leaving only a space or holes in them for the ligatures; apply the other dressings as usual; and all this is to be done with the fore-arm half supine. The patient is to be put to bed with the shoulder supported, the elbow bent, and the fore-arm prone, resting on pillows; and if all goes on well, the cure will be as soon as the ligatures are off. After the fifth day, allow the patient to get to the sofa; and in a day or two more, to walk about with his arm in a sling, resting on a pillow. Should it be necessary to remove the arm in a muscular subject higher up towards the elbow, the circular incision is first to be made in the integuments, whilst they are held on the stretch, so that they may be drawn up a little, and then the muscles are to be cut through down to the bones, and the operation completed as before directed; but if the muscular parts are very full, after the integuments are freed a little, let your first incision go through the first layer of muscles, and as they are drawing up a little, with another cut of your knife go down to the bones, and conclude as in any other operation of the fore-arm; otherwise you would preserve in a very stout arm too great a quantity of muscle.

Having now given you, gentlemen, an outline of the manner in which I have been accustomed for some years to perform amputations in this hospital, it will not, I should hope, be deemed improper for me to state, that during my service I have performed two hundred and eighty-seven amputations, of which sixteen have died; but that, within the last eighteen years, the number of amputations has very considerably decreased, not only by the termination of the war, but from the malignant ulcer, which unfortunately for some years made such ravages in the navy, having been driven from it: so great at one time was its destructive nature, that within twelve months fifty limbs were removed in this hospital, the greater part in consequence of that disease: happily, however, for some years past, no amputation has taken place from it.

On the 1st January 1809, a public book was provided, in which each surgeon was ordered to keep a record of all his operations, and a quarterly copy to be sent to the Board. From this official document it appears, that from the 1st January 1809 to the 30th March 1829, when I solicited and obtained my retirement from the public service, forty-nine amputations were performed by me; viz. twenty-two of the thigh, seven of the fore-arm, ten of the leg, nine of the upper-arm, and one at the shoulder-joint. Of these forty-nine amputations two have died; viz. the forty-first and the forty-fourth. John Mitchell, received on the 7th Sep-

tember 1825, having been sent home in a packet from Lisbon, with a sloughing popliteal aneurism of immense size, which had burst in the ham before quitting the Tagus; and on the passage to England the integuments in the ham had also given way, when violent hæmorrhage came on; and when he was landed at Falmouth, he was in such a state of danger and debility, that Captain King, the commanding officer at that port, immediately sent him by the steam-packet to this hospital, in charge of his own surgeon. More bleeding took place in this second conveyance, and he came to me on the 7th September, too weak to justify any thing being done; but in two days, having rallied a little, we gave him the only chance, by removing the limb; but he sunk away, and died four days afterwards. The preparation of the sloughing artery and ham is in my possession.

The forty-fourth amputation was John Thorn, of the Breakwater department, whose arm was removed at the shoulder-joint, soon after the receipt of the accident, on the 23d September 1826. The stump went on well, but he died on the 30th, in consequence of extensive mortification of the back, which had been injured by the roof of the iron crane, against which he had been violently carried up, and for some time suspended against it, by his arm having been caught by the cogs of the wheel, which caused the necessity for its removal at the shoulder-joint.

In addition to my own amputations, I have actively assisted or been present at those performed by the surgeons of the hospital and the assistants, whilst they were permitted to operate before 1803; and after I became the first surgeon, at all those by the second surgeon in his department: besides which, I have attended at most of the operations performed at the military hospitals at this port; and for several years subsequent to the commencement of the war in 1793, at nearly all amputations performed at the prison depôts and hospital ships, besides being very extensively invited to private cases; so that I calculate that at the least I have witnessed four hundred other amputations. It is, therefore, from this mass of experience that I have presumed to give you the result of my observations on this important subject.

We may now make a few observations on the manner in which vessels may be secured in amputations.

There are three different ways in which a ligature may be placed on the vessel; either by passing a needle armed with silk or thread, taking hold of the artery with the forceps, or drawing it out with the tenaculum.

The only method formerly was by passing an armed needle around the artery, which necessarily included the vein, nerve, and some muscular, if not tendinous substance; the ill effects of which practice were so often apparent, that as soon as the

tenaculum and forceps were introduced, the needle was given up, wherever either one of the two latter ways could be adopted; and of these the tenaculum is the one to which preference is generally given. It is contended by some surgeons, that we should not trust to the tenaculum in very large arteries, but that it is safer to pass a needle: our experience, however, fully justifies us in the practice we pursue, and have done so for a series of years,—that, however large the artery be, provided it is free from disease, always to draw it out from the surrounding parts with a tenaculum, the point of which is to be passed through both sides near its mouth, using no violence, and taking care not to disturb it from the surrounding and connecting substances more than is barely sufficient to tie it free from its vein and nerve.

The form and size of ligatures have undergone, within a very few years, considerable changes. Not very long since, ligatures, whether of thread or silk, were made by freely waxing several together into a flat shape, like a piece of tape, from the fear that by applying a round ligature, it might do injury, even if it did not cut through the vessel; and if any after hæmorrhage came on, it was considered to have arisen from the mischief done by the round shape of the ligature. So far from that being the cause, we invariably use a round ligature, and in its application we are never afraid of cutting through the artery, but draw our ligature very

tight, by applying it with a kind of jerking or tremulous motion of the fore-finger and thumb of both hands, down close to the vessel; conceiving that the very means that were formerly taken by way of greater security, were the causes that secondary hæmorrhage so frequently took place. Now let us, by way of illustration, tie a piece of wide tape, and a piece of round string, on a person's finger; we shall find that the string can be drawn much closer and tighter than the tape. In using the tape, there will be left a small space nearest the knot,—and we will grant that it may be the least possible space that can be conceived; yet if it be a space, however minute, it is sufficient, according to our views, to cause occasional failures; for, by the constant pulsatory motion of the excited artery above the knot, it will become by degrees loosened to the extent of the space, and produce exactly the very effects, which it was hoped from its form might have been avoided, and which round ligatures, from not leaving any space under them, would not have produced; as it is not, we conceive, from the injury done from the roundness of the ligature cutting, but from ulceration taking place exactly under or just above it, which, from the compression not being sufficiently tight on the artery, so as to have brought its sides accurately into contact, to produce a total absorption at this part, makes it fail by ulceration or sloughing, without its calibre above being annihilated. Put, by way of trial, a ligature

on an artery only sufficiently tight to prevent the blood flowing through it with a pulsatory motion, but not tight enough to keep its sides entirely in contact, so as to prevent all kind of nourishment going on in its coats immediately under the knot, or to produce adhesion immediately above it, and you will find in a few days that there will be a hæmorrhage from an ulceration of the artery; if this be so, we may readily account for the various failures that took place, where the flat ligatures were used, from leaving even the minutest space, and therefore it is better not to wax the ligatures much, as it acts as an extraneous body, preventing its close contact, and where these bleedings took place, it was almost always before the ligature was thrown off, from an ulceration of a portion of the artery. Another method, but now abandoned, was to include small pieces of some substance or other, according to the caprice of the surgeon, such as bits of cork, lint, &c. within the ligature, so as to produce pressure on any large artery, with the view of preventing the tightness of the ligature cutting through the sides of the vessel, and it was unfortunately proved that where the greatest precautions of this sort were used by the surgeon, of either not drawing the ligatures sufficiently tight for fear of injuring the arteries, or having them of the flatness of tapes, or having extraneous bodies between the ligatures and the vessel, or of even passing the ligature, by means of the needle, through the mouth of the

divided vessel, after it had been circularly applied above, with the view of preventing the pulsation of the artery throwing it off over its end, we consider that where these precautions were used there were formerly the greatest number of cases of secondary hæmorrhage, some of them of a fatal tendency. Since this period a wonderful change in the size of ligatures has taken place, and the largest arteries have been trusted to a single silk; and after the knot has been formed one end of the silk has been cut off close to it, and some surgeons have even taken away both ends. The great merit of the introduction of single silk ligatures is due to a Gentleman who, whilst he was the second surgeon of this Hospital, in 1804 and 1805, first brought it into notice in his operations, and therefore I have had an opportunity of witnessing its origin and its progress—have seen it applied, and have myself several times tied arteries with single silks; but we conceive that, since its first adoption, the practice has been pushed by some surgeons a little too far. I do not think that I shall ever again be induced to trust the largest arteries to such a ligature, for although I have never had any hæmorrhage from the vessel giving way where this sort of ligature was used, yet in the two instances of my thus securing the femoral artery high up, I could not divest myself of the greatest anxiety till the danger of hæmorrhage was over. It would be all very well if the patient derived an advantage corresponding to what we

consider a great increased risk. It would be well for those surgeons who are in the habit of tying the arteries of the first class with a single silk, to reflect, whether they do not think that failures may be attributed to this practice : and so far from thinking those ligatures advantageous from their small size, that we on that very account consider them often objectionable, from larger ligatures being more easily and earlier thrown off. Frequently these single silks have been retained on the vessel for many months after every other part of the stump had been healed, excepting a small fistulous opening, and these could often not be touched or any attempt made to take them away, though of the gentlest kind, without exciting intolerable pain, and yet these ligatures had been put on by the tenaculum. Two years since I attended an amputation of the thigh of a youngster fourteen years of age, where the surgeon secured all the vessels with single silks, three of which remained on for ten months, there being a fistulous opening, and at length they appeared to rot away, as no part of the noose or knot could be discovered ; the stump, however, healed, and has remained well ever since, but during the period of the retention of the ligatures great pain and alarm were felt by the lad and his relations.

In another case where the single ligature came away, leaving the knot, the stump healed without any further trouble, but in three instances, two of

them amputations of the upper arm, where both ends of the ligature had been cut off close to the vessel, and where the edges of the wound were attempted to be closed, regardless of any extraneous body being left on the arteries, small troublesome abscesses succeeded one another for many weeks, creating a good deal of disturbance and anxiety.

Having made these observations to you on the various ligatures, the following is our method:— we use either silk or fine thread, generally taking the latter, making our ligatures from one to eight threads in thickness, waxing them a little into a round form, just to connect them slightly together, so that they may be tied without the risk of being of unequal lengths, or twisting up under the knot, it being absurd to wax them to any great degree to prevent their rotting, for they may remain months without being in the least injured, and where much wax is used you will see it crack or scale off at the time of tying your ligature.

As soon as the limb is removed, whilst the tourniquet is kept tightly screwed, let the whole surface of the stump be well spunged with warm water, removing all the coagulated blood; seeking for the largest artery first, and taking the others up by passing the point of the tenaculum through both sides of the vessel, near its mouth; ascertaining, with a little spunging, that the side of the artery has not been wounded higher up than the part where your tenaculum is inserted; for it does

sometimes happen, that where the catlin is used in the fore-arm and leg, that the sides of the artery are discovered to have been cut above where you have placed your ligature, creating some embarrassment. After you have taken hold of the vessel, draw it out from the surrounding parts, using no violence, and disturbing it as little as possible from its connexion, just enough to free it from the vein and nerve ; and, if you like to tie the vessel yourself, give the tenaculum to your assistant, to keep the artery a little on the stretch whilst you secure the ligature with a single knot,—the surgeon's knot, as it was called, being now almost, if not entirely, laid aside. It was made by passing the ends of the ligature *twice* through the noose, before drawing it tight on the vessel ; and, when the knot was tied, it offered no security beyond the common method now in use; and, from being more complicated, was longer in its application. In an amputation of the thigh, we put on a ligature of about four or five threads on the femoral artery, or one of seven or eight, if it be near the groin ; and in the others in proportional thickness. Having satisfactorily secured all the important arteries of the stump, boldly unscrew the tourniquet, so that the blood may come down with a sort of rush, and you will immediately afterwards see the ligatures in movement by the pulsation of the arteries; then secure any of the smaller ones that may require it. My object in rapidly unscrewing the tourniquet

after the large arteries are secured, is, that the rush of blood may force any of the secondary ones which may have retracted during the operation into the muscles, to bleed; otherwise they may lie concealed and undetected until the patient has been two or three hours in bed; when, re-action taking place, from the fear of the operation having subsided, and the rallying of the system from the loss of blood and faintness, hæmorrhage comes on, and you are frequently obliged to open the stump to secure the vessel: if not, the blood thrown out forms a large cake, acting as an extraneous body within its lips, preventing union, not only by the first intention, but frequently doing much more mischief; particularly if it be in a stump where there has been preserved too much integument and too little muscle. Now, what is the effect of a cautious and gradual slackening of the tourniquet, which you see so commonly done? Why, that the face of your stump becomes a bleeding surface, so that innumerable vessels are tied. How common is it for the surgeon, after having secured all the vessels he could get hold of, whilst the tourniquet was tight, to hear him say to his assistant, "Pray unscrew very gradually; but mind you stop the very moment I tell you." Well, after being slackened a turn or two, an oozing takes place all over the stump, and the surgeon immediately cries out for the tourniquet to be screwed tight, as the patient is bleeding fast. Now, mark what he has

done : he has just slackened the tourniquet enough to allow the blood to pass down by the important arteries, and has kept it quite tight enough to prevent the blood getting back by the veins, or the anastomosing branches, so that the whole is rendered a bleeding surface ; and a timid surgeon will go on securing vessel after vessel, to his own astonishment, the greater part of which need not have been touched ; and the hæmorrhage would have ceased on boldly taking off the tourniquet, and spunging the face of the stump with cold water. I have found that the slower the incisions have been made in removing the limb, and the more emaciated the patient, the more numerous, in general, will be the bleeding vessels. In amputations, as well in large incised wounds, by accurately examining the surface, you will detect arteries of the second and third order occasionally protruding beyond the muscular parts at least the length of an eighth or a quarter of an inch, pulsating violently, though without any flow of blood. Their mouths, on close inspection, appear shut, with their ends forming an obtuse point; and this happens more frequently in very muscular subjects, where the operations have been very dexterously performed. Now, should you pass over these arteries without securing them, you will find, that within six hours of the patient having been returned to bed, by the muscular parts relaxing from the return of warmth, hæmorrhage will pour forth from these vessels. You

had better, in all such cases, snip off the end of the projection, and immediately a start of blood will take place, convincing you of the necessity of tying the artery before you have closed your stump. Sometimes we find the large vein,—as, for instance, the femoral, pouring out a considerable quantity of blood, which, in a very debilitated and emaciated subject, is hazardous to be lost. I never hesitate a moment in passing a small ligature on it, the same as I would on an artery, and I have never found the slightest danger to arise from having done it. There are two circumstances that induce me to put a ligature on a bleeding vein;—one, where the actual loss of blood is of considerable moment to the safety of my patient; the other, the chance of the bleeding continuing after the patient is returned to bed, where the loss of blood is not of itself of consequence, but where it would produce mischief from being thrown out, and lodged within the lips of the stump, preventing the union of the parts by the first intention: therefore, although I do not seek to tie the vein where it can be avoided, yet I am never restrained from doing it from the least apprehension of any ill consequence. I assure you, gentlemen, I have never had the slightest cause, in any one instance, to repent of having so done. If you should find any difficulty of getting hold of the mouth of any artery with the tenaculum, try the forceps, which will sometimes succeed where the former fails, particularly if the artery has retracted

much between the bones, as in the case of the interosseal of the fore-arm. Here I have succeeded with the forceps, after ineffectual attempts with the tenaculum; but I always prefer the tenaculum where it can be used.

When the muscular coat of the artery is very thin, you will sometimes find the forceps has an advantage over the tenaculum, in taking hold of both sides of its mouth, and drawing it out from the surrounding parts just sufficient to allow of the ligature being passed; whereas the tenaculum would, by its point, tear through the vessel. Should you find, in any amputation, the artery in a suspicious or diseased state, either from an ossification of its coats, or from the sloughing of the vessel below, or from any other cause, you must secure it by passing a needle; in threading which, take care that the ligature be not too large for its eye easily to carry, so that it ought to be rather under than over threaded; for if it be too thick about the eye, you will be obliged to drag it forcibly through the surrounding parts, creating a good deal of embarrassment and pain.

In securing a vessel by a needle, you ought to make some distinction whether it be one in a healthy state, which has been cut in the amputation, but, from some cause or other, as, for instance, its forcible retraction between bones, prevents your getting hold of its mouth either by the tenaculum or forceps; or, whether it be an artery so far diseased or suspicious as induces you to take

it up with the needle: in the former case you cannot pass it too close to the vessel; whereas, in the latter, it is desirable to include a pretty good cushion of surrounding substance, to prevents its being cut through or yielding, which I have seen it do like a rotten pear; and yet that vessel has been effectually secured by including a good quantity of the surrounding substance; and even this has been found so sloughy and soft as to yield; and yet, by the introduction of a piece of lint within the noose of the ligature, such compression has been successfully made as to prevent any subsequent hæmorrhage, the ligature coming off with its lint at the usual time. Take care, whenever you pass a needle under an artery, that it be not wounded by its point, which would lay the foundation of a secondary hæmorrhage, or of a diseased state of the vessel. Have you not seen practitioners, who are not much in the habit of using the needle, foiled more than once in passing it, withdrawing it, and sticking down the point, which might, perchance, wound the artery, or do injury to its coats? Arteries, in the greatest state of ossification, may be sometimes successfully tied by the needle, and the ligature thrown off at the usual time, without any subsequent bleeding: and those gentlemen who witnessed my operation lately on Sheriden, and afterwards saw the very ossified condition of the whole of the arteries of the lower extremity, which are now in my possession, will never despair when they meet with ossified arteries. You saw, that

in that amputation of the thigh high up, I included a considerable portion of the surrounding parts in a very strong ligature, passed by the needle, before I was aware of the cause of the very diseased state of the vessels, from my tenaculum having twice torn through the femoral artery. Some surgeons might have been induced to have dissected up by the side of the vessel, with the hope of finding a sound part above; but none such would have been found, below the groin at least; and had I attempted this practice, I believe none of the gentlemen present at the operation but would have thought the patient lost; and, had not a large quantity of surrounding parts, which necessarily included vein and nerve, been tied in with the artery, the vessels would either not have been sufficiently compressed, or the coats would have cracked through, for they formed a tube similar to a broken tobacco-pipe; and, had a single ligature been attempted to be used, it would have been found to have had no effect in compressing the coats of the arteries. The man is living at this moment, now a year and a half since the operation, and in good health, with a sound stump. Should you, in the tying of any vessel, have your ligature break after your noose is on, and before the knot is formed, or even afterwards, you must put on another ligature; which, if it be tied *above* the former knot you need not care; but if it be secured *below*, you had better remove the first knot, otherwise this sort of half compression on the vessel above your proper liga-

ture, may produce an ulcerated state of the vessel, and subsequent hæmorrhage, on the principles which we have stated to you before.

In the tying of all large vessels, I always prefer doing it when the compression is so perfect above as to annihilate all circulation and motion through them, and to complete it with its knot before removing the pressure. But the more general practice, I believe, is—to tie the noose on the vessel in the collapsed state; and before forming its knot, to take off the pressure above so as to allow of the flow of blood, showing you whether the ligature is on the vessel; if it be, then to complete the ligature. The advantage of the latter practice consists in your sometimes not tying an useless ligature, by mistaking something for the vessel, which, by allowing of the blood to flow on, shews you your error, or convinces you that the ligature is properly placed. The disadvantages, I think, are, on the contrary, very considerable: thus, if you put your noose on the vessel, and, however tight it may be, yet it is in danger of being somewhat slackened by allowing of the flow of blood, by way of ascertaining whether it be rightly placed; to do which, the artery must be permitted to pulsate at least some moments, during which it has full power over the noose; and then, when you tie your knot, it is done on a somewhat slackened noose; which, in my opinion, and for reasons already detailed under the head of the tape ligature, is the cause of repeated failures.

Although I have been called to several patients after amputations, on account of an appearance of hæmorrhage, it has always been within the first six hours that this has occurred, and in such cases as rendered it necessary, on account of the severity of the bleeding, to open the stump, we have never found an instance but that this proceeded from vessels that had escaped notice at the time of operating; and that, in no instance whatever, did it arise from the ligature having been thrown off: and I do not remember a case of my own in which any hæmorrhage ever took place from ulceration or sloughing of the vessel.

Having pointed out the manner we employ to secure a vessel, let us go through the steps to be taken to assist in removing the ligatures after an amputation. We never disturb the ligatures earlier than the fifth or sixth day, and those only that have been put on the lesser vessels, unless any one appears to be cast off from the artery, which we gently touch with the forceps, and, if entirely loose, take it away; but on the eighth, ninth, or tenth day, according to the appearance of the stump, and the quantity of discharge, we gently put the ligature a little on the stretch, by drawing it with a pair of forceps; you will, in general, find that the greater and whiter the discharge be from the stump that the sooner will they be thrown off; and at every daily dressing we repeat this little stretching of the ligature till they are all away, unless the patient

should feel acutely, which is caused perhaps by a fibril of nerve having been included, when we are very careful not to provoke the pain by disturbing it; and we never draw with the forceps any ligature that is still moving from the pulsation of the artery, and you will find that strong thread ones, that have been put on by the tenaculum, are seldom or ever retained beyond the usual time, which is one of their advantages: where the lips do not unite, the ligatures can do no mischief, and if they are firmly united, excepting the openings only sufficient for their hanging out, they will not break it open. Where they are retained beyond the common period, which is generally from eight to twelve days, do not be uneasy; never be induced, by the friends or patient betraying any anxiety, to use force. How often do we see mischief produced because the surgeon is afraid that blame may be cast on him from the retention of the ligatures; never let this, however, induce you to be rash. By their retention we know, in general, the extent of the inconvenience, which is a fistulous opening; but if we endeavour to pull them away by force, although we may not immediately produce hæmorrhage, yet we shall excite pain, inflammation will follow, and frequently extensive sloughing of the stump will be the consequence. Twice, from such a cause, have I seen the patient's life in imminent danger; one was the case of an amputated stump, on board a ten gun brig; when the patient was dressed on the

time: the vessels being tied, bring down the lips of the wound over the face of the stump, and prevent the retractive power of the muscles by a roller begun from just above the elbow, and continued down to within an inch or two of the edge of the stump: secure the lips in a longitudinal direction with adhesives, leaving only a space or holes in them for the ligatures; apply the other dressings as usual; and all this is to be done with the fore-arm half supine. The patient is to be put to bed with the shoulder supported, the elbow bent, and the fore-arm prone, resting on pillows; and if all goes on well, the cure will be as soon as the ligatures are off. After the fifth day, allow the patient to get to the sofa; and in a day or two more, to walk about with his arm in a sling, resting on a pillow. Should it be necessary to remove the arm in a muscular subject higher up towards the elbow, the circular incision is first to be made in the integuments, whilst they are held on the stretch, so that they may be drawn up a little, and then the muscles are to be cut through down to the bones, and the operation completed as before directed; but if the muscular parts are very full, after the integuments are freed a little, let your first incision go through the first layer of muscles, and as they are drawing up a little, with another cut of your knife go down to the bones, and conclude as in any other operation of the fore-arm; otherwise you would preserve in a very stout arm too great a quantity of muscle.

Having now given you, gentlemen, an outline of the manner in which I have been accustomed for some years to perform amputations in this hospital, it will not, I should hope, be deemed improper for me to state, that during my service I have performed two hundred and eighty-seven amputations, of which sixteen have died; but that, within the last eighteen years, the number of amputations has very considerably decreased, not only by the termination of the war, but from the malignant ulcer, which unfortunately for some years made such ravages in the navy, having been driven from it: so great at one time was its destructive nature, that within twelve months fifty limbs were removed in this hospital, the greater part in consequence of that disease: happily, however, for some years past, no amputation has taken place from it.

On the 1st January 1809, a public book was provided, in which each surgeon was ordered to keep a record of all his operations, and a quarterly copy to be sent to the Board. From this official document it appears, that from the 1st January 1809 to the 30th March 1829, when I solicited and obtained my retirement from the public service, forty-nine amputations were performed by me; viz. twenty-two of the thigh, seven of the fore-arm, ten of the leg, nine of the upper-arm, and one at the shoulder-joint. Of these forty-nine amputations two have died; viz. the forty-first and the forty-fourth. John Mitchell, received on the 7th Sep-

tember 1825, having been sent home in a packet from Lisbon, with a sloughing popliteal aneurism of immense size, which had burst in the ham before quitting the Tagus; and on the passage to England the integuments in the ham had also given way, when violent hæmorrhage came on; and when he was landed at Falmouth, he was in such a state of danger and debility, that Captain King, the commanding officer at that port, immediately sent him by the steam-packet to this hospital, in charge of his own surgeon. More bleeding took place in this second conveyance, and he came to me on the 7th September, too weak to justify any thing being done; but in two days, having rallied a little, we gave him the only chance, by removing the limb; but he sunk away, and died four days afterwards. The preparation of the sloughing artery and ham is in my possession.

The forty-fourth amputation was John Thorn, of the Breakwater department, whose arm was removed at the shoulder-joint, soon after the receipt of the accident, on the 23d September 1826. The stump went on well, but he died on the 30th, in consequence of extensive mortification of the back, which had been injured by the roof of the iron crane, against which he had been violently carried up, and for some time suspended against it, by his arm having been caught by the cogs of the wheel, which caused the necessity for its removal at the shoulder-joint.

In addition to my own amputations, I have actively assisted or been present at those performed by the surgeons of the hospital and the assistants, whilst they were permitted to operate before 1803; and after I became the first surgeon, at all those by the second surgeon in his department: besides which, I have attended at most of the operations performed at the military hospitals at this port; and for several years subsequent to the commencement of the war in 1793, at nearly all amputations performed at the prison depôts and hospital ships, besides being very extensively invited to private cases; so that I calculate that at the least I have witnessed four hundred other amputations. It is, therefore, from this mass of experience that I have presumed to give you the result of my observations on this important subject.

We may now make a few observations on the manner in which vessels may be secured in amputations.

There are three different ways in which a ligature may be placed on the vessel; either by passing a needle armed with silk or thread, taking hold of the artery with the forceps, or drawing it out with the tenaculum.

The only method formerly was by passing an armed needle around the artery, which necessarily included the vein, nerve, and some muscular, if not tendinous substance; the ill effects of which practice were so often apparent, that as soon as the

tenaculum and forceps were introduced, the needle was given up, wherever either one of the two latter ways could be adopted; and of these the tenaculum is the one to which preference is generally given. It is contended by some surgeons, that we should not trust to the tenaculum in very large arteries, but that it is safer to pass a needle: our experience, however, fully justifies us in the practice we pursue, and have done so for a series of years,—that, however large the artery be, provided it is free from disease, always to draw it out from the surrounding parts with a tenaculum, the point of which is to be passed through both sides near its mouth, using no violence, and taking care not to disturb it from the surrounding and connecting substances more than is barely sufficient to tie it free from its vein and nerve.

The form and size of ligatures have undergone, within a very few years, considerable changes. Not very long since, ligatures, whether of thread or silk, were made by freely waxing several together into a flat shape, like a piece of tape, from the fear that by applying a round ligature, it might do injury, even if it did not cut through the vessel; and if any after hæmorrhage came on, it was considered to have arisen from the mischief done by the round shape of the ligature. So far from that being the cause, we invariably use a round ligature, and in its application we are never afraid of cutting through the artery, but draw our ligature very

tight, by applying it with a kind of jerking or tremulous motion of the fore-finger and thumb of both hands, down close to the vessel; conceiving that the very means that were formerly taken by way of greater security, were the causes that secondary hæmorrhage so frequently took place. Now let us, by way of illustration, tie a piece of wide tape, and a piece of round string, on a person's finger; we shall find that the string can be drawn much closer and tighter than the tape. In using the tape, there will be left a small space nearest the knot,—and we will grant that it may be the least possible space that can be conceived; yet if it be a space, however minute, it is sufficient, according to our views, to cause occasional failures; for, by the constant pulsatory motion of the excited artery above the knot, it will become by degrees loosened to the extent of the space, and produce exactly the very effects, which it was hoped from its form might have been avoided, and which round ligatures, from not leaving any space under them, would not have produced; as it is not, we conceive, from the injury done from the roundness of the ligature cutting, but from ulceration taking place exactly under or just above it, which, from the compression not being sufficiently tight on the artery, so as to have brought its sides accurately into contact, to produce a total absorption at this part, makes it fail by ulceration or sloughing, without its calibre above being annihilated. Put, by way of trial, a ligature

on an artery only sufficiently tight to prevent the blood flowing through it with a pulsatory motion, but not tight enough to keep its sides entirely in contact, so as to prevent all kind of nourishment going on in its coats immediately under the knot, or to produce adhesion immediately above it, and you will find in a few days that there will be a hæmorrhage from an ulceration of the artery; if this be so, we may readily account for the various failures that took place, where the flat ligatures were used, from leaving even the minutest space, and therefore it is better not to wax the ligatures much, as it acts as an extraneous body, preventing its close contact, and where these bleedings took place, it was almost always before the ligature was thrown off, from an ulceration of a portion of the artery. Another method, but now abandoned, was to include small pieces of some substance or other, according to the caprice of the surgeon, such as bits of cork, lint, &c. within the ligature, so as to produce pressure on any large artery, with the view of preventing the tightness of the ligature cutting through the sides of the vessel, and it was unfortunately proved that where the greatest precautions of this sort were used by the surgeon, of either not drawing the ligatures sufficiently tight for fear of injuring the arteries, or having them of the flatness of tapes, or having extraneous bodies between the ligatures and the vessel, or of even passing the ligature, by means of the needle, through the mouth of the

divided vessel, after it had been circularly applied above, with the view of preventing the pulsation of the artery throwing it off over its end, we consider that where these precautions were used there were formerly the greatest number of cases of secondary hæmorrhage, some of them of a fatal tendency. Since this period a wonderful change in the size of ligatures has taken place, and the largest arteries have been trusted to a single silk; and after the knot has been formed one end of the silk has been cut off close to it, and some surgeons have even taken away both ends. The great merit of the introduction of single silk ligatures is due to a Gentleman who, whilst he was the second surgeon of this Hospital, in 1804 and 1805, first brought it into notice in his operations, and therefore I have had an opportunity of witnessing its origin and its progress—have seen it applied, and have myself several times tied arteries with single silks; but we conceive that, since its first adoption, the practice has been pushed by some surgeons a little too far. I do not think that I shall ever again be induced to trust the largest arteries to such a ligature, for although I have never had any hæmorrhage from the vessel giving way where this sort of ligature was used, yet in the two instances of my thus securing the femoral artery high up, I could not divest myself of the greatest anxiety till the danger of hæmorrhage was over. It would be all very well if the patient derived an advantage corresponding to what we

consider a great increased risk. It would be well for those surgeons who are in the habit of tying the arteries of the first class with a single silk, to reflect, whether they do not think that failures may be attributed to this practice : and so far from thinking those ligatures advantageous from their small size, that we on that very account consider them often objectionable, from larger ligatures being more easily and earlier thrown off. Frequently these single silks have been retained on the vessel for many months after every other part of the stump had been healed, excepting a small fistulous opening, and these could often not be touched or any attempt made to take them away, though of the gentlest kind, without exciting intolerable pain, and yet these ligatures had been put on by the tenaculum. Two years since I attended an amputation of the thigh of a youngster fourteen years of age, where the surgeon secured all the vessels with single silks, three of which remained on for ten months, there being a fistulous opening, and at length they appeared to rot away, as no part of the noose or knot could be discovered ; the stump, however, healed, and has remained well ever since, but during the period of the retention of the ligatures great pain and alarm were felt by the lad and his relations.

In another case where the single ligature came away, leaving the knot, the stump healed without any further trouble, but in three instances, two of

them amputations of the upper arm, where both ends of the ligature had been cut off close to the vessel, and where the edges of the wound were attempted to be closed, regardless of any extraneous body being left on the arteries, small troublesome abscesses succeeded one another for many weeks, creating a good deal of disturbance and anxiety.

Having made these observations to you on the various ligatures, the following is our method:— we use either silk or fine thread, generally taking the latter, making our ligatures from one to eight threads in thickness, waxing them a little into a round form, just to connect them slightly together, so that they may be tied without the risk of being of unequal lengths, or twisting up under the knot, it being absurd to wax them to any great degree to prevent their rotting, for they may remain months without being in the least injured, and where much wax is used you will see it crack or scale off at the time of tying your ligature.

As soon as the limb is removed, whilst the tourniquet is kept tightly screwed, let the whole surface of the stump be well spunged with warm water, removing all the coagulated blood; seeking for the largest artery first, and taking the others up by passing the point of the tenaculum through both sides of the vessel, near its mouth; ascertaining, with a little spunging, that the side of the artery has not been wounded higher up than the part where your tenaculum is inserted; for it does

sometimes happen, that where the catlin is used in the fore-arm and leg, that the sides of the artery are discovered to have been cut above where you have placed your ligature, creating some embarrassment. After you have taken hold of the vessel, draw it out from the surrounding parts, using no violence, and disturbing it as little as possible from its connexion, just enough to free it from the vein and nerve; and, if you like to tie the vessel yourself, give the tenaculum to your assistant, to keep the artery a little on the stretch whilst you secure the ligature with a single knot,—the surgeon's knot, as it was called, being now almost, if not entirely, laid aside. It was made by passing the ends of the ligature *twice* through the noose, before drawing it tight on the vessel; and, when the knot was tied, it offered no security beyond the common method now in use; and, from being more complicated, was longer in its application. In an amputation of the thigh, we put on a ligature of about four or five threads on the femoral artery, or one of seven or eight, if it be near the groin; and in the others in proportional thickness. Having satisfactorily secured all the important arteries of the stump, boldly unscrew the tourniquet, so that the blood may come down with a sort of rush, and you will immediately afterwards see the ligatures in movement by the pulsation of the arteries; then secure any of the smaller ones that may require it. My object in rapidly unscrewing the tourniquet

after the large arteries are secured, is, that the rush of blood may force any of the secondary ones which may have retracted during the operation into the muscles, to bleed; otherwise they may lie concealed and undetected until the patient has been two or three hours in bed; when, re-action taking place, from the fear of the operation having subsided, and the rallying of the system from the loss of blood and faintness, hæmorrhage comes on, and you are frequently obliged to open the stump to secure the vessel: if not, the blood thrown out forms a large cake, acting as an extraneous body within its lips, preventing union, not only by the first intention, but frequently doing much more mischief; particularly if it be in a stump where there has been preserved too much integument and too little muscle. Now, what is the effect of a cautious and gradual slackening of the tourniquet, which you see so commonly done? Why, that the face of your stump becomes a bleeding surface, so that innumerable vessels are tied. How common is it for the surgeon, after having secured all the vessels he could get hold of, whilst the tourniquet was tight, to hear him say to his assistant, "Pray unscrew very gradually; but mind you stop the very moment I tell you." Well, after being slackened a turn or two, an oozing takes place all over the stump, and the surgeon immediately cries out for the tourniquet to be screwed tight, as the patient is bleeding fast. Now, mark what he has

done : he has just slackened the tourniquet enough to allow the blood to pass down by the important arteries, and has kept it quite tight enough to prevent the blood getting back by the veins, or the anastomosing branches, so that the whole is rendered a bleeding surface ; and a timid surgeon will go on securing vessel after vessel, to his own astonishment, the greater part of which need not have been touched; and the hæmorrhage would have ceased on boldly taking off the tourniquet, and spunging the face of the stump with cold water. I have found that the slower the incisions have been made in removing the limb, and the more emaciated the patient, the more numerous, in general, will be the bleeding vessels. In amputations, as well in large incised wounds, by accurately examining the surface, you will detect arteries of the second and third order occasionally protruding beyond the muscular parts at least the length of an eighth or a quarter of an inch, pulsating violently, though without any flow of blood. Their mouths, on close inspection, appear shut, with their ends forming an obtuse point; and this happens more frequently in very muscular subjects, where the operations have been very dexterously performed. Now, should you pass over these arteries without securing them, you will find, that within six hours of the patient having been returned to bed, by the muscular parts relaxing from the return of warmth, hæmorrhage will pour forth from these vessels. You

had better, in all such cases, snip off the end of the projection, and immediately a start of blood will take place, convincing you of the necessity of tying the artery before you have closed your stump. Sometimes we find the large vein,—as, for instance, the femoral, pouring out a considerable quantity of blood, which, in a very debilitated and emaciated subject, is hazardous to be lost. I never hesitate a moment in passing a small ligature on it, the same as I would on an artery, and I have never found the slightest danger to arise from having done it. There are two circumstances that induce me to put a ligature on a bleeding vein;—one, where the actual loss of blood is of considerable moment to the safety of my patient; the other, the chance of the bleeding continuing after the patient is returned to bed, where the loss of blood is not of itself of consequence, but where it would produce mischief from being thrown out, and lodged within the lips of the stump, preventing the union of the parts by the first intention: therefore, although I do not seek to tie the vein where it can be avoided, yet I am never restrained from doing it from the least apprehension of any ill consequence. I assure you, gentlemen, I have never had the slightest cause, in any one instance, to repent of having so done. If you should find any difficulty of getting hold of the mouth of any artery with the tenaculum, try the forceps, which will sometimes succeed where the former fails, particularly if the artery has retracted

much between the bones, as in the case of the interosseal of the fore-arm. Here I have succeeded with the forceps, after ineffectual attempts with the tenaculum; but I always prefer the tenaculum where it can be used.

When the muscular coat of the artery is very thin, you will sometimes find the forceps has an advantage over the tenaculum, in taking hold of both sides of its mouth, and drawing it out from the surrounding parts just sufficient to allow of the ligature being passed; whereas the tenaculum would, by its point, tear through the vessel. Should you find, in any amputation, the artery in a suspicious or diseased state, either from an ossification of its coats, or from the sloughing of the vessel below, or from any other cause, you must secure it by passing a needle; in threading which, take care that the ligature be not too large for its eye easily to carry, so that it ought to be rather under than over threaded; for if it be too thick about the eye, you will be obliged to drag it forcibly through the surrounding parts, creating a good deal of embarrassment and pain.

In securing a vessel by a needle, you ought to make some distinction whether it be one in a healthy state, which has been cut in the amputation, but, from some cause or other, as, for instance, its forcible retraction between bones, prevents your getting hold of its mouth either by the tenaculum or forceps; or, whether it be an artery so far diseased or suspicious as induces you to take

it up with the needle : in the former case you cannot pass it too close to the vessel ; whereas, in the latter, it is desirable to include a pretty good cushion of surrounding substance, to prevents its being cut through or yielding, which I have seen it do like a rotten pear; and yet that vessel has been effectually secured by including a good quantity of the surrounding substance ; and even this has been found so sloughy and soft as to yield ; and yet, by the introduction of a piece of lint within the noose of the ligature, such compression has been successfully made as to prevent any subsequent hæmorrhage, the ligature coming off with its lint at the usual time. Take care, whenever you pass a needle under an artery, that it be not wounded by its point, which would lay the foundation of a secondary hæmorrhage, or of a diseased state of the vessel. Have you not seen practitioners, who are not much in the habit of using the needle, foiled more than once in passing it, withdrawing it, and sticking down the point, which might, perchance, wound the artery, or do injury to its coats? Arteries, in the greatest state of ossification, may be sometimes successfully tied by the needle, and the ligature thrown off at the usual time, without any subsequent bleeding : and those gentlemen who witnessed my operation lately on Sheriden, and afterwards saw the very ossified condition of the whole of the arteries of the lower extremity, which are now in my possession, will never despair when they meet with ossified arteries. You saw, that

in that amputation of the thigh high up, I included a considerable portion of the surrounding parts in a very strong ligature, passed by the needle, before I was aware of the cause of the very diseased state of the vessels, from my tenaculum having twice torn through the femoral artery. Some surgeons might have been induced to have dissected up by the side of the vessel, with the hope of finding a sound part above; but none such would have been found, below the groin at least; and had I attempted this practice, I believe none of the gentlemen present at the operation but would have thought the patient lost; and, had not a large quantity of surrounding parts, which necessarily included vein and nerve, been tied in with the artery, the vessels would either not have been sufficiently compressed, or the coats would have cracked through, for they formed a tube similar to a broken tobacco-pipe; and, had a single ligature been attempted to be used, it would have been found to have had no effect in compressing the coats of the arteries. The man is living at this moment, now a year and a half since the operation, and in good health, with a sound stump. Should you, in the tying of any vessel, have your ligature break after your noose is on, and before the knot is formed, or even afterwards, you must put on another ligature; which, if it be tied *above* the former knot you need not care; but if it be secured *below*, you had better remove the first knot, otherwise this sort of half compression on the vessel above your proper liga-

ture, may produce an ulcerated state of the vessel, and subsequent hæmorrhage, on the principles which we have stated to you before.

In the tying of all large vessels, I always prefer doing it when the compression is so perfect above as to annihilate all circulation and motion through them, and to complete it with its knot before removing the pressure. But the more general practice, I believe, is—to tie the noose on the vessel in the collapsed state; and before forming its knot, to take off the pressure above so as to allow of the flow of blood, showing you whether the ligature is on the vessel; if it be, then to complete the ligature. The advantage of the latter practice consists in your sometimes not tying an useless ligature, by mistaking something for the vessel, which, by allowing of the blood to flow on, shews you your error, or convinces you that the ligature is properly placed. The disadvantages, I think, are, on the contrary, very considerable: thus, if you put your noose on the vessel, and, however tight it may be, yet it is in danger of being somewhat slackened by allowing of the flow of blood, by way of ascertaining whether it be rightly placed; to do which, the artery must be permitted to pulsate at least some moments, during which it has full power over the noose; and then, when you tie your knot, it is done on a somewhat slackened noose; which, in my opinion, and for reasons already detailed under the head of the tape ligature, is the cause of repeated failures.

Although I have been called to several patients after amputations, on account of an appearance of hæmorrhage, it has always been within the first six hours that this has occurred, and in such cases as rendered it necessary, on account of the severity of the bleeding, to open the stump, we have never found an instance but that this proceeded from vessels that had escaped notice at the time of operating; and that, in no instance whatever, did it arise from the ligature having been thrown off: and I do not remember a case of my own in which any hæmorrhage ever took place from ulceration or sloughing of the vessel.

Having pointed out the manner we employ to secure a vessel, let us go through the steps to be taken to assist in removing the ligatures after an amputation. We never disturb the ligatures earlier than the fifth or sixth day, and those only that have been put on the lesser vessels, unless any one appears to be cast off from the artery, which we gently touch with the forceps, and, if entirely loose, take it away; but on the eighth, ninth, or tenth day, according to the appearance of the stump, and the quantity of discharge, we gently put the ligature a little on the stretch, by drawing it with a pair of forceps; you will, in general, find that the greater and whiter the discharge be from the stump that the sooner will they be thrown off; and at every daily dressing we repeat this little stretching of the ligature till they are all away, unless the patient

should feel acutely, which is caused perhaps by a fibril of nerve having been included, when we are very careful not to provoke the pain by disturbing it; and we never draw with the forceps any ligature that is still moving from the pulsation of the artery, and you will find that strong thread ones, that have been put on by the tenaculum, are seldom or ever retained beyond the usual time, which is one of their advantages: where the lips do not unite, the ligatures can do no mischief, and if they are firmly united, excepting the openings only sufficient for their hanging out, they will not break it open. Where they are retained beyond the common period, which is generally from eight to twelve days, do not be uneasy; never be induced, by the friends or patient betraying any anxiety, to use force. How often do we see mischief produced because the surgeon is afraid that blame may be cast on him from the retention of the ligatures; never let this, however, induce you to be rash. By their retention we know, in general, the extent of the inconvenience, which is a fistulous opening; but if we endeavour to pull them away by force, although we may not immediately produce hæmorrhage, yet we shall excite pain, inflammation will follow, and frequently extensive sloughing of the stump will be the consequence. Twice, from such a cause, have I seen the patient's life in imminent danger; one was the case of an amputated stump, on board a ten gun brig; when the patient was dressed on the

third day after the operation, the lips of the wound were not in contact, yet the surgeon forcibly removed every ligature, by which the acutest pain was experienced, and three days afterwards he was landed at this hospital—the stump an exposed surface ; extensive inflammation and sloughing followed, attended with such pain on the least movement, that we were very much afraid, for at least a fortnight, that tetanus would have come on ; indeed if I were called upon to name any person whose sufferings seem to have been of the extremest kind, I should select this poor fellow ; it was several months before the stump granulated and healed over. Another case was of the upper arm, cut off on the coast of Ireland, which patient was landed here, ten months afterwards, with an extensive inflammation and sloughing of the whole stump, in consequence of violence having been used, ten days previously, to remove the only remaining ligature, the stump having before that only a small fistulous opening. This man escaped with great difficulty, and the ligature did not come away till seven months afterwards, when it was cast off without any effort, the pain in the dressing of the stump, which used always to be very great, having ceased about three weeks, though from the period of the sloughing up to these three weeks the stump had been so painful that the least jerk of the body, or even sneezing, produced intolerable suffering, though before, to the end of the ten months, when violence had been used, he had

been remarkably easy, experiencing no inconvenience beyond a slight discharge through a small fistulous opening. In all cases of a ligature being retained beyond the usual time, you should acquaint the person with the actual condition of things, and tell him that by waiting with patience he runs no risk whatever, and that the only inconvenience is the necessity of dressing the stump, merely to keep the part clean, and that, in course of time, the ligature will come off, and the stump soon afterwards heal; and it is not very difficult to reconcile him to the delay. If after this any attempt should be made, it will be upon his own responsibility. If it be done, do not pull violently on the ligature so as to forcibly tear it away, but put it gently on the stretch around a piece of flat bougie, which is to be secured beyond the edge of the stump by a slip of adhesive, repeating it at every dressing: others twist the ligature several times round, but this will break it off in a few days, leaving the knot behind, producing no service whatever; but, on the contrary, nature will make attempts to heal the stump, and repeated little abscesses will be the consequence, to the great annoyance of the patient. In one instance, only, have I seen locked jaw come on after an amputation; it was the case of a nice little lad of fourteen, from the Impregnable, whose thigh I removed in consequence of a malignant ulcer of the leg; the stump was really a most satisfactory one, and the parts had so united by the first intention, that four

ligatures had come away, and there was scarcely any discharge, promising a very rapid cure; the boy's health was quite restored, when, on the tenth day, on gently touching the ligature on the femoral artery with the forceps, he shrieked out with pain, violent tetanic spasms immediately came on, trismus took place, and in forty-six hours he was dead. Dissection of the stump afterwards did not elucidate the cause, as the ligature did not appear to have included any thing with the artery.

As a general rule in preparing an artery to receive a ligature, whether after amputation or otherwise, always keep in mind that the vessel should be disturbed or detached as little as possible from the surrounding parts.

The subject on which I now propose to treat is Simple Fracture; and my reason for having made this choice is not only that we have several cases at present under treatment, which you have just seen, but that the method which I am about to detail for the management of Fractures is, we have reason to think, different from that generally pursued.

Before I enter on the treatment in particular, I will just explain the manner in which nature effects, as I conceive, the reunion of a fractured bone; in order that, by a comparison of our principles with the operations of nature, you may be enabled to ascertain their connexion.

When a bone is broken, more or less of the surrounding parts must be injured, and, in consequence, it is pretty well known that an extravasation of blood takes place, not only from the ends of the bone, but from the parts around, which must of necessity be more or less wounded; it is, however, by no means through the medium of this blood that union takes place, for if it produces no untoward circumstance, it is wholly absorbed.

The way in which I believe union takes place is this:—In consequence of the fracture, an inflammatory action is set up, both in the periosteum and the surrounding parts, which inflammation terminates in the effusion or deposition of what was formerly called the coagulable lymph or animal paste, now known by the name of fibrine; into which lymph the vessels, necessary for the organization or formation of bone, shoot or elongate, having first the power of depositing little specks, which in the earliest stages are of a cartilaginous nature; these are absorbed, or nearly so, and are succeeded by bony spots, which by degrees enlarge, and consolidate into one mass, forming what is called callus, by which the fractured bones are united. That it is the inflammation which causes the deposition, we know very well, because the greater it is, so long as it terminates in that and in no other way, the more abundant the deposition; whence, when there has been too much, there is a superabundance of callus; when

too little, a deficiency; the quantity of callus corresponding with the severity of the inflammation, arising from the more or less laceration of the surrounding muscular parts. I have mentioned it as my opinion, that the parts surrounding the fracture are accessary to the formation of callus: I know very well that many contend, that it is alone by the agency of the periosteum and the medullary membrane of the fractured bone that it is produced; but I can by no means see why the surrounding parts should not assist; and, as far as our dissections, examinations, and injections go, they do so: of their ability there can be no doubt, as we know and daily observe, that bone can be produced in parts the most distinct, and of natures the most remote, where there is no periosteum nor any medullary membrane; consequently, if we find ossification in such situations, (and I believe there is no part of the body but what has been found at some time or other ossified), why are we, therefore, to limit this power of forming callus for the union of fractured bones to the vessels of the periosteum and medullary membrane? Besides, if you examine the callus which unites a fracture, you will find very many, indeed the chief of the vessels which nourish it, coming, not from the above membranes, but from the surrounding parts; demonstrating, by positive facts, their ability for carrying on the ossific deposition.

From what has been said, you will perceive that

it is not until the inflammation begins to subside that what is to form the callus begins to be deposited; and from this consideration, our principle of treating fracture is to terminate the inflammation as speedily as possible, and then to place and retain the bone in its natural position, that it may be reunited, and restored to the same state as before any accident occurred to it.

I shall now, gentlemen, speak particularly of the mode of treating Simple Fractures of the thigh, especially as you have just visited several cases now under my care. They may be divided into fractures of the inner and outer condyle; of the shaft of the bone at or near its condyles; of the middle third; of the trochanters; of the bone at or near the trochanters, including or not the cervix; and of the cervix within the capsule.

The most common is a fracture about the middle-third. When a patient is brought into this hospital with supposed fracture somewhere about the middle of the bone, we ascertain it by taking hold of the knee with one hand, and running the other up along the shaft of the bone; it will then easily be discovered by the crepitus, by the pain, and by the distortion of the limb. We then lay our patient well over, so as to rest on the great trochanter of the injured thigh, bringing the knee up at right angles with the body, and placing the leg so that the heel may be nearly in a line with the symphysis of the pubis. This position will be found to be the most

relaxed and the easiest. Then fold up two sheets into a square of about two feet, spreading on them a sufficient number of short calico bandages: place all beneath the limb, getting them well up under its upper part, filling up every hollow on each side with tow: fold the bandages regularly over from below upwards: roll up the sheets on each side, so as to form a kind of splint, or rather that these turned-in edges of the sheet may act as a support or protection, securing them with a tape at each end, ordering the limb to be kept constantly wet with cold water; or, should the muscular parts be much bruised, use an evaporating spirit lotion. Our general treatment is never to bleed, unless the patient be otherwise hurt, but we always directly give opening medicine; and when the bowels are freely open, if occasion require it, we order an opiate at night. We prefer the short bandages to that which is called the eighteen-tailed, not only because we can use as many straps as are required, but they are altogether more convenient, sit better on the limb, and, if soiled, any part, or the whole, can be more easily withdrawn. You may perhaps be surprised that our lotion is only cold water. Many, you know, use the goulard wash, and so used we in former times; but we have remarked ill effects to have arisen from its continued application. I remember in particular, many years since, when every fracture used to be well soaked in goulard lotions, several patients, at different

periods, having had severe pains in the bowels, and one whose fore-arm was paralyzed after its long use, which we then attributed to the absorption of the lead; and from observing this, we were induced to discontinue its application; and you will find cold water just as efficacious. We were in the habit of ordering vinegar and water, but this we have left off, from finding that the vinegar, in irritable systems, produced frequently a troublesome itching rash on the limb, often followed by phlegmonous spots, which would require the parts to be unbandaged to get at them, at a time when we could have wished not to have had the limb disturbed. We do not make a practice of giving opiates regularly every night, as under their influence violent startings will frequently take place, by which the bones will be displaced before your splints are applied; besides, they render the bowels torpid. If you wish, or indeed your patient wishes to be bled, soon after the accident, the loss of a few ounces of blood can be but of little consequence in simple fracture; for it is not in this as in a compound one, where the patient has to undergo a long confinement to bed, and very often with a constant and great discharge of matter, when the loss of blood in the first stages may assist in reducing the strength so much as to render his ultimate recovery doubtful. We do not find it commonly necessary to bleed in simple fracture, but purging should never be omitted: recollect that your patient meets with this

severe accident in the plenitude of health, and very often after having eaten a hearty meal, when certainly it is proper that the bowels should be cleared; we always give a brisk cathartic at once. Some would wait; but as it must be done, the sooner it is done the better, particularly if you are disposed to allow an opiate, to which should also be joined some antimonial or diaphoretic; the bowels being permitted to continue loaded, will produce head-ache, thirst, and restlessness. When in the relaxed position, the limb should be kept as nearly in a natural state as possible, so that none of the muscles should be in a forced or strained situation. You may frequently come to your patient's bedside, and find him complaining of great pain; and on looking at the limb, you may observe a little displacement, the rectifying of which restores him to perfect ease; the least possible alteration, by raising or depressing it a trifle, relaxing or extending it a little more or less, often giving the greatest relief.

As soon as the inflammation is perfectly subsided, which will be generally from the eighth to the twelfth day, and of which the patient is well aware, from having previously desired a cessation of the cold application, which during the progress of the inflammatory process he had found very comfortable, we put the limb straight, which is done in the following manner:—After removing the short straps, and laying the thigh perfectly bare, I tell the patient that he is to assist in getting over completely

on his back, bringing the nates fairly and flatly into the middle of the bed; and whilst he is doing this, I grasp the thigh just above the knee, whilst an assistant holds the leg at the ancle with one hand, having the other underneath the calf, another assistant securing the thigh at its upper part; and when he is quite flat on his back, I pull out the whole extremity perfectly straight, and to its natural length, which is known by measuring it with the other; at the same time running my hand over the fracture, to discover if the bone is in the proper position: then, causing the limb to be retained in the extended posture by my assistants, we place sheets and short bandages, as at first; we then roll the sheets completely around the limb, over the calico slips; put a common deal splint on the inner side, reaching from just below the juncture of the thigh to below the knee; a shorter one on the anterior part of the thigh, from the groin to the upper edge of the patella, which is not to be pressed on; and another of the same sort, though stronger, on the outside, so that it may reach for a long way above the great trochanter to below the knee-joint; these are secured by three tapes around the limb: over all, we pass several rollers, so as to keep every thing tight, and in its proper situation, taking especial care to secure firmly the head of the outer splint, by passing two rollers of five yards in length, beginning by twice around the loins, then crossing them over the upper part of the thigh at

the groin, so as to include the splint; for, unless the upper head of the outer splint is well and immoveably secured, you never can have a straight thigh. We keep the limb bound up in this manner until it becomes firmly united, which you will generally find to be about eight weeks from the accident.

We seldom experience the least difficulty in placing the limb straight; and very often patients, who had looked forward to the "setting of the bone" with dread, have been surprised at the little pain it has given. It does now and then occur that you cannot, on the first trial, succeed in bringing the limb quite round into its natural and extended position; but even when that is the case, you will succeed on the next, or the next again. Till this is accomplished, you must prop the parts up with pillows.

I never concern myself whether the fracture be transverse, longitudinal, or oblique, or whatever be its direction; it is sufficient for me that the bone is broken; and I know, that if, in placing the limb, it becomes of the same length as the sound one, all is right; if not, something must be wrong. In putting on your splints, be careful to place pads of tow within their ends, or wherever they may appear likely to gall. I have said, that unless you secure the end of the outer long splint by a roller from around the loins, you can never have a straight limb: I verily believe that very many persons are lamed from the neglect

of this alone; for if the head of the splint is loose, so that you can thrust your hand down between it and the thigh, I should like to know what there is to prevent the ends of the bone from moving on one another with every motion of the patient. Often, I am persuaded, that union is retarded from this cause, and very frequently the person lamed.

I wish particularly to impress upon your minds the necessity of always having, in fractures of the extremities, the splints so long as to secure the heads of the bones. We know that splints are put on sometimes so short as only to secure the shaft of the bone, which however tight they may be bound, never can hinder the motion of the fractured ends on one another; whereby union is not only retarded, but may be prevented. I must caution you not to tie your splints on tighter than is necessary for the support of the limb, because I have seen the iron japanned splints bound on a naked limb immediately after an accident, so as more than once to cause gangrene and death. When you have placed your limb straight, disturb it as little as possible, never undoing it, unless it be required on account of the bandages becoming slack, the limb drawn up, or there be more pain than can be accounted for; never remove them merely because the bandages are soiled: sometimes, indeed, the patient complains of being so uneasy as to induce you take off the splints; and although no cause can be detected to account for it, yet on

their being reapplied, every thing becomes perfectly comfortable,—the feelings of the patient often being the surest guide. When he is easy, I am contented that things are going on well; but when he is in much pain, we always suspect something amiss, and endeavour to discover the cause,—examine on every daily visit whether the bandages are on tight, and whether the limb be as long as the other; if either be not, on no account neglect undoing all, and putting the splints on anew; for loose bandages are little better than none; and if the extremity be shorter even in the least degree, you may depend on it it is wrong; and should you be contented with it, your patient will be to that degree lamed. Remember that every time you renew your bandages, whilst the thigh is well supported and grasped, that you bend the knee-joint two or three times; which precaution will prevent an immensity of after-trouble. I have known its omission, in long confinements from fracture, produce an irretrievable stiffness of the joint. I judge of the strength of the limb, as to the propriety of leaving off the splints, in this manner; I direct my patient to lift up the thigh with the splints on; if he succeeds, then they are taken off, and he is to put his hand underneath the limb, and try if he can then raise the extremity; if he can, let him attempt it then without any assistance, which, if he can accomplish, I order him to have his thigh well rubbed with flannel, hot water, and soap; direct him to use a little sapo-

naceous liniment twice a-day ; put on a long calico roller, and give him a pair of crutches, and let him make the best of his cure. Never allow a patient to get up before you are thoroughly convinced of the firm consolidation of the bone; if you do, the parts may be refractured,—may become distorted ; or, what more frequently happens, become troublesomely swelled and painful.

In private practice, you should never suffer your patients to sink down in soft beds ; nor, on the other hand, should you place them on hard mattresses, where they may be galled, and render their situations distressing.

By allowing the limb to remain in the relaxed position in the first stage, the person is as easy as any one under fracture can be, and the inflammation terminates as speedily as can be wished for a cure ; but when splints are immediately applied after a fracture, by the limb being, as it is called, "set," the patient is usually put to extreme pain, and the inflammation becomes so aggravated as occasionally to terminate, not as it should by resolution, but in suppuration or gangrene, which in our practice, except from extreme injury to the soft parts, seldom if ever takes place. At a time, therefore, when we are putting on our splints, other surgeons are often obliged to slacken or take off theirs ; but if splints could be kept on in the inflammatory stage of simple fracture, there cannot accrue any advantage, because it is on the decline

before any union can possibly take place. There are occasions in which we mnst immediately put on splints; as when the patient is delirious from fever; has, in a fit of derangement, broken his limb, from throwing himself out of window; is in a state of intoxication, or in any condition over which he has not self-controul, or from being on ship-board in a gale of wind: the splints are necessary as precautionary measures, to be tightened or removed at pleasure, in the same manner as we place a tourniquet slackly on a recently amputated limb, ready to be screwed should hæmorrhage come on. Should the fracture happen at a distance from home, you must apply splints, and tightly too, during the removal, taking them off the moment he is arrived at his destination, and safely in bed. From a neglect of this precaution, I have more than once known a simple fracture made a compound one, by the motion of the boat in conveying a patient to this hospital. It will now and then occur that the patient cannot suffer the limb to be laid in the relaxed position; and as we cannot always place the limb in the relaxed position, so, on the other hand, from violence of pain, we cannot always place, or having placed it, retain it in the straight position; but these are all exceptions, —the other is the rule. This deviation may arise from spiculæ of bone being forced into a muscle or other part, as we sometimes find that we cannot keep a tight bandage over a fractured rib.

This, gentlemen, is the treatment which I have pursued for nearly thirty years, having begun it when an assistant surgeon here, and continuing it, with very slight alterations, ever since; and the result has proved that the patients suffer less, and in the end are cured more satisfactorily, and with less trouble and pain, than by any other method we have ever employed.

I know it is said, and by very high authority, that in fractures even of the middle third of the thigh, the limb will generally be shorter, and the patient in proportion lamed; but, so far from that being the case with our treatment, we seldom meet with an instance of the sort. This is not mere assertion of mine; but I am now speaking before many gentlemen, who have been educated in this hospital, many of whom are now assistants here, and many who have for years known and seen our practice; and these can testify that they have known many muscular young men, who have had fractures of the thigh, treated according to the rules now laid down, and who have been discharged by me as perfectly cured, and as well able to do their duty as if the thigh had never been broken.

You know it is out of the nature of things for every case to turn out well; nor do I pretend to say that I have not met with occasionally perplexing circumstances in the management of some fractures, to which every one must be more or less liable.

In simple fracture of the thigh, I have never met with the large vessels wounded, so as to endanger the safety of the limb: I have once seen tetanus come on from a simple fracture of the thigh. A man who had the tetanic spasms opisthotonos, but without trismus, died here; and on examining him, a filament of the anterior crural nerve was found, stretched through a cleft in the bone, so tense as to resemble a violin string. This patient had broken his thigh at sea seven days before the arrival of his frigate in the Sound. Though going on well, it was judged right to give him the comforts of the hospital. On getting him out of the ship, he suffered much by the knocking about of the cot, and soon after his landing, complained of pain, which was succeeded by the most frightful tetanic spasms, so strong that four men lay down across his thighs to prevent his being thrown out of the bed; he died in forty-eight hours after his admission.

You may ask, Why did you not cut off that man's limb? I will give you my reasons. Nothing in the world shall ever induce me again to cut off the limb of a patient labouring under tetanus. I have done it,—I have seen it done; but all the patients died with an aggravation of their symptoms to a frightful extent.

The first operation I ever performed in this hospital, as an assistant-surgeon, thirty-four years ago, was the removal of the arm above the elbow of a patient labouring under trismus from a gun-

shot wound: he died in thirty-six hours, with great increase of suffering; and I tell you, that all whom I have ever seen operated on, whilst under tetanus, have died. I performed it a second time some years afterwards; I have seen it twice besides in this hospital, and five times more, either at the military hospitals or prison depôts,—all terminating in death; and nothing, as I have said before, shall ever induce me again to perform it, or be present whilst it is performed, so great is the horror I have of the practice. If the operation had not taken place, perhaps some of these men might have recovered. In cutting off the limb, you cut off the patient: it destroys every chance. Fingers and toes, the cause of tetanus, I have cut off, and the patients have some of them recovered; but their removal had no influence, I believe, either one way or the other. If a patient, labouring under tetanus from an injured finger or toe, was to request me to remove it, I might,—not from thinking it would do any good; the mischief has gone beyond: removing the original cause is of no avail,—the effects do not in consequence cease. I have had several cases equally as threatening, where the limb was not removed, and the patients recovered. One was a gallant Commodore from the coast of Spain, who was under my charge, the inner condyle of whose femur had been a few days previously struck by a musquet-ball, which lodged in the calf of the leg. This wound produced the most violent

tetanic spasms, so that twice his family thought him dying, from the constriction of the muscles of the throat. In this case much observation was made, and surprise expressed, that I did not amputate the thigh: luckily I resisted, and the gallant officer recovered, mainly attributable to the free employment of blisters. Another case was a gun-shot wound shattering the leg of a seaman in Sir Robert Calder's action, where the locked-jaw was equally as violent, and where I was much urged by the sufferer himself to cut off the limb. I did not amputate, and the patient recovered. Should such a case present itself again, as a portion of the anterior crural nerve caught by a cleft in the thigh-bone, producing tetanus, I would not cut down on the ends of the fractured bone, with the view of dividing the nerve, as that would make a compound fracture; but I would divide the nerve at the groin, where it would be readily found, coming out under Poupart's ligament. Not that I should expect much even from this practice, as the mischief from the irritated nerve would have seized on the system at large; though I think the attempt would be perfectly justifiable, as it could be made with safety.

Having said thus much on fracture of about the middle of the femur, we will proceed to those of its other parts. In fractures of the condyles, or thereabouts, we pursue the same treatment as in those of the middle third: except when the external is knocked off, without the shaft of the bone being

fractured, we place the limb straight at once, otherwise it would rest on the injured condyle. But when the inner is broken off, we place the thigh in the relaxed position till the inflammatory stage is over, when the limb is placed straight; our object by the relaxed posture in the first stage being to favour the insertion of the tendon of the triceps at that condyle. We have had three cases of fracture of the trochanter major, without breaking the shaft of the bone; and when we applied our splints, which was not done till after a few days, we had a hole cut in the outer one to receive the trochanter; which being done, the hollow was cushioned and padded up; which pads were secured by pressing them gently down on the trochanter, by passing a long belt across the pelvis and upper part of the thigh, taking care to secure the upper head of the splint by a bandage around the loins: and, really, these patients got about with very little lameness; which, however, is generally the consequence of this injury.

When the bone is broken quite through close up to the trochanters, the patient becomes lame,—at least, all I have seen are so. The large and powerful muscles which are inserted into them pull up the upper end of the fractured bone, and you have no means of applying power sufficient to keep it down; and if you could, how are the ends to be kept in apposition so as to make a straight thigh? Although a fracture of the cervix within the capsule

seldom takes place, excepting in old persons, and then mostly in females; yet, we think it not quite borne out by observation to confine it entirely to that period. We know that, as people grow old, their bones become more brittle and lighter, from the absorption going on faster than the deposition of ossific matter, when, after a slight trip or fall, by bringing a greater strain on the weakened cervix than it can bear, from the muscles being called into sudden and violent action, it snaps. It is said never to occur in persons under fifty; which, as a general rule, may be nearly true, as far as it arises from the over-action of the muscles; but the cervix is liable to be broken at any time or age, from extreme violence; for, besides other well-authenticated cases, I myself have seen young seamen, who had beeu killed by injuries of other parts, where the cervix of the femur had also been fractured. Females, no doubt, are more liable to this accident, from the slighter structure of their bones, and from a greater strain being thrown on the neck of the femur, from the width of the pelvis. We ought to be exceedingly cautious in distinguishing these injuries, as well as all those connected with the great joints. A fracture of the cervix may be distinguished from that at or below the trochanters. by rotating the thigh, with the hand resting on the greater one; when, if its motion corresponds exactly with that of the lower head, there can be of course, no fracture between them, but it must be

at the cervix. A fracture of the cervix has been confounded with a dislocation of the hip, particularly on the pubis; which, however, is a rare dislocation, easily detected, and the mistake ought never to be made. In both injuries, the limb is about an inch or so shorter, the knee turned out, and the heel resting against the hollow of the other leg: so far both agree, whereas in other signs they are distinct. In a fracture of the cervix, the limb can be twisted in any direction,—although it gives acute pain, yet it can be done; it can be brought upwards and backwards, inwards and outwards; and, by gently coaxing the mnscles, the limb can be brought down to its full length; but the moment the extending force is removed, it is drawn up again. On disturbing the fracture, a crepitus, though not a very distinct one, can be felt. The end of the bone is sharp, and painful to the touch, the shape of the nates unnatural. In the dislocation the head of the bone is fairly felt on the pubis; which, on drawing backwards the extremity, appears to be thrusting through the integuments; and you are prevented bringing the thigh more than a little forwards and upwards, by its pressing on the pubis. You can turn the limb outwards by bringing it from the other, though you cannot cross the other thigh with it: it remains of the same shortness, and has no crepitus: the nates are hollowed on that side. It is bad enough to mistake a fracture for a dislocation, but it is much worse to mis-

take a dislocation for a fracture. In the first instance you pull about your patient unnecessarily, giving a great deal of pain; and, on finding you do not succeed in reducing your supposed dislocation, you apply increased force. Perhaps this is all the mischief you do, and a few days may set it to rights: but, in the latter instance, you leave your patient irretrievably lame, when, but for your error, it might have been prevented by the reduction of the dislocation, so that your character will be greatly injured. You are aware that the treatment of a fracture of the cervix has lately undergone much discussion; but very little is in your power, though by meddling you may do a great deal of harm. You may feel surprised at my telling you that so little is in your power, and that the limb will always be shorter, and the patient lame. Do what you will, it is impossible to keep the ends of the bone in apposition: all that can be done with safety is, to abate the inflammation; which, in old persons, is generally very slight, and easily overcome; and, after a time, the parts will accommodate themselves to their new condition, and the patient walk about, to a certain degree lame. Some years since, two of our nurses, who were well advanced in life, broke the cervix of the femur. They were kept stretched out, as was then recommended, the shoulders being fixed, and the leg drawn down, and fastened to the bottom of the bed, just as persons on the rack. This was continued many weeks,

but there was no union; and the pain these poor creatures endured was prodigious, without any corresponding benefit.

Some time since a medical friend of mine desired me to visit his mother, an old lady above seventy, who had a few hours before, fallen over a stool, and fractured the cervix of the thigh. I found her in very little pain; and on being asked what she should do, I replied, "Very little;—abate the inflammation, and let her lie in the easiest position." Then it was said, she would be always lame. "And so she will, to a certain extent, whatever plan you adopt; and therefore, in my opinion, the less she is tormented the better. In time she will acquire confidence, and ask to be placed on the sofa; and, by degrees, from the sofa she will get on crutches; and then from crutches she will move about with a stick, being to a certain extent lame." My friend being however very anxious about his mother's safety, consulted various professional acquaintances, all of whom varied in their recommendations. The letters were submitted to me; but, being firm in my opinion, it was followed, and at this time the lady moves about with comfort, though the limb is shorter, is enabled to enjoy the amusements of her garden, and even distant travelling.

With regard to a fracture of the cervix within the capsule, I really believe it is rarely or never united by bony matter—occasioned, in my opinion, from the fibrine which is thrown out, escaping into

so large a cavity as the acetabulum, mixing with the synovial fluid, and therefore preventing any pure coagulable or fibrous part of the blood being found for the vessels from either end of the fracture to elongate or shoot into, so as to commence the ossific process; the ends of the bones therefore, could never be consolidated unless it were possible for the whole of the acetabulum to be filled with ossific matter.

I have now, Gentlemen, spoken of the different simple fractures of the thigh, and remember that the principle of the treatment is the chief thing to be attended to,—first to abate the inflammation, with the limb in the relaxed state without splints, and when it has subsided, which will be between the eighth and twelfth days, to place the bone in its natural and straight position with splints, and let it be so kept until it be firmly reunited. The splints we almost invariably apply, are the common deal ones, made pretty strong, having longitudinal slits, and covered on their inside with firm white leather. These splints should be rather wide, so as to afford general support and protection to the limb, more particularly required in fractures of the leg.

Many Gentlemen now present are aware that the iron japanned splints, which, for a series of years, were included in the list of instruments directed to be furnished by the naval surgeons, have been, by a recent order of the Medical Board, struck out, which was done through my representations, from

having seen, as I before noticed, more than one case, where by their application on a limb unprotected by bandage or sheet, death had been produced. Some years since a man fell from the deck of an eighty-gun ship and broke the humerus ; immediately three iron japanned splints were placed on the naked limb and secured very tight by the leather straps to the brass knobs ; the poor fellow soon suffered dreadfully, which was unfortunately considered as arising from the nature of the accident, so that nothing further was locally done till the end of the third day, when he was landed here. At that time the vesicated and swollen integuments had, in some places, pushed up between the edges of the splints, with the fore-arm and hand enormously tense ; the splints were immediately taken off, which gave the greatest relief; but mortification of the arm had come on in three distinct spots, where the pressure had been the severest, and, notwithstanding all our efforts, it spread throughout the limb and over the chest, killing the patient on the eighth day after the accident. Although these iron splints, *per se*, might not have often produced mischief, from the medical officers in general scarcely ever employing them, yet, as long as their supply to the navy was enforced, some of the junior branches of the profession were thereby naturally led into the error that a greater degree of pressure and force were required in the binding on of even common splints than is

ever justifiable, from considering that they were enjoined to furnish themselves with a set of iron ones.

Gentlemen, the last time I had the pleasure of meeting you we went over the treatment of the different Simple Fractures of the Thigh. I propose, therefore, to-day to enter on those of Compound Fracture of the same bone.

A Compound Fracture, whether of the thigh or of any other bone, is where the bone is broken, and having an external wound of the integuments directly communicating with the fractured parts; and, therefore, the term ought not to be limited to those cases where the external wound is made by the protrusion of the bone itself, for a compound fracture may take place without the bone having protruded: a person may be knocked down, a cart-wheel passing over the thigh, extensively lacerating the integuments, and fracturing the bone without any part of it protruding; indeed the fractured ends, instead of coming through, would be more likely to be driven inwards and downwards towards the fleshy part of the thigh; neither is it every laceration of the integuments that constitutes a compound fracture; there must be a direct external communication with the bone,—for instance, a large stone may fall against the leg, break the bones at the upper part without tearing the skin, and in its way down the limb

severely lacerate the soft parts: this would be only a simple fracture with lacerated integuments; therefore we ought to say, a compound fracture either with or without a protrusion of the bone.

Unless the direct external communication can be soon closed, Nature must make a material change in her efforts for the formation of an ossific union; if the wound continues open, she will be constrained to effect her purpose through the circuitous and tedious mode of granulations,—the great difference arising, not from the admission of air forming a communication with the broken bones, as was formerly thought, but from the integuments being torn so as to allow of the escape of the fibrine of the blood. By recollecting the mode in which union takes place when the skin remains sound, as in simple fracture, however much the bone may be comminuted, we shall see the importance of closing the wound in compound fracture; because where there is a free external wound, as soon as the secretion of fibrine takes place from the inflamed vessels, it must leak away, so that the vessels destined to elongate into this fibrine, and thereby deposit the specks of bony matter which are afterwards to be consolidated into a mass of callus, would either be broken or imperfectly formed, forcing Nature entirely from her course of thus producing bone, and obliging her to accomplish the cure by the tardy means of granulations. By viewing it in this light, it becomes our duty, as far as we are able, to

bring a compound fracture to the state of a simple one; in doing this, however, we must always bear in mind not to employ any violence, recollecting that, in applying our dressings, there is always an essential difference between support and pressure: it happens but too often that the measures which are employed are too rough, and pressure is produced too great for the vitality of the parts to bear. In compound fractures of the thigh, this is not so often apparent as in those of the leg and fore-arm. In the thigh we have a considerable cushion of muscles between the integuments and the bone, consequently pressure here will not be so mischievous as in compound fractures of the leg, instances of which we will hereafter detail when we come to the treatment of injuries below the knee-joint. In the thigh, the integuments are not stript off from the bone but from the muscles, or both are torn back together. Perhaps it will be as well for us to discuss compound fractures of the thigh in the following order:—we will first suppose being called to a case where, even had the bone protruded, we find on our arrival that it is within the integuments, and these even not extensively lacerated; secondly, where the thigh bone is protruded, but can be easily reduced; thirdly, where the bone is in a state of protrusion, and where the usual means, by relaxation and extension alone, are not capable of getting it back into its place, so as to oblige us to enlarge the wound, saw off a portion of bone, or perhaps do both; and

fourthly, those compound fractures caused by the passing or lodging of a ball from a gun-shot.

Every compound fracture of the thigh must be considered as an important case of surgery, demanding our serious, our anxious, and our patient attention. Let us suppose that we are at this instant called away to the ward, where a compound fracture has just been admitted; on examination we find that the bone had protruded, but that it was again back in the proper place, that the integuments were not much torn, for you must make a great distinction between incised integuments from a sharp instrument and those lacerated by the bone, or any thing heavy or blunt; prepare two sheets with the many-tailed calico slips, as directed in our former lecture; the bed is first to be carefully arranged, taking care that it be not too hard to gall, nor too soft to sink down, and that the sacking is drawn quite tight; on those sheets place the limb, and make extension,—it being our custom to lay the extremity in the straight position, the patient resting quite flat on his back, and the foot on its heel. Arrange every thing before you close up the wound, otherwise you will every now and then find, if you dress the parts in a compound fracture before the bed and sheets are quite ready, that you will have displaced, and perhaps again protruded the bone, requiring you to remove all the dressings and begin again. If the edges of the wound be incised, let them be brought gently into contact, though no

closer, however, than can be done by the easiest means; use no force, coax them together, then apply slight adhesive straps, over these layers of dry lint, then fold in your calico slips, turn in the edges of the sheets, so as to form a protecting cushion on either side of the limb against the pressure of the common deal splints, which are to be secured by tapes; two splints will be all that are required, one long enough to reach from above the trochanter major to below the knee-joint, the other from the fork of the thigh, by the side of the scrotum, to the inner side of the knee, filling up all the hollows in every direction with tow, and protecting every part that is likely to be galled. You not only can; but it will be more necessary to keep the splints, for the first twenty-four hours, tighter than afterwards, when, from the swelling of the limb and infiltration of serum in the cellular tissue, the parts will be stiffer, firmer, and not so easily disturbed by the movement of the patient's body, and he will have become more accustomed to his situation, and be more cautious not to displace the limb. Let the parts be kept constantly wet with cold water or the evaporating wash, taking especial care not to wet the lint or dressings immediately over the wound, it being of the greatest consequence not to interfere with them; for although you may not easily succeed in healing the lacerated integuments, yet if you can only permanently close a sufficiency of the muscular parts, so that from the bone there

be no external outlet, Nature will be able to carry on her ossific plans, in the same way as in simple fracture. It is our practice in all cases of compound fracture immediately to clear the bowels, indeed the constitutional treatment is nearly as laid down in simple fracture; we have the same intentions, though the position of the limb, in the commencement, is different.

In compound fractures of the thigh, we are to overcome the inflammatory stage, and look forward, if we cannot unite the wound, to a suppurative one. I do not mean to say that I have not seen mortification follow compound fractures of the thigh, but certainly it is not a common occurrence. When inflammation to any extent comes on in compound fractures, we must not expect it to terminate by resolution: it will therefore go on till it destroys the patient; or if overcome, it is by its terminating in suppuration or mortification.

In compound fractures of the thigh, the inflammatory or suppurative stage is what we have most to dread. In the leg, we find inflammation more commonly terminating earlier, but then it is every now and then by gangrene. Let us now, however, instead of describing a more manageable case of compound fracture, take up the consideration of one where the bone is in a state of protrusion, with extensive laceration of the integuments. You must relax the muscles as much as you can, to facilitate the return of the bone; though, strictly speaking,

there can be no such thing as a relaxation of all the muscles of a limb; by relaxing one set, you put their antagonists into fuller action; yet, by management, the stronger muscles of the thigh, or those which oppose the reduction of the protruded bone, may be much relaxed, without their opponents being called into too active operation. The bone being reduced, the sheets, slips, and splints, are to be arranged as before described. To the wound, however, we first apply a piece of dry lint,—over that another, well soaked in a strong solution of gum arabic. Should you, however, be in the country, and be unable to procure gum, use the white of eggs; over this, dust a little flour; then another layer of gum and lint; and, finally, two or three more of dry lint: secure the whole of the dressings and the limb, in the manner we have before pointed out; watch daily the state of the thigh, particularly its appearance just beyond the edge of the dressings, with the view of detecting the first approach of any erysipelatous blush; and if that advances or creeps up the thigh, take off all the dressings; abandon immediately all hope of closing the wound, and of carrying on the ossific process, as in a simple fracture. We must then use all our efforts to abate the inflammation, and promote suppuration; for, were we to continue the first dressings after an erysipelatous disposition has shewn itself, we should incur great danger. Should leeches be necessary, let them be placed without the margin of the red

blush: blood may be equally as effectually drawn beyond the erysipelatous mark, and without incurring so much risk of their bites degenerating, at least into troublesome sores, if not into gangrenous spots. Even if erysipelas should not threaten for a few days after your dressings are applied, yet, if if you find that the limb is much swelled,—that the patient has had rigors, complaining of increased tightness about the neighbourhood of the wound, you had better raise the edge of the lint, which is adhering from the effects of the gum, with the view of letting any matter or fluid escape that may have been formed, the lodgment of which must do mischief. Great caution is required in your management of the inflammatory stage; for, besides purgatives, diaphoretics, diluents, and occasional opiates, combined with nauseating doses, you must not be afraid occasionally to bleed; keeping in mind that the sooner the inflammatory stage is over, the less will be the suppurative one. Though in severe cases of compound fracture we cannot expect to terminate inflammation by resolution, yet in the more trivial ones we may luckily succeed in rendering them into a state approaching simple fractures. Remember, when you are about to bleed, that your patient is likely to be a long time confined to bed, and that you will have great discharges of matter. Let this, however, not intimidate you; only proceed with great caution, and have strong reasons for what you do. I am not a person to sanction the

loss of such enormous quantities of blood as some boast of having drawn, nor indeed have I ever seen such immense quantities taken: let not these histories lead you astray; at the same time, do not draw off a single ounce less than your judgment requires; for the longer the inflammatory stage lasts, the more will your patient be exhausted and endangered, and the more will the parts in the immediate neighbourhood of the fracture be disposed to slough, producing extensive discharge and great loss of substance; and, indeed, if the inflammation be not arrested by the surgeon, the patient will fall a sacrifice; and, on the contrary, if you take away more blood than is necessary, the more will be the patient's debility, and from this debility there will be more suppuration, and the increase of suppuration will cause an increase of debility, one acting on the other, till you are obliged to cut off the limb to save the life of the patient. Then you may ask me, how am I to know when I ought or ought not to bleed? This must be learned by comparing different patients,—by studying your profession at the bed-side,—by never omitting an opportunity of ascertaining the exact state of the pulse under all circumstances of disease; not being contented with counting the number of the beats, but the kind and condition, so as at length to be able to discriminate between a pulse of irritation and a pulse of inflammation; for this purpose, your stop-watch will be of no advantage to you; you had much better not make

use of it, for if you trust to it, you may fall into error. At times, however, nothing is more difficult, even to the most experienced, than to decide whether enough blood has been drawn. A pulse may be judged to be inflammatory where the beat is hard, wiry, and laboured; where the coats of the artery feel contracted, thicker, and too small for the column of blood passing through them, which, from the difficulty of the blood getting on through this apparently narrowed channel, seems to be striving and struggling to force its way through: you find a resistance on pressing your finger down on the radius, so as to stop the circulation under it, and on slowly withdrawing your pressure, the pulse labors to follow it, and is some time in doing so. In the irritable pulse, the artery appears thinner and enlarged, as if there was not a sufficiency of blood circulating within it to fill its cavity; it is easily pressed down against the radius by the finger, so as to annihilate its pulsation; but as soon as you raise the finger, the pulsation of the artery instantly follows it; the blood seems to be forced on in a wave-like manner, having a more watery feel. You must not persist in drawing off blood, *merely* because it continues buffed; you should recollect, that after the inflammatory action has subsided, a certain time must elapse before the circulating fluids can assume a healthy appearance. If you have any doubts whether it is better or not to repeat the bleeding, draw off only an ounce by way

of trial; and if after waiting a short time, you should perceive that it puts on the appearance of active inflammation, you may bleed with safety. What determines me more than the cupped and buffed appearance, is the fringed edge to the coagulum: as long as that lasts, inflammation is in progress; when that disappears, the inflammatory action is subsiding: though you may have strong inflammation without any fringe whatever, yet when you find it at your first bleeding, it will continue as long as inflammation goes on. Now, let us see what should be done in the third case, where you cannot, by relaxing the muscles, assisted by position and by using sufficiently strong efforts, get the protruded bone into its situation. Some surgeons are for enlarging the wound,—others, for sawing off the protruded portion: the practice I pursue is to enlarge the wound, if, by so doing, I think the bone can be fairly got down into its place. Recollect it will be frequently necessary to enlarge also the opening through the muscles. It is not sufficient to be satisfied with merely restoring the bone just within the integuments; no, it must be replaced fairly from whence it came, otherwise you will not do much good.

We had a case here, some years since, of a man who had a compound fracture of both thighs, with protrusion of the bone; the surgeon had replaced them, but merely within the common integuments, which certainly had closed over them, so that the

upper end of the bone appeared only just below the skin: it was extraordinary that the parts did not frequently ulcerate. He was admitted here five months after the accident. The bones were united, and the wounds closed; but union had taken place so far from a right line, that the man was never able afterwards to stand, even with the assistance of crutches; and having suffered so much, he was reluctant to consent to the removal of the limbs, and was ever afterwards drawn about on a sledge, and in this state quitted the hospital. Should you, therefore, find a difficulty in replacing the bone, even after the wound has been enlarged, the protruded part must be sawn off. Let it be done, by first making it project as fully as it can, by raising the upper part of the thigh, and depressing the knee-joint: then introduce a spatula under the bone; protect all the soft parts with lint; take hold of the end of the protruded portion, whilst an assistant steadies the upper part; then carefully saw it through; replace the thigh in the straight position, and dress the limb up with the gum and lint: apply the calico slips, the sheets, and the splints, as before detailed, with the treatment directed in the other cases.

I always wish to avoid sawing off any portion of bone, because the thigh must be to that extent shortened; and wherever the bone is removed, it will be always followed with great swelling, and when the inflammatory stage is over, there will be

profuse purulent discharge; and although it has been said that machines can be used to keep the limb fully extended, so that it may not become shortened, we have never yet been able to employ any such in cases of compound fracture, where any portion of bone has been sawn off. In such, the parts are so tender and painful, that they can scarcely be touched with the gentlest hand to put on the necessary dressings and sheets: how impossible, therefore, to make any degree of extension by machinery. Do you think it practicable, even with the greatest care, to keep the poor man's limb now under treatment in a state of permanent extension, it being a case where a portion of the protruded thigh bone had been sawn off before his admission under my care? Your answer will be, No; and if you cannot do so, the limb must be to the degree shortened that you have cut off the bone. We will even allow that it were possible to keep the limb of the proper length, and the ends of the bone separated to the extent of the portion sawn off; can you shew me an instance of such a lost portion being supplied with callus, the shape of the thigh bone? I have never seen such a specimen. The ends might unite by ligamentous union, as in separated knee-pans, or olecranons; but this would be of no use in the thigh—the limb would be powerless: to be of service, the bone must be united by bony matter, or none; and, to have that produced, the bone must be in contact, or nearly

so—if not by its ends, at least by its sides; consequently, wherever a protruded portion of bone is removed, the limb must be to that degree shortened; therefore it is always preferable to return the bone, if it can be done, by enlarging the wound, instead of sawing off any portion. Placing compound fractures of the thigh on the double-inclined plane, is much recommended by many surgeons. We do not employ it. You will find, by the leg hanging down the lower side of the plane, that the knee will thrust up the inferior part of the bone out of its level, and that the upper part of the thigh will be disturbed by every movement of the body. The greatest objection to the double-inclined plane is, in a large suppurating fracture of the thigh, allowing the matter to insinuate itself, by its own gravitation, up amongst the muscles towards the nates, producing pain by its lodgment; and, should the limb require ultimately to be cut off, the muscles will be found in a flabby and unhealthy state, from the insinuation and soaking of the matter. Examine Chaffe's thigh, in the forty-fourth ward; where, by lying in the extended position, flat on the bed, the upper part of the limb is free from matter and swelling, so that any operation could be undertaken with a great deal more prospect of success than if the double-inclined plane had been used. Watch well, in these lingering cases, that the patient does not excoriate, or ulcerate on the sacrum from lying. Protect the parts well, before any inflammation

comes on, with diacylon, spread on soft leather; for if you neglect this precaution, and once allow the skin to be broken, the patient will severely suffer, and will require fomentations and poultices, or evaporating washes, which will greatly disturb the limb to apply them.

4thly. Gun-shot wounds, fracturing the thigh.—Although I have never been in action, not having served on board of a man of war, yet I have had frequent opportunities of seeing gun-shot wounds in all their stages, and of every variety and class, from having received under my care a vast number of wounded during the two revolutionary wars; some of whom had never had the first dressings applied, from the actions having taken place close off the port, in privateers, row-boats, smugglers, and various other descriptions of vessels, independent of men of war; as well as having had the opportunity of witnessing the practice of others, more especially in the first war, in their treatment of the immense number of wounded who were constantly landing at the depôt, as prisoners, from the enemy's ships, brought into this port as prizes, after desperate actions; and for some time of this period the French wounded were under the charge of a French medical staff, so that I had the advantage of contrasting their practice with the English mode: in addition to which, there were frequently, in later years, large supplies of wounded soldiers, in the more advanced stages of gun-shot wounds, sent

to the Military Hospitals at this place. In a compound fracture of a bone, made from the passing of a ball,—as, indeed, all fractures made by the passing of a ball must be compound, from having a direct external communication,—we cannot expect to close the wound, so as to reduce the fracture to the condition of a simple one, for throughout the whole course that the ball has taken, the parts are so bruised and destroyed that they must slough; therefore there cannot be any advantage in closing the opening, unless there be some degree of hæmorrhage, for adhesion cannot take place. It has not unaptly been described, by an eminent surgeon, as a hollow gangrene; although, in our opinion, nothing can be more hazardous than the practice he recommended, of deeply scarifying the parts along the whole passage of the ball, with the view of exciting nature to throw off more speedily the sloughs. A gun-shot wound goes through the inflammatory, the sloughing, the suppurative, and the granulating stages. It is our duty, the moment a man is hit, to pass the finger freely into the wound, and ascertain the state of the parts; and if the thigh be fractured, and a ball lodged on the opposite side to its entrance, we had better immediately cut it out, if it can be easily got at, not only with the view of removing any extraneous body, but as affording also the opportunity of introducing a finger on that side; so that by the two, from opposite parts, we can pretty well ascertain the condi-

tion of the wound ; the fingers being after all the only safe probes that are necessary ; not like the surgeons of old, and perhaps not a few of the modern school, introducing all kinds of forceps, bullet scoops, and extracting instruments, doing a great deal of mischief, by injuring parts that ought not to have been touched. If the bones are very much shattered, and pieces can be picked away with great ease, let them be removed ; but should they be even in the slightest degree attached, either by muscle, tendon, or periosteum, replace them, and nature will do her best ; and you will be frequently astonished to find that portions of bone, which you thought never could become united, doing so, and giving you no after trouble. If your finger should discover the ball, remove it. Though balls may be retained in the body, in cysts formed by the inflammation caused by their first irritation, and may remain for years with impunity, yet if they can be extracted as soon as the person is wounded, let it be done. Be cautious more especially to take away all kinds of cloth or linen that may have been driven in, particularly if the cloth be entangled with the fractured bone, for I know of no instance in which these kind of substances have been lodged without keeping open the wound until they are discharged, at whatever distance of time that may be, a cyst never forming around them. In the specimen which is now exhibited the ball struck and lodged on the anterior part of

the thigh-bone, fracturing it longitudinally into the knee-joint, and might have been easily discovered and removed by the surgeon, had he passed his finger into the wound the moment after the man was struck; and possibly the limb might have been saved had the ball been immediately extracted: by its being allowed to lie embedded in the bone, all chance was cut off. The patient was a soldier, wounded at the battle of Corunna, and sent into this hospital some weeks after the injury, together with about six hundred others, the Military Hospitals not having room. On his admission the knee was violently swelled; the discharge and irritation afterwards became very great, and to save his life the thigh was amputated, though the lodgment of the ball was not known till it fell out at the operation. The patient soon recovered. After you have made yourself master of the extent of the injury of the fractured parts, in a gun-shot wound of the thigh, the same treatment, as to the general and local management of the inflammation, will be required as in other compound fractures of those parts. The wound itself had better only be slightly covered with a pledget of lint, so that your cold applications may come in contact with every part of the limb, there being no chance whatever of uniting or closing any portion injured by the course of the ball—it must slough after you have subdued the inflammatory action. A sort of mystery has been attributed to the treatment of gun-shot wounds by those who

have never been accustomed to them, imagining they require a peculiar mode of management: such is by no means the fact, for after the different stages are passed which we have noticed, and which are to be conducted on the common principles of surgery, every thing will go on well, and the wounds will close, unless there be any exfoliation of bone to come away, any extraneous body to be thrown off, or the patient labouring under any constitutional disease. If I were asked to select one hundred patients for treatment, I should say, give me gun-shot wounds. Their management is so clear, and the result, in general, so satisfactory, that you will be well recompensed for your trouble. Recollect that they are wounds inflicted on persons in perfect health, and generally in the prime of life, and therefore nature will materially assist all your efforts.

In all cases of compound fracture of the thigh, after the inflammation is overcome, and the danger of gangrene passed, you will have to encounter the suppurative stage. When once that is fully established, you must support the strength of your patient by diet and medicines suited for that purpose; and it becomes a question, therefore, when the discharge is profuse, whether the strength of the patient will be able to withstand it, or whether it may not become necessary to cut off the limb, to save life. Do not decide in a hurry; watch well every symptom. There are days on which you will almost determine to take off the limb, on account of

the violence of the sickness, the profuseness of the night-sweats, the loss of appetite, bowel complaint, and many other symptoms shewing great exhaustion, when, perhaps, by the delay of a few hours, things will again improve, and you will have hopes of carrying the patient through. You will have every now and then, during the progress of the suppurative stage, an increase of pain, with swelling and inflammation, caused by the irritation of a piece of bone. You must then apply leeches, but be cautious as to their number, so as not to overdo it. Use cold washes, or whatever means are generally employed to subdue such inflammatory irritation, and as soon as it abates have again recourse to your warm fomentations and warm poultices, leaving these off as soon as you can; dressing the parts then simply, so as not to encourage the purulent discharge more than is absolutely necessary to keep down the inflammation, the feelings and comfort of the patient in a great measure guiding you. In watching, however, the debilitating effects of the suppurative stage, when it proceeds to a great length, all your judgment and skill are required, being neither on the one hand too precipitate to operate, when there is a fair chance of avoiding it, nor on the other delaying it too long, when you will be too late, so that the patient will soon afterwards sink, or will be so exhausted as not to allow of an amputation at all. A true decision can only be formed by contrasting many cases, by attentively

watching the bed-side of the patient, and by never losing an opportunity of improving yourself in your profession; for it requires by far more practical experience to decide when a limb ought to be cut off, than the manner of doing it. The last man but three on whom I operated, was so worn down by a bowel complaint, that he actually had two very loose discharges whilst on the operating table; but, from the moment of being put to bed till the end of the fourth day, when he took a little castor oil, the bowels never acted. He rallied, and got well in a rapid manner. You may ask me, then, how are we to know when the limb ought to be removed, and that perseverance can no longer be justified. There can be no rule laid down: you must watch the patient's strength and appetite every day. There is one symptom I always anxiously look after, so as to inquire frequently whether the sound limb is painful about the foot and ankle, for if you defer the operation till serous effusion shews itself about the ankle and foot of the sound side, your operation will come too late. I have never yet seen a case of amputation succeed after the other limb had become œdematous. In all such instances the patient has sunk away. He will complain, for a few days previous to the œdema shewing itself, of what he calls rheumatism about the neck of the foot. Do not be deceived—it is no rheumatism, it is a prelude to the effusion of water. Examine accurately the foot, and if it be tender to the touch, even though not

swelled, do not hesitate to remove the limb without loss of time, provided the discharge is profuse, and there are also all the other signs of debility. When the union of the bones is getting firm, the discharge commonly lessens; indeed, you will seldom or never be called on to cut off a limb after the fractured bones are united, on account of the profuseness of the matter; as when you operate, from the patient's strength being unequal to the discharge, you will always find the ends of the bones disunited, and laying loose in a large quantity of pus, surrounded by flabby and unhealthy muscles. You are not, however, to expect, in all cases, that the wounds will heal when the discharge is much diminished;—they may be kept open to a certain, though not to a debilitating degree, for months,—nay, for years, till some piece of decayed bone, or extraneous body, be thrown off. There is an officer now, a master in the service, residing not fifty yards from this Hospital, who was under my care for a very bad compound fracture of the thigh, shattered from the passing of a grape-shot. His vessel having been taken, and afterwards sunk, by the Americans, he was landed at this establishment from a cartel eight days after the action. In about ten months he was enabled to go very well on crutches, and in two years was discharged from the Hospital with his thigh strong, and not more than an inch and a half shorter, still having a discharge sufficient to moisten a piece of lint, which would occasionally lessen, at other times increase,

with inflammation and pain, so as to require rest, purgatives, low diet, and cold applications. He used every now and then to call on me, and exactly at the end of the seventh year I took away a pretty large portion of bone, which came to the wounded orifice; the parts filled up, and have remained sound ever since, now more than six years. It is not difficult to account for such detention;—a portion of diseased bone is inclosed by the deposit of ossific matter before the bone itself is sufficiently loose to be thrown off; the osseous deposit at length ceases, absorption of the carious portion still goes on, till it be sufficiently reduced to escape from its prison; it comes away, and the parts heal up. The sequestrum in cases of necrosis, is similar to this. In these recent accidents of compound fractures of the thigh, you may ask what limbs ought to be attempted to be saved, and which to be cut off. Why, if the thigh-bone is not much shattered; if the wound, however extensive, be an incised one; or if it be a lacerated one, not to any great extent; if there be no great vessels injured; if there be no communication with the joints either of the knee or hip, the constitution good, the limb should be saved. If, however, the bones be very much shattered, communicating with either of the great joints, the large vessels torn, or the integuments and muscles much lacerated, and stripped up from their situation, I should not then hesitate a moment in cutting off the thigh. But there are cases which come in between the two conditions above-named;

where, perhaps, one surgeon will think the limb can be preserved, and another will be afraid to try it. Do then always consider first, if the limb is saved, will it be worth the saving; or if saved, and worth the saving, will the constitution be irreparably injured. Consult, also, in these difficult cases, the feelings of the patient. Some will throw themselves entirely into your hands, and declare that they are ready to submit to any operation deemed requisite, either by amputation or otherwise; thus increasing your responsibility; and you must weigh maturely all the circumstances. Other persons will declare that they will not submit to amputation, let what will happen. If, however, you are left uncontrolled, you must in these doubtful cases call in every thing to your aid, informing yourself not only of all the local injury that has been inflicted, but of the age, constitution, mode of life, situation, and if not within the reach of an hospital, whether the patient can command comforts and necessaries fit for a long confinement, attended with great suppuration. Another question to be resolved when you have determined that the limb cannot be preserved, is, whether the operation ought immediately to be performed or not. This point caused formerly more variety of opinions than it does now, most surgeons being agreed, I believe, that if the limb is to be removed, the sooner it is done after the accident the better, first allowing the patient to recover a little from the shock, till a certain degree of reaction comes on, provided it takes place

within half a dozen hours. Conclusions have been drawn in favour of postponing the operation until the patient has passed through the inflammatory stage, and got into the suppurative one, on the idea that a man that is wasted down by discharge, though it must not be to too great a degree, does better after an operation than a person who submits immediately to the loss of a limb. This, however, is not a fair way of judging, by taking twenty recent cases, and twenty postponed cases, and then calculate how many of that number have died, and so draw your inference: no, you must recollect how many may fall a sacrifice to the inflammatory or gangrenous stage before they arrive at a condition fit for an operation, and then add to that, the misery, the risk, the anxiety, and the fatal instances of the intermediate stages of those whose operations have been postponed, and the immediate amputations will have decidedly the advantage. I never hesitate to remove a limb on the receipt of an accident, if it be considered that the limb cannot be preserved. Remember it must be done on the same day, nay, within a few hours, before tension and inflammation come on; otherwise, if you put it off, you must be prepared to encounter every thing that may occur before the patient gets again into a favourable state, previous to which he may be lost from inflammation, mortification, or locked jaw. Let us operate, for instance, on twenty cases immediately the accident has been received; with some of them, no doubt, we shall have a good deal of inflammation,

but then we possess ample means of subduing it in recent injuries ; and we will even grant that the stump may not heal so rapidly, but surely a few days longer under treatment cannot outweigh the risk of procrastination. Let us, moreover, take twenty cases which have passed through these stages, without even allowing that any one has died from inflammation, gangrene, or tetanus, should the stump heal, the health may be for a time, or perhaps ever afterwards, irreparably injured. It has occurred at this Hospital, that we received a case where the operation not having been performed immediately on the receipt of the wound, that no period ever afterwards arrived in which the amputation could have been performed, and the limb was kept on, in spite of the wishes of the patient and the surgeon. The person was a carpenter of a letter-of-marque out of Liverpool, which vessel was taken a little to the westward of this port by a French privateer, after a severe action, and having been recaptured by one of our frigates, her Captain finding this poor fellow so grievously wounded, by a large grape shot shattering the thigh bone, placed him on his own ship's books, and sent him to the Hospital several days after the wound had been received. The thigh was knocked to pieces, was enormously swollen and inflamed ; the ossific deposit took place so rapidly and diffusely that there never was a favorable moment to cut off the limb, as the dividing so much new osseous matter would have de-

stroyed life. At the end of five years he first quitted his bed, and about seven after his admission was discharged from the hospital with the limb so shortened that he was obliged to walk on crutches, with his foot resting on a high patten, exfoliations constantly coming away for some years after this period, and the thigh very nearly resembled in shape a large leg of mutton, appearing as if the whole was a mass of bone just covered over with the common integuments. The superiority of early amputation is well shown by the following statement:—about twenty-three years ago an English frigate captured a French one, after a severe action, three days' sail from Plymouth; the surgeon immediately cut off seven limbs, and the men were landed here the fourth day, under my care; every one did well. I was obliged within a month to remove a second thigh from one of them. The French wounded were very numerous, and were landed at the Mill Prison Depôt, not one case having undergone any operation, as the French surgeon, the moment we took possession of the frigate, abandoned the charge of the crew; when they came ashore, the surgeon of the depôt was ill, and the Admiral of the port, as a compliment to the English frigate, appointed her surgeon to act. He found the wounded were such as to require, within three weeks, the removal of thirteen limbs: I was present at all the operations; nothing could have been better performed; but every one of them, excepting one of the shoulder-

joint, died. Now nothing could be more conclusive than that the good success of the first operations and the unfortunate result of the last could only be attributable to the difference of time; for if this surgeon had performed seven successful amputations in the heat of battle, on board of a ship, he was surely, from his success alone, improved and more capable, if possible, to cut off the Frenchmen's on shore, assisted, as he was, with a good light and every convenience.

In cases of compound fracture, in the neighbourhood of great joints, made by balls, take care to ascertain, before you remove the limb, where the ball is lodged, supposing it not have passed through; in this you will be greatly assisted by desiring the patient to recollect in what position he was when he was struck, and whether he could tell how the person was situated who fired, which will, in many instances, give you a pretty good direction, although the course of balls is very extraordinary, as the least thing will turn them. I will tell you what very nearly happened to me many years ago: when the armourer's mate of a ship recently in action was in this harbour cleaning a musket, which he was not aware was loaded, it went off, and the ball struck a marine on the right trochanter, shattering it and the shaft with the head of the bone, to pieces, with extensive laceration of the soft parts; the man was landed here in about two hours; he was much sunk, and the pulse very feeble. Hoping that these

symptoms might arise from the shock which the bravest men sometimes feel at an unexpected shot of that kind, it was determined to watch whether the system made any rally, and, if a sufficiency of strength returned, then to take off the limb at the joint. The assistant who came ashore in the boat said that he had not lost much blood. A little wine was given, but there was no reaction, and he died in about five hours. It was discovered, on examination of the body, that the ball, after shattering the bone and tearing up the soft parts, had gone through the thyroid foramen, across the cavity of the bladder, and lodged in the opposite thigh.

A laceration of the femoral artery seldom takes place from a fracture of the bone in a compound case; although, judging from the passage of it through the tricipital groove, we should expect it occasionally to occur. I have never seen it but in one instance, which was the first operation I ever attended as a student in this hospital, in 1792, and the only man I ever saw die on the operating table, without any possibility of getting him into bed. A fine seaman had his thigh struck with a capstan-bar, which tore up the muscles and broke the bone; he was brought to the hospital, but from various delays, it was three hours from the accident, and twelve at night before the operation took place: he had not lost so large a quantity of blood as might have been expected; at least, the persons who came ashore with him said so: the thigh was

enormously swollen, the soft parts lacerated and squeezed to a jelly; a portion of the femoral bone, about three inches in length, was picked out of the wound: he was in agonies of pain, and begging to have the limb taken away. As soon as it was done, and before any vessel could be secured, he said he was very sick; requested to be allowed to vomit; turned his head round over the edge of the table, retched violently, and instantly expired. It appeared that nature was exhausted, not so much from the loss of blood as from the severity of the pain causing the nervous energy to yield before the other powers of the system.

As we have now a patient under cure whose thigh I amputated a few days ago, in consequence of non-union of the bone, from a fracture received sixteen months before in the West Indies, and to which I have before alluded, it may be as well for me to speak to you on that subject to-day. In my opinion, the want of union in fractures is attributed to too few causes, being usually supposed to arise from the fractured ends of the bones being allowed too much motion: whilst this, no doubt, is a frequent cause, there are also many others which it will be necessary for us to inquire into, otherwise we shall very often fail in uniting a fracture.

We, and most surgeons of the present day, use splints of such a length as firmly to secure the heads of the bones, so that, by their being fixed, any motion is precluded to the fractured parts. There

are some, however, who apply splints so short, that they extend only a little distance each way beyond the fracture; and let these be bound ever so tight, they cannot preclude a freedom of motion to the broken bone; and this, we shall find, is a frequent cause of a retarding, if not of a total want of union. The older surgeons were often afraid of being disgraced by such a superabundance of callus as might cause any outward deformity; and to prevent this from occurring, they bound down short splints very tightly over the fracture: we now never employ them with that view, from knowing that such a deposit of callus very much strengthens the limb, and as the exuberance is concealed, it can be of very little moment; besides, the binding down of splints in this way does not prevent the formation of the callus, though it might give it another and a deeper direction; and although it might hinder it from shewing itself so prominently outwards, yet the practice did a great deal of harm; for when nature would have deposited it in the most commodious manner for the strength and security of the limb, it was forced by this interference into the interstices of the muscles, whereby their action was ever afterwards considerably impeded.

Often disturbing the limb after a fracture, will so interfere with the process of nature as to prevent union. I will give you a case. A general officer, sixty miles distant from this place, had broken his thigh high up; and at the end of ten weeks, no

union having taken place, he applied to the Admiralty, requesting that they would allow me to visit him, and I was accordingly ordered: he was about fifty, perfectly healthy, and in all respects a person in whom we should expect union to go on favourably. After inquiring into what had been done that could account for this state of things, I discovered that from extreme anxiety lest his limb should be shorter, and not being afraid of pain, he had made his nephew, who was his aid-de-camp, and lived in his house, lay hold of his foot every night and morning, and with great force pull down the leg to the same length as the other: in the intermediate time it had considerably drawn up again. I told him, that if he did not immediately leave off this pernicious proceeding, the bone would never unite; that he was disturbing and tearing the vessels necessary for the formation of callus, and putting nature so out of her way, that ultimately there would be an artificial joint, and he would become a cripple; that as the bone had been broken so very high up, he must be contented with the limb somewhat shortened. I then bound up the thigh in the extended position, with the foot resting on the heel, securing the splints well with half a dozen rollers, more particularly fixing the upper end of the outer splint, with a bandage around the loins; and directed that they should be kept on for six weeks, unless at any time they became loosened, when they were instantly to be reapplied without

disturbing the fractured parts; that at the end of six weeks we should hope to find the limb strengthened; that it was then to be bound up again in the same manner for a like time, at the termination of which we trusted that the bone would be consolidated. This plan was pursued, and it succeeded by the firm union of the thigh, and the General enjoying life with a limb free from pain, and as useful as before, though about two inches shorter.

Want of union will sometimes occur, not from too much motion, but really from too little; and this can be easily explained. We know that the more the muscles in the neighbourhood of a fracture be lacerated and injured, the more will be the subsequent inflammation, and the greater the inflammation, provided it can be controlled and made to terminate in a proper way, the greater will be the deposition of callus; whence it happens, that in scrofulous and weakly persons, where little injury has been done, and the limb has been kept very quiet from the first moment, there will not be a sufficiency of inflammation for the necessary purposes of reunion. Some years since I was requested to see a boy in Plymouth, who had broken his leg, and after several weeks there was no union: I found him of a very scrofulous habit; that the limb had scarcely swelled,—had not inflamed, and he had had but very little pain. I ordered that his leg should be every day moved without any splints; that after they were again put on, he should quit his bed, and

lay on the sofa, and that he should attempt to walk about on crutches, carrying the fractured leg well secured in a sling. At the end of a week, his friends again begged me to see him, the limb being then much swelled, and a considerable quantity of inflammation, which was just the thing required, and for which the moving about on crutches had been ordered; on visiting him, directions were given, that if the inflammation should further increase, it was to be abated by cold applications and leeches; that the present was not too much, but that he was now to be kept in bed with the splints securely on, and no disturbance to be given to the leg. Every thing went on well, and the bone very soon became perfectly united.

Union may be prevented by the system being under the influence of the secondary symptoms of syphilis. We have had many, very many cases, when, on eradicating the virus, the patients did well. About four years since we had a marine with a fracture of the leg, which for seven months would not unite. I was considering what could be the reason, when, on passing round the wards, it struck me that he had been a patient before; on being questioned, he said that he had been in the hospital about twelve months previously for a very bad venereal complaint; that soon after being discharged, a sore throat, with eruptions on the body, came on. This was quite sufficient to put him under a course of mercury; and before the soreness of his mouth

went off, his leg had firmly united. Remember, however, that although mercury will effect a cure by uniting the bone, when the patient is labouring under the distress of the venereal virus in the system, or what are called secondary symptoms, yet it will sometimes, when used for the treatment of the primary ones, retard it, by the debility it produces; yet mercury will frequently be required by patients who never had any syphilitic taint, not only to act as an alterative, but even it will be necessary to push it to a considerable extent before union of a fractured bone will take place. Many of you recollect a marine sent in from head-quarters, for a fracture of the leg which had occurred seventeen weeks previously, and where no union had taken place. He was apparently in perfect health, never had had any venereal taint, and was free from all appearance of disease. The camphorated mercurial ointment was locally applied till salivation was produced, when the callus fully and firmly formed, and the cure was effected. This, however, so commonly occurs, that it will not be necessary to trouble you with the detail of any more cases in confirmation of it.

Scurvy, too, will prevent union; and not only prevent, but dissolve it, after it has been formed for many years. In the famous siege of Gibraltar, where this disease made great ravages, bones became separated which had been a length of time united. Now if a severe degree of scurvy will

dissolve union when it has existed for so long a time, you may very well conceive that a much slighter degree of it will prevent the ossific process from taking place; and as I am addressing many gentlemen who are connected with the Navy, it is a circumstance to be kept in view; for although scurvy is now but rarely heard of in our Navy, yet it may occur in your practice, and although not to the terrific degree it was formerly, yet, though slight, it may now and then be quite sufficient to baffle your efforts in uniting a fracture. In the early part of the French war, about the years 1793, 1794, and 1795, we received a great number of the worst cases of scurvy—at least six hundred, and then we witnessed the effect of it on fractures; and although I never recollect an instance of its having dissolved the union of a fractured bone, which had been to any degree of firmness, yet it entirely prevented it from taking place, whilst the patient was labouring under any scorbutic diathesis. It is not, however, necessary for us to confine our observations to what is called the sea scurvy, for after all, what is it but a broken-down state of the constitution, from being fed on salted provisions, without vegetables, or the vegetable acids. Indeed I have no doubt that the very same disease, in its most aggravated stages, could be equally as well produced on shore as on board of ship, provided the same deprivations took place as to diet, water, vegetables, and vegetable acids, and crowded together in damp foul air. I knew a case of a gentleman of

a very scrophulous habit, who had his leg broken by the kick of a horse. He fell into the greatest state of exhaustion, had bleedings from the mouth, nose, gums, and anus; his teeth became loose, his limbs were swelled, œdematous, and black, with every other symptom of a person labouring under severe sea scurvy. It is needless to add that the bone never united, and he died, after a long period of great suffering. You often see among the poor that bad diet and foul air, from confinement in ill ventilated dark rooms, or under-ground cellars, will prevent union, when by giving them more nourishment, or even removing them into purer air, they will rapidly recover their strength, and the limb will become firm. In the beginning of my service in this Hospital, when we were exceedingly crowded with patients, it was the custom to select the extreme cases of surgery for the same wards, and not to distribute them about in different ones, as I have done for some years past; and at that period it was no unusual thing to find that union in fracture was very much retarded, and on an average took two or three weeks more than at present.

We find, every now and then, in women, the uniting of a fracture is prevented for a time by pregnancy. I do not mean to say that the being pregnant has any direct effect, but perhaps it is only from the debility which it sometimes produces. I have seen three cases of this sort; one of the leg, in a woman in the first months, who was extremely debilitated from an incessant irritability of the sto-

mach, causing her to reject all her food, but as the pregnancy advanced her stomach became tranquil, when on recovering her strength the bone united. Another had a fracture of the humerus in the latter months; the patient was in a state of great exhaustion; after her delivery she would persist in nursing the child, which continued her weakness, and it was not till two months after she consented to wean it that the bone united by the vigour of the system having returned. The third was in the last months of pregnancy, and after delivery, not attempting to nurse the infant, she rapidly improved in health, and the limb quickly got well.

From this detail you perceive that the non-union of a fractured bone may proceed from many different causes; consequently there cannot be laid down general rules as applicable to their treatment. Every case must be fully inquired into, and, according to the particular cause of failure so must be the management. When all our efforts fail to produce union, we must have recourse to an operation, which we cannot but think has been resorted to much too often, and that it is very seldom required, as after finding out the cause of failure, we shall almost always be successful by the ordinary means which surgery places in our power. It has been my lot, perhaps, to have seen as much of fractures as any surgeon of the present day, from the number of cases that are always occurring in a

naval hospital, and all fractures of every description that have been under my charge—(and I have had three-and-thirty at one time,) have had the splints and bandages always applied by myself; and in the course of my servitude here only three cases have been discharged with bones not united—neither of them was my patient; but I take no credit on that account, as I was regularly consulted on their treatment by the second surgeon. Neither of these patients was willing to undergo any operation, and their fractures had occurred a length of time before their admission; and I never saw any operation in this Hospital performed for the want of union until mine of a few days since; and in this instance the thigh had been fractured ten months before his admission. This may somewhat surprise you, considering that we must have had some hundreds of fractures of all descriptions, and in all stages, many of whom had not been admitted till a long time after the fracture had taken place, and had undergone various treatments and methods of cure, in all quarters of the globe, before being landed; therefore you must agree with us that we have not slight grounds for thinking that operations for the want of union in fractures have been too hastily undertaken, and that other methods less severe might have succeeded.

Let us suppose that every thing short of an operation of some kind has failed in producing union, and that one must be selected;—we have the choice

of four; one, to cut down and irritate; another, to cut down and apply the actual cautery; a third, to pass a seton between; and a fourth, to cut down and remove the ends of the fractured bones.

The first, of cutting down and irritating the ends of the bone, cannot be of any advantage: when an artificial joint is formed, the ends of the fractured bone are covered with cartilage, sometimes united by a ligamento-cartilaginous substance, having occasionally a perfect capsule, within which is a fluid very similar to the true synovia. Now, cutting into this, and irritating the ends of the bone, can never be of any service,—it is impossible for them to unite whilst the cartilage remains. But you will be told that this operation has sometimes succeeded. Yes, it certainly has; but, in my opinion, when it has, it has been performed without being required; that a regular artificial joint, such as above described, had not existed; that the ends of the bone merely lay without union, which, by discovering the cause, and adopting a suitable treatment, might have firmly united them.

The next operation, of cutting down, and applying the actual cautery to the ends of the fracture, is a method recommended by the French; it is never now employed, I believe, in this country; but I will give you a case which fell under my observation. Some years since a lady came to me with a fractured humerus of some standing, where union had not taken place. She said she was then on her

way from Ireland to London, a friend of her's having written to a surgeon, who had promised, if she came to him, that he would cure her, but that in passing through Plymouth, she was anxious for my advice. I found, on examination, that she had only used very short splints, and that too much motion had been allowed to the fracture. Seeing this, and that she was otherwise in good health, I thought there was very good ground to believe she might be cured; but, in compliance with the injunctions of her friend, she thought it best to go on to town without waiting his further instructions. I heard nothing of her for many months, when she called on me, and said how much she regretted not having followed my advice of binding up the arm tightly in long splints, for that she had been in London, where, in consequence of a French surgeon having visited the Hospital into which she had been received, and advising in such cases the actual cautery, it had been employed on her for the first instance. The pain it produced was indescribable, and induced so much mischief by its inflammation and sloughing, that it was thought she could not have survived. An incision was first made down to the fractured bone, by cutting on the outer side of the arm, and then the actual cautery was thrust in between the ends of the fracture. She continued in great danger for many days, and at this moment her arm is much worse than it was before the attempt; for then, by resting the fore-arm on a

table, and with the assistance of tight splints, she could write, and put on some parts of her dress; whereas now the fingers are so drawn up and weakened, and at times so painful, that her limb is worse than useless.

The next method is by the seton; but I do not see how that is to remove the cartilaginous covering of the bones, unless there should be most extensive sloughing, such as must endanger not only the limb but the life of the patient; and when a seton is to be passed, there is no saying what you may wound. Had we done it in our last case we should exactly have passed it through the ossified artery between the ends of the bone, and a most unlucky business we should have made of it.

The last method of cutting down and removing the ends of the bone, is certainly the one most likely to succeed, but then it is a very severe undertaking. You must recollect that the failure of union has been in a case of simple fracture; that, by this operation, you convert it into a bad compound one; for what do you do? You cut down to the ends of the broken bone, turn them out through the wound, and saw them off; to do which the wound must be pretty extensive, otherwise your saw would lacerate and jag the integuments and muscles, particularly if it be of the thigh. Now, when you have a compound fracture, with protrusion of the bone, the end of which it is desirable to remove, you very well know how difficult it is often to save the limb,

and at the very best what a formidable case of surgery it is : then how much more so must that case be where you have to turn out both ends of the bone, and saw them off? Some surgeons have only removed one end, but they had better have done nothing at all ; because whilst one remains covered with cartilage, union can no more take place than if they were both to remain so. It is certain that bone cannot unite to cartilage : the ossific anchylosis of the knee-joint, for instance, can never take place until the cartilage covering the two bones to be united, as the femur and tibia, be so far destroyed as to allow of bone uniting to bone ; and, consequently, the same process must take place where union has failed after fracture, from their ends being tipped with cartilage. After all, however, this operation of cutting down and sawing off the ends of the fractured bones, is the only one that can, I think, succeed, supposing that a perfect artificial joint is established. I have never performed it ; and very strong and weighty reasons must arise to bring my mind to do it. Had we attempted it in our last patient, as soon as I had introduced my scalpel between the ends of the bone, to divide the ligamento-cartilaginous connexion, I should have cut through, without any possibility of avoiding it, that large ossified artery running between the broken portions of the thigh ; and you saw with what difficulty I secured the vessel even when the limb was off, and nothing but a lucky passage of

the needle did it; how much more, then, would the danger have been increased with the limb on. The chances are that amputation must have been immediately performed, under very discouraging circumstances; or, if we could have stopped the blood without it, we should have considered it fortunate.

From this detail you observe that we have grounds to justify us in saying, that there are many more causes for a failure of union in fractured bones than are commonly imagined; that by finding out the cause you may almost invariably remedy it, and obtain a cure; that where operations have been successful, a longer delay and other means would have probably rendered them unnecessary; and that when all other judicious and well-selected modes fail, it is more than doubtful whether any operation short of amputation ought to be employed. In this case of Sheriden's, which required amputation, you have seen the ossified state of the arteries of the whole of the lower extremity; and it is highly satisfactory for us to know, that nothing whatever could have produced a union of the bone, and that the taking off the limb was the only chance the patient had.

I intend to speak to-day of Fractures of the Patella and of the Leg. The patella is most commonly fractured either transversely or longitudinally.

The longitudinal is much more rare than the transverse, and is mostly produced by external violence. The transverse, in the greater number of cases, occurs from the action of the muscles. When the knee is bent, and the patella brought in front of the condyles of the femur, should the four strong muscles which arise anteriorly, and are inserted into the knee-pan, be suddenly and violently brought into action, the patella is caught against the condyles, and is fractured. A man carrying a heavy load on his shoulders slips, and suddenly trying to balance himself, frequently snaps the patella. It is said that when one is broken transversely, that the other is more liable to the same accident, not from any peculiarity in the structure of the bone, but because, after a person has broken one, whenever he slips, to which he is more liable than before, he puts the strain on the other, which certainly endangers it; but I do not think that the accident happens so often as is imagined,—at least my experience falls very far short indeed of reckoning it a common occurrence; and I have great pleasure in saying so, as patients are impressed to a fearful degree with such a notion, which is not warranted by observation, and keeps them in a continual state of alarm. Fractures of the patella may be either simple or compound.

A transverse fracture may be known at once, as the strong muscles pull the upper part of the bone away up the thigh. I have seen it drawn up as

much as six inches, the lower portion sinking down a little. In a longitudinal fracture the portions are not much separated. In a transverse one considerable tumefaction will often ensue, even where there has been no external violence, but broken entirely by the action of the muscles. In the case of a gentleman, one of the residents of this Hospital, now under treatment for a fractured patella, there was a most extensive extravasation of blood, with great discoloration, and swelling from the hip to the foot, occasioned entirely by violent muscular action; as the accident arose from a slip on a round stone whilst walking slowly, and he saved himself before his knee came to the ground. It is a very common error to suppose that the knee-pan is broken by the fall, whereas, in the greater proportion, the fall is the consequence of the fracture from muscular action, and not the fracture in consequence of the fall.

Surgeons are of different opinions, whether it is better to unite a fractured patella by osseous or ligamentous union, as if the choice was in their power; some insisting that you should always procure osseous union, because, in the ligamentous, motion to a certain degree is impeded; others are for a ligamentous union, because, say they, there will be an unevenness of the bone on the under side of the patella when it is united by osseous matter, which would of course be very inconvenient. But in nineteen cases out of twenty you cannot procure an osseous union if you wished it, and must be

satisfied with a ligamentous one; in my opinion, however, a surgeon who is contented with it when he can obtain an osseous union, is much to blame, for in proportion as the parts are more or less asunder so will the patient be more or less lame, and as for the ridge of bone on the inner side, I believe it very seldom occurs; the knee-pans which I have had an opportunity of examining, which had been previously united by osseous matter, had a rough mark on the outside but no ridge on the inner; even should such a circumstance take place, I should think that the inconvenience would not be very great, nay less than what is produced by a ligamentous connexion, and therefore the fear of it should never intimidate a surgeon from forming osseous union when it is in his power. Of course every fracture of the patella will be followed by inflammation, which must be subdued before any decisive measures are taken; the patient is to be placed in bed with the limb extended, and a pillow crossways under the ham, the whole knee to be kept constantly wet with cold water, applying, or not, leeches as may be required, securing the parts from motion by pillows, or sheets rolled into junks, placed up and down the sides of the extremity. When the inflammation has subsided, which generally requires eight or ten days, we bring, if we can, the two parts of the bone accurately into contact, or as near as they will allow, confining them by several turns of a calico roller passed like

the figure eight, crossing it in the ham, which will require some yards of bandage, and should be neatly and accurately put on. Some, with the view of relaxing the muscles inserted into the patella, direct their patient to sit up in the bed both day and night; there is no occasion for this, as it could only relax one muscle, even if it did that: you know that the rectus arises from the pelvis, but the cruralis and the vasti have their origins from the femur; now if you lay your hand upon your own patella, whether lying down or sitting up in bed, you will scarcely find it acted on more in one position than the other; besides when a patient has to undergo a confinement to bed, and to be forced to remain in a sitting posture, it must make his situation more irksome, and a considerable benefit ought to be apparent before it is insisted on.

When you wish to bring the two parts of the bone together after the inflammation has subsided, do it gently, or the muscles will resist you; violence will do mischief. If you cannot bring them close on the first day, you may perhaps be able on the second or the third trial, but when the upper portion is drawn some inches up the thigh, you must not expect to bring the two parts into contact; however, you should always bring them as near as you can, for, as I told you before, the lameness will be in proportion to the distance which is between them.

When you apply your bandage, take care not to pass it so near the patella and so tight as to evert

the broken edges; they should be exactly opposite one another. Some surgeons have recommended a splint to be bound under the ham, but I do not think there is any occasion for it; if I were to apply any thing of that kind, by way of preventing any movement of the parts, it would not be a splint under but on each side of the knee, so padded out as not to make any pressure on the joint itself, and yet sufficiently tight to steady it.

I never keep my patients, as some do, several weeks in bed,—it is not required. After the bandages have been applied a few days, and the patient has recovered a little confidence, he is allowed to get to the sofa, and as soon as he is anxious to use crutches they are allowed, supporting the leg in a sling from aronnd the neck; by degrees he will come to a single crutch, then he will only use a kind of stirrup, holding the end in his hand to carry forward the limb and save himself, lest he should slip; at last he will trust to a stick, which, after a time, he will throw aside.

In a longitudinal fracture of the patella we place a pad of tow on each side, and thus keep the broken edges in contact with a circular roller; in other respects let the treatment be the same as in a transverse fracture. In a longitudinal one the ends of the bone are seldom far apart, and are not drawn up the forepart of the thigh, the ligament of the patella confining down the bone by its attachment to the apex of the knee-pan.

A compound fracture of the patella is a most dangerous accident. You recollect that three bones, the femur, tibia, and patella, compose the knee-joint, and if this latter bone be shattered, with an external wound of the integuments, so as to constitute a compound fracture, an important communication is made with this joint. We know how hazardous even incised wounds made into this joint are where there is no injury done to the bones, and even what terrible symptoms and danger arise from the removal of the loose cartilaginous substances which are sometimes formed there, when an operation takes place under the most favourable circumstances, not only as to the choice of time, but even situation, and yet, by making a small incision only to extract them, such inflammation and irritation have arisen as to destroy life under the hands of the most skilful surgeon. If such be the case, what have we not to dread when the joint is broken into by external violence shattering the bone and tearing the integuments! for should the soft parts be much lacerated, and the other bones of the knee-joint much broken, it will be best immediately to amputate: though we have seen cases do well even under such injuries, yet they are very rare, and certainly not models for imitation, yet they will hold out to us a kind of hope, as every now and then we find a patient obstinately bent to incur all risks in preference to the amputation of the limb.

When a compound fracture of the patella is to be

dressed, let your chief care be to shut up the external communication as speedily as possible, close the wound with strips of plaister, gently laid on, so as to bring the integuments in some measure into their natural situation, avoiding all kind of violence; then lay over the strips, pieces of lint dipped in a strong solution of gum arabic; this will, in a few hours, become perfectly hard, and prevent the possibility of the lotions coming in contact with the wound, or getting into the joint, though all the surrounding parts ought to be kept constantly moist and cool; leeches must be applied freely if required, and, when the inflammatory stage is over, warm fomentations and poultices are to be used, and then the subsequent treatment must be conducted according to the general rules of surgery; even the best that can happen after such an accident must be a certain degree of lameness; and it frequently occurs, after you have been toiling on for weeks, that amputation will be required from extensive disease having spread throughout the joint, from the inflammation set up in the first days.

We come now to fractures of the leg: both bones may be broken, or the fibula or the tibia singly. In seventeen or eighteen cases out of twenty you will find both broken; in the other two or three, perhaps, the fibula without the tibia; but for the tibia to be broken without the fibula is so very rare that we look upon it as a kind of exception to the general rule. If you are called to a simple fracture

just after it has happened, you will almost always be able very easily to detect it; but after some time the limb will frequently swell so much that you cannot tell whether it be broken or not. I say that you will almost always be able to detect it when you are called just after the accident, for it does sometimes happen that the limb swells so rapidly that you cannot ascertain it without disturbing the parts too much; so rapidly, indeed, that the patient even has been known to say that he could see it increasing. A person, when riding, will sometimes fall with his leg underneath his horse, and when he gets extricated, in a few minutes the limb will be so enlarged that there will be no discovering whether it be broken or not. A naval officer, some years since, Sir C. D. fell in this manner; a surgeon was passing the road at the moment, and said that the leg was not broken, but as soon as he arrived at his own house in Plymouth, he called in another surgeon, who was the brother-in-law of the first, who declared that it was fractured; my opinion was then desired, but I found the limb so enormously swelled, that I told this officer that, in its present state, it could not be discovered whether it was broken or not, without such an examination as would increase the inflammation and mischief; that in either case the treatment in that stage would be the same, and therefore it was agreed to wait for a few days, till the inflammation and swelling were gone, when we should be very easily able

to ascertain the injury; this was agreed to, and finally the limb was found not to have been broken.

According to the principle laid down before in the treatment of other fractures, your first care must be to reduce the inflammation: for this end, let the patient be turned well over on the affected side, lying principally on the hip and shoulder, with his back supported with pillows, so that the limb may be in the relaxed position, resting on the outer side of the knee, with the thigh bent on the body, and the leg at a right angle, so as to bring the heel nearly in a line with the symphisis of the pubis; then applying our many-tailed slips, sheets, and cold water, as before described for the thigh, raising or depressing a little the knee and toes, with either small stump pillows or folded sheets, just to suit the comfort and ease of the patient; and as soon as all inflammation has disappeared, which will be in eight or ten days, we place the limb quite straight, resting on the heel, and the patient fairly on his back; two sheets, having been folded in the manner described in fractures of the thigh, with the narrow calico slips placed under the leg, all the hollows of which are to be carefully cushioned and supported with tow or lint, accurately and nicely arranged, so that the limb may rest at its ease, extension having been made, so that the fractured bones may be in perfect apposition, the slips of calico are tucked in, the sheets folded up in the form of junks on both sides, having on their outer

surface a long splint, so as to reach from below the foot to above the knee on either side, firmly secured by two pieces of tape ; the foot, the ankle, and the knee-joint, being protected from the pressure of the splints, so that they may be thrown off from the side of the fractured bones by thick and smooth cushions of tow : the foot is then to be supported by a roller, passed as a kind of stirrup, and secured to the lower circular tape which confines the splints : this stirrup is to be fastened, so as to take off the weight of the foot from the ankle-joint. Many allow of cross boards at the end of the bed, against which the feet are to rest ; but this we do not approve of ; for if the patient slides down in the bed against it whilst asleep, the limb may be twisted. We see this well shewn sometimes in fractures of the thigh. You recollect the case of Bell, now a patient, who was received from abroad, with a compound fracture of both thighs. On his admission they had been broken many months, and were left without splints for some weeks before he came to us, though the osseous union was not very firm : to add to his comfort, he was placed in a screw-bed, with a foot-board. After a little time it became very visible that the thighs were not so straight as on his admission ; and we found that it was caused by his raising at night the upper part of the body by means of the screw, which threw him down into a hollow in the bed, and that the flat of his feet pressing too firmly against the foot-board,

the thighs were to a certain degree twisted. On removing him to a common bed, and not allowing of any support to his feet, his thighs improved.

In fractures of the leg, we continue the splints about six or seven weeks, when union will almost always be found to be complete, taking care during this period to undo the sheets and splints whenever they become loose, or the parts uneasy, and then immediately reapplying them. Should the heel during the confinement be galled, let it be raised a little, or form a small pad of cotton, hollowed in the centre, to receive it. In cushioning up the leg, take care that there be not so much tow under the tendo Achillis as to force it up too tightly against the back of the tibia, as it might for a time cause a stiffness or a difficulty of motion, from adhesions taking place. Sometimes vesications arise on a fractured limb; now we have observed that there are three kinds of vesications, and that they require very different modes of treatment, consequently it is of the utmost importance to be able to discriminate between them. We would say that there are the erysipelatous vesications, the vesications from distention, and the vesications preceding mortification. In the erysipelatous vesications, we have a peculiar blush or redness of the parts; the vesicles are in clusters, numerous, small, but quite tense and full, containing a very clear fluid.

The vesicles from distention are few, one or two large ones perhaps, and two or three lesser ones,

and the fluid contained in them is of a light colour and thick, and if they break, it does not easily leak out, nor can it be freely wiped away.

The vesications preceding mortification are such as these, but the fluid is of a dark colour, much resembling tawny port wine, and if broken, the parts underneath are dark and smooth.

In the erysipelatous vesications, cold applications and leeches are to be used, applying the leeches just without the verge of the inflammatory blush, otherwise their bites are apt to mortify, or to degenerate into troublesome sores.

To parts vesicated from distention, you should apply a strong spirituous wash, one part of four being spirit of wine.

When vesicles threatening mortification come on, we must strictly attend, not only to the local, but the general treatment; and the latter must depend on the state of the system at large. Should the vesicles show themselves soon after the receipt of the injury in a young habit with a vigorous pulse, and symptoms of great excitement, in which the patient has a peculiarly rapid way of answering questions, or even of anticipating what you are about to say, you must in the first stages cautiously draw off blood from the arm, open briskly the bowels, give freely calomel and antimony, with the effervescing draughts, and fresh acidulous drinks, only allowing a spare and low diet; and should there be great restlessness, we may venture after

a night or two, unless the tongue be very dry, on a dose of laudanum, with the liquor ammon. acet. Should the head ache violently, keep cloths wrung out of the cold camphorated vinegar to the forehead, and on the slightest wandering the head should be shaved, and kept constantly and generally wet with the above wash, common cold water, or a solution of the muriate of ammonia. During the above treatment, you must watch with intense anxiety the least change from excitement to depression, to take advantage of altering the treatment, for whenever the system shews any debility, with a weak pulse and other symtoms of decline of strength, we must give camphor and ammonia, with or without small doses of laudanum, which you will find of great service in allaying irritation; adding, should the tongue be dry, the liquor ammon. acetat.; support the constitution with wine, beginning with small quantities, and give fluid nutriment. The local treatment consists in having the limb remarkably well fomented with flannels wrung out of a strong warm decoction of the common fomentation herbs, at least ten minutes twice or thrice a-day, keeping the limb in the position least likely to fatigue whilst it is doing. After each fomentation, let the parts threatened, or actually in a state of mortification, be covered with a large cold poultice, made of sifted oatmeal and fresh yeast, which we have always found far preferable to the stale beer grounds, from having the principles of fermentation more in activity.

Mix a sufficiency of the meal with any quantity of the yeast that will form it, into a moist but rather thinnish paste ; and should the yeast be very thick, lower it with a little cold water : apply this poultice all over the parts immediately after removing the warm fomenting flannels ; and although you may think it a singular practice directly to apply a cold poultice after warm fomentations, yet our experience fully justifies us, not only in using it in this way, but of strongly recommending it to your notice as being considerably more powerful and efficacious in the treatment of mortification than if the warm fomentations had not been previously employed. In securing the poultice on the limb, let the turns of your bandage be made only at the upper and lower parts, so that none of them may be passed exactly over the sloughing spots, as by the common method of bandaging all over the poultice, a great deal of unnecessary pain is suffered from its being bound down, so that when the fermentation of the yeast takes place, it has not room to allow of that process, and consequently great unnecessary pressure is produced on the diseased parts. Cold evaporating lotions should be constantly kept applied to the limb above and below the poultice. We consider linseed meal not only useless in these cases, but in most others of surgery, so that unless a greasy application is required, we make our common hot or cold poultices of oatmeal. We are aware that it is a practice much in esteem

by some surgeons of great eminence to make free incisions through mortified parts; but our experience has taught us, that although it may now and then afford some relief, yet it is almost always purchased at too great an expense, by the case turning out, as far as I have seen, much worse than if such incisions had not been made. Should there be felt a fluctuation deeply seated under mortified fascia or integuments, creating pain, I should then go down by a small incision, with the hopes of giving it vent; but I would never cut through mortified parts with the view of coming down to healthy ones, under the idea that they might be stimulated to throw off the dead sooner than if such practice had not been adopted. The better plan is, to give nature all the assistance by local and general treatment, without cutting or wounding the parts, and allow her to make her efforts her own way.

We are inclined to think that surgery in general is too officious,—that we meddle and interfere with nature a great deal too much,—that we often put her out of her way, and that we are too much disposed to employ art, and thrust her aside. As a general rule, we should watch nature's efforts, being ready to restrain her where she is disposed to be riotous; to assist her when she is too feeble for her purpose, and to leave her alone when she appears equal to her design.

You should never allow your patient to get up

before the bone be perfectly consolidated: if you have taken off the splints, and the leg be not firm and swells much, however reluctant you may be, yet you should put them on again; another week's confinement will be far less hurtful than using a feeble leg. If you allow the leg to swell to any extent, you may be assured, that do whatever you will, you will not be able to get that swelling entirely away without very great trouble, particularly if your patient be advanced in life. Many years since a tradesman of Plymouth broke his leg, and after he had remained some days in bed, he petitioned, on account of his business, to be allowed to get up: his surgeon consented; he went into his shop, and moved about on crutches, with his splints on: much mischief ensued. I was desired to see him, and found the limb much swollen, and overspread with a disagreeable kind of erysipelatous inflammation. I ordered him for a time to bed, but the swelling has never subsided entirely; and every now and then, on increase of exertion, it is covered with a kind of ill-conditioned ichorous brown crust. You know that when a patient first gets up there will always be a little swelling, but which goes back during the night, or when the limb is kept up: you will see patients, when they might frequently rest their leg on a chair or sofa, resting it across their crutch, hanging it down, which is as unfavourable a position as can be; and they should be cautioned against it. When the

fibula only is broken, it often happens that the patient afterwards is more inconvenienced than if he had fractured both bones, which occurs from the accident being considered in too trivial a light; so that the parts being left without splints, the foot is turned inwards from the muscles arising from the broken fibula not having their counteracting power, and the patient walks on the outer edge, not on the flat of the foot, and is considerably lamed. It is sufficient in many cases if you only apply a bandage, but in some it certainly would not; therefore the better way is never to trust to it. The only difference we make when the fibula alone is broken is, that when the splints are applied, we allow the patient early to get up, and move about with a sling and crutches.

When the tibia only is fractured, the treatment should be the same as if both bones had suffered. I have never had but two cases; one from a blow on the side of the leg, when the person was sitting down, and the other was from jumping off a wall, which we should think would very often cause it, for then the tibia receives the chief shock, from the femur resting on it alone, and pressing it down on the astragalus. I know not whether we may say, that a simple fracture of the leg is sometimes of itself a fatal injury; but we have had a case where death seemed to have no other cause. A man was sent in with a common simple fracture of the leg, and by no means a bad one: whilst we were

arranging the bandages he continually repeated that he should certainly die. "You see me in this bed," says he; "but out of it I shall never get again alive." We reasoned with him on the absurdity of his fears, but to no purpose. Every thing went on well till the third morning, when about four o'clock he became ill, grew very feeble, and in four hours was dead. We examined with the minutest dissection every part of the body, but were not able to detect any thing in the remotest degree to account for his death.

There is nothing that I dislike more than a patient prognosticating his death; for although great numbers say, on receiving any serious injury, that they shall not recover, and yet do very well, still there is often a something which they feel within,—a sensation not to be described or detected by the practitioner, which forebodes a fatal termination.

In a compound fracture of the leg, as indeed in all compound fractures, we make this difference between them and simple ones,—that we place the limb immediately after the accident in the straight position, supported by splints applied in the same manner as we do in a simple fracture, after the inflammatory stage has subsided; for if it were placed in the relaxed position without splints, the bone would almost invariably protrude; and as splints must be put on, the straight position becomes then the best, and the least painful. Our first care is to close the external wound as speedily

as possible, in the same manner as has already been recommended in a compound fracture of the thigh. Now this wound is usually a lacerated one: it frequently happens that the integuments are extensively torn up, and very often from the bone; you should be very careful never to use any violence in returning them to their situation, or in retaining them in it. When they are torn up in the thigh, they are usually so with the muscles; and when they are restored to their situation, they are restored upon muscle; but in the leg they are skinned up from the bone, and are returned upon bone; and on this account you will find that the inflammation of the leg succeeding a compound fracture, is much more disposed to run into mortification than one of the thigh, as the vessels from underneath which nourished the integuments are lacerated, and the parts have to depend for vitality on themselves; now if you forcibly drag them in this weakened and injured state over the bone, and strap and bandage them down tight, their feeble circulation is compressed, nay destroyed; nature makes some efforts, inflammation to a certain extent takes place, the parts fall into mortification, and if it once commences, it is not to be said where it may stop, sometimes not till the patient is destroyed. A gentleman was driving his gig,—the horse running away, he was jerked from his seat, so that his leg was thrown out on the wheel, which tore his clothes and boot, lacerating his leg, by tearing up

the integuments just over the tibia: the surgeon, who was immediately called, replaced them, which could not be done without some degree of exertion; he then put on his straps, and bandaged the whole up: on the third day I was requested to see him, his attendants being alarmed at his fainting and great prostration of strength, which they were at a loss to account for. On asking how the leg was, they said, "That is going on very well; it was for thirty-six hours after the accident exceedingly painful, but is now quite easy;" and on inquiring whether it had been lately seen, they answered, "Not since the first dressing; but it became so comfortable just before this depression, that we thought it a pity to disturb it:" they were now, however, immediately taken off, and the leg was found in a state of mortification; so that in spite of all our efforts it rapidly extended up the thigh to the groin and lower part of the abdomen, and he died in forty-eight hours from my first seeing him. I am persuaded that the tight strapping and dragging together of lacerated, nay, of almost clean incised wounds, is often the cause of dreadful erysipelatous inflammation. Never use any violence in bringing into contact torn-up integuments; let them be coaxed gently together, or as near as they can be, and retain them by the simplest means: let your bandages be applied with the view of support, not compression: be not over solicitous to bring the edges in close apposition, because you know

that lacerated edges never can unite by the first intention, and yet it is desirable by gentle means to restore them as nearly as you can ; for if you can only get them two-thirds back into their situation, it is so much gained, as frequently on the first dressings being removed they will not be found to be so much retracted, and may be all united excepting the lacerated edges, which must slough; therefore it is of the greatest consequence to get them as close as you can, without running the risk of encountering inflammation, and consequently frequent mortification : sometimes the bone is driven through, or rather lifted up in front, tearing away the integuments, so much so that the latter never can be replaced, and the bone remains uncovered, and must exfoliate. This is not always a case for an operation. I once had an instance of this kind to a most extensive degree. A naval Captain was wounded at the siege of San Sebastian, whilst serving on shore, by the bursting of a shell; his commodore sent him in his sloop to England, for the purpose of being landed at this hospital under my care. At the moment of his arrival I was absent on duty at the assizes at Exeter; and as it was concluded that I should instantly remove the limb on my return, the tibia was left protruding and uncovered by the integuments. When I came back at the end of the third day from his admission, and the twelfth from the wound being received, finding that he had got through the inflamma-

tory stage, and that there was a chance of preserving the limb, we determined to attempt it. The bone was immediately reduced to its proper situation, though we had not any integuments to cover it for at least five inches. Things went on sometimes well, sometimes doubtfully: for eight and twenty weeks he never once had his bed made; was fed the greater part of that time whilst lying on his back, without raising his head from off the pillow: the limb was carefully supported by myself and assistants whenever it was necessary either to dress or poultice it, which was done as seldom as possible, that the parts might not be disturbed, the limb being so shattered that it really appeared, whenever it was lifted up, that it would entirely separate; at length we were rewarded for our trouble, by seeing him cured with a very good and useful leg, a single lamina of the outer surface of the tibia only having been thrown off, where the bone had been so exposed: he walks remarkably well, with a piece of cork within the boot to support the heel, and is enabled to follow a good day's shooting, and what is singular, never feels any effect from sudden changes of weather, which gun-shot wounds injuring bones generally produce. When you cannot reduce the bone without either removing a portion, or enlarging the wound—which would you do? I should certainly recommend you to enlarge the wound:

whenever you saw off any portion of the bone, you to that extent shorten the limb.

In compound fractures it will not always be necessary at all periods of the cure, nay sometimes not even in the early stages, to use splints; the limb being so stiffened from the enlargement and tension of the parts as to do very well without them, taking care to support the limb by pillows on either side, of its whole length.

Fractures of the Nose may be either simple or compound.

If you should treat a broken nose so as to leave any deformity, you will get great discredit, and which perhaps you may well deserve, for most fractures of the nasal bones, if properly attended to, may be cured without leaving much mark. Sometimes only the cartilage is displaced, and from negligence the patient is considerably disfigured. How often do you see people with their noses, as they are called, awry, who tell you that it happened from an accident whilst they were children, and that it had been neglected; the treatment of this injury being the same as when the ossa nasi themselves are broken. One description will be sufficient. You are first to introduce your finger freely up the nostril under the bones, and replace them exactly in their situation, and then support them in it with lint:

you are not at once to shove up a great plug, but small pieces at a time entirely up the whole length, till you have completely filled up both nostrils, which is to be kept in its situation by a strip of adhesive plaister across their opening, just above the lip: if there be much hæmorrhage, you may as well dip the lint in vinegar; if not, in a solution of gum arabic, rolling each piece in some fine powdered gum, to make them adhere and form a firm plug: this should not be removed at least for ten days, notwithstanding its inconvenience, and however much the patient may be desirous to get rid of it: it may be washed away before that period by the discharge, when all you have to do is to introduce new lint in the same manner as before, though now softened with a little oil, instead of the vinegar or the gum. It may in some cases be necessary to apply a kind of support, viz. a little bit of pasteboard, shaped to the form of the nostril, to be confined in its situation with small strips of adhesive on each side of the nasal bones and alæ. The treatment of a compound fracture of these bones is the same, only you must cover the external wounds with lint soaked in their own blood. Even compound fractures may be cured, so as to leave very little mark.

Many years since two midshipmen quarrelled when they were patients in this hospital, when one struck the other a violent blow on the bridge of the nose, completely smashing it: being immediately

called, I found three or four pieces of bone sticking out in different directions; you could hardly fancy a more disfigured appearance, the face being all covered with blood: the broken pieces were replaced, and the nose dressed in the manner we have before described, and at the end of a fortnight, except being a little tender, it was very nearly as well as before the blow; at the end of six weeks, were it not for the scars on the integuments which were made by the protrusion of the fracture, you would not have discovered that it had been injured, from the goodness of its position.

It may now and then occur that you cannot return all the bone into its situation; then you should take off with a pair of nippers the protruding portion, taking care to do it a little below the integuments, so as not to leave any sharp part to prevent their healing. But may not a fracture of the nose sometimes prove fatal? Certainly. You know that the ossa nasi rest on the nasal process of the ethmoid bone: now when a blow is given directly on the front of the nose, it depresses the nasal bones on the nasal process of the ethmoid, and instead of breaking, it may be driven up into the brain, through the cribriform plate, and thereby produce such inflammation as to destroy. I have never met with an instance, but am always very careful to ascertain if the nasal process be in its right situation: if you were to find it driven up, you must try to pull it down with a pair of forceps; and if that does not

succeed, other means must be adopted, for it must not remain there; and afterwards provide against the approach of inflammation of the brain. If you were not to discover what had taken place, and were to assure the friends that it was merely a common fracture of the nose, which would do well in a few weeks, you would get very great discredit: although perhaps the death of the patient would have equally taken place had you even known it at first, yet it is your duty to be very cautious to ascertain the situation of the ethmoidal process in injuries of the nose.

Fractures of the Lower Jaw may be either simple or compound.

Very often a blow on the side of the jaw, fractures it at the symphisis, and sometimes one on the symphisis fractures it at the side. In a fracture of the lower jaw some of the teeth are always loosened, and you will often be able to pick them away, but never do it unless they are broken; replace them, and some, if not all, will very likely become firm: if you save only a few in this manner it is a great object, for if they can be transplanted and take root, how much more likely are those which are only loosened to become refixed: if a tooth, however, be in the line of the fracture, and loose, that one I should remove, because its presence might aggravate the inflammation, or interfere with the reparative process. You are often recommended

to fix the jaw by the sound teeth, connecting them with wire, silk, or gut, or something of that sort; but this plan we do not adopt: it is better to place a piece of cork between them. When you look at the jaw, you will instantly discover which part is likely to ride, and on that you will place a piece of cork thicker than on the other side, which will keep it down in its situation: this piece of cork, by separating a little the teeth of the two jaws, enables the patient to take food to a greater extent than he otherwise could: support the jaw in its situation, by a bandage round the head and under the chin, with a slit to receive the point; and this is all that will usually be required. A compound fracture is to be treated in the same manner, only the wounded parts are to be brought together with slips of adhesive, and little slits should be cut in them to allow of the saliva flowing through; for it is in vain to think of healing by the first intention. You should be careful not to draw down the corner of the under-lip, lest it should unite in that situation, when the saliva would leak out, and be most annoying. Lips united in this manner have been obliged to be separated, and brought up by an operation, and even then without much success. I have never seen any hæmorrhage of moment from a fracture of the lower jaw, for such, no doubt, might occur, when it has been known that people have been destroyed by bleeding from the drawing of a tooth, which happened some years ago in this

county. Sometimes the jaw becomes immoveable, or very nearly so, when it has been kept a long time bound up, which is a very miserable thing. You very well know that there are four strong muscles, properly called the muscles of the lower-jaw, whose chief office is to bring the lower against the upper one, and to give it a little lateral and forward motion: now if these muscles are kept a long time in one position, and by participating in the inflammation caused by the injury, they become quite rigid and contracted, so that they sometimes can never afterwards be moved. You have seen the gentleman who resides in this hospital, who has not the power of opening the mouth, the jaw being so fixed that the tongue can never be protruded: no blame whatever is imputable to the surgeon in this instance, it having been a most extensive fracture whilst he was a child. To prevent such an untoward circumstance, it would be better every now and then, when the bandage is taken off, to allow the lower-jaw to drop gradually once or twice into the surgeon's hand, taking care not to displace the fractured bone; but even should it do it a little, it is much better to run this risk, and have the cure protracted, than without it to have the jaw immoveably fixed.

A short time since we had a bad compound fracture of the lower-jaw, and you saw that the means we employed were very simple and successful, merely a broad adhesive plaister, with a slit

to receive the point of the chin, and carried up by the side of the face, to meet on the crown of the head.

Many years ago we received a man from the Pomona, having had the lower-jaw struck by a grape-shot in action, which carried away the whole of it, excepting the four processes; all the lip and muscles underneath hung down on the neck, and the tongue fell out with the saliva leaking over it, forming a very ghastly sight. Very little had been done, conceiving on board that it was a lost case. The wound had occurred seven days. We brought up the muscles and the edges of the lips, and fixed them with adhesive plaister: the whole wound healed up in the most rapid manner. Five years since he called on me to show himself: he is certainly much disfigured from the drawing up of the parts; but he can retain his saliva, and enjoys the comforts of life: he commands a small vessel on the coast of Cornwall, not being able to go far from land, from the impossibility of eating biscuit or salted meat.

It has been said that the lower-jaw is sometimes fractured at the symphisis, and that the fracture in young persons is difficult of detection: this, however, is not very likely, for every fracture of the lower-jaw may very readily be seen; but if it were so, that which is so slight as hardly to be discovered will require very simple treatment indeed.

Fracture of the clavicle may be either simple or compound. You know that the shoulders are kept expanded by the clavicles as by a beam, whence their name. When the clavicle is broken the shoulder falls in, and the ends ride; if you take hold of the shoulder and bring it back, the fractured ends will return to their proper situation. They used formerly to try to force down the upper end with large compresses and tight bandages, thinking it was started, which was not correct, for nothing has risen, but one end of the bone has been forced underneath by the muscles drawing inwards the shoulders, assisted by the weight of the part: this practice is now pretty generally laid aside, but there are some who go on in the old way: all that you have to do, is to bring the arm and shoulder back into that position so as to allow of the ends of the bone falling into their proper place. This position will vary very much; you may have to keep the elbow quite close to, or at a great distance from the side, either very much or very little back, which is to be regulated by pads; sometimes it will require a pad in the axilla, sometimes one at the middle of the arm, other times one at the elbow, or one at each place, and more commonly none at all between the side of the body and the arm. You secure the arm from just above the bend of the elbow by a bandage, which is then to be passed round the body. We have been obliged to place a pretty thick pillow between the elbow and the side; this, you will say, must be

very inconvenient, and so it is, but if you wish the ends of the bone to unite accurately you must submit to it, for if they are allowed to overlap, although the clavicles might be quite as strong, yet there would be a deformity; but if the patient is unwilling to submit to the necessary restraint, you should tell him what is likely to happen, and it will be his own fault; but if, from the unwillingness to inconvenience a lady, who will hereafter be obliged to have the neck uncovered by the fashionable style of dress, you should allow the clavicle to unite with the ends riding, without forewarning her of it, you will act imprudently. Compound fractures of the clavicle are to be treated in the same way as simple ones. If there be any loose pieces of bone do not take them away if they be held by any thing however minute, for they will most likely re-unite. It is said that in compound fractures of the clavicle, the large nerves and vessels are sometimes injured. I have never met with such a case; perhaps it has been said so more from the probability of such an event than from actual observation; of all the diseased arteries of this part that have fallen under my observation, there was not one where this accident could be traced to have been the cause. Here is a clavicle, which is as likely as any one to wound the vessels, havinga sharp point underneath quite adapted for it, but they were uninjured; this specimen was found by chance in a man under demonstration, who had died of a

complaint totally different, some years after the accident; but a portion of the clavicle may penetrate the upper part of the pleura and lung, which is a most dangerous accident, knowing that that portion of the lung, particularly on the left side, becomes very extensively diseased in a variety of instances. We once had a man three days after the injury to the chest, which had not been discovered on board, though the fracture of the collar bone was known,--inflammation ensued, active means were used, but the patient died: dissection proved that the fractured part was so depressed that it had wounded the pleura and torn the lung. If compresses on the parts are mischievous in simple fractures, they are much more so in compound ones of the clavicle, and nothing can be more calculated to injure the subjacent nerves and vessels. In a compound fracture approximate the edges of the integuments, apply the gum and lint, leech freely if necessary, and, should suppuration come on, foment and poultice, and, if exfoliation is to take place, you must wait quietly the event. Sometimes in a fractured clavicle the parts will most readily and accurately unite in young subjects, without any thing being done. A child, three years old, fell over the back of a sofa, and on being taken up cried very much, but there was no suspicion of injury to the clavicle till three days after it happened, it being only considered a strain; no bandages were applied, as he kept the arm steady, and it is now,

being many years since the accident, impossible to discover which collar bone was broken; the boy for a length of time ran always on one side, from being accustomed to do it to favour the arm in the first stages of the fracture.

We will now speak of Fracture of the Ribs, which may be either Simple or Compound.

There is sometimes a difficulty in ascertaining when a single rib is broken, for a blow on the side may make it feel just as if it were so, when it is nothing but muscular pain, and one practitioner will say it is, and another that it is not broken. When one or more ribs are fractured, you should pass a flannel roller round the chest, moderately tight, so as to support the part, keeping the ends of the bones together, and prevent the ribs being moved in breathing, so that it may be carried on by the diaphragm; this practice will very commonly afford great ease, but if the bandage increases the pain, as it sometimes does, take it off; as you should be guided by the feelings of the patient. What you have chiefly to dread in fracture of the ribs is pleuritic or pneumonic inflammation; but it is very wrong indiscriminately to bleed the instant after the accident has occurred; you should always wait till re-action has taken place: if you bleed instantly you may defer the inflammatory action, but you do not always prevent it, and when re-action

does take place, it will be generally so much the more violent. But there is another danger from bleeding in the state of depression, for if a little more injury would have overpowered the system, is not the hasty abstraction of blood likely to accomplish it? An elderly gentleman of this Hospital, of a debilitated constitution, whilst taking off his boots fell against the corner of a table and broke only one rib; it produced such a collapse that it was three days before any reaction took place, and had he been bled before that time, he would in all probability have sunk; the pulse then got up, pain of the chest was beginning, cough came on, and he was bled with great advantage; the following day it was repeated, and he got well. The moment that symptoms of approaching inflammation are discovered, bleed, for if they be allowed to make progress the danger will be very great; active measures in the commencement of inflammation may put a stop to them. Some people talk of taking away sixty or seventy ounces, or more, of blood at once; we know it is done, but the abstraction of such large quantities at one bleeding, is often a dangerous proceeding; it gives such a shock to the system that Nature appears to be puzzled, producing symptoms which you may be inclined to attribute to the disease, when, indeed, they have arisen from the severity of the practice, so that the good effect is not so visible as if that quantity was divided into two or three bleedings a few hours

apart. The patient should not be allowed to drink so copiously of diluents in inflammation of the lungs as in other inflammations; let his thirst be quenched with acids or fruit: you will ask—why make this distinction, for will not diluting drinks have the same good effect on the blood, and be passed off by the kidneys, as in other inflammations? certainly, but then this quantity of fluid must circulate through the vessels of the lungs, perhaps many times, before it is all passed by the kidneys, so that what you have gained by dilution would be more than overbalanced by the fulness of the vessels of the lungs from this great supply of fluid; and certainly the object in inflammation of the lungs is not only to draw off blood, but also to prevent their vessels being filled or distended with any fluid, however weak. It will sometimes happen that after you have bandaged up your patient and left him pretty comfortable, you will be in a short time called, and find his pulse feeble, his breathing extremely laborious and crackling, and the extremities cold, and he will request to be turned from side to side, but will ultimately desire to be left resting on the injured one; you are then to suspect that air or blood is thrown out into the cavity of the chest, compressing the lung, and unless relief be speedily afforded, the patient will sink; you must not hesitate; every moment is precious; cut boldly into the chest, and let the mischief out; we have had three cases of this kind, two of which recovered. When the lung

is wounded in simple fracture, air will sometimes escape into the cellular tissue to a prodigious extent, rendering the whole body emphysematous. A man was brought in for fractured ribs from the Glory, then lying in Cawsand Bay, and when the sailors uncovered him, it being night and very dark, they were astonished, for when they quitted the ship, immediately after he had fallen, he was a thin person, but from the escape of the air into the cellular membrane, he was blown up to a frightful size,—the scrotum being as large as his head, the breathing so laborious, and the symptoms so urgent that, without waiting to put him into bed, with a scalpel I freely incised several parts, particularly the scrotum; the escape of air was so great that it blew out a large candle held before it, and by the next day there was only a little crackling feel in the neighbourhood of the fractured ribs; he recovered finally from the injury, though it was many months before he could be discharged from the Hospital. The air itself does not appear to have any bad effect; the mischief arises from its pressure obstructing the capillary vessels; the face and lips are bloated and of a purple colour, with the greatest difficulty of respiration, where the cellular tissue is inflated to any considerable extent.

In compound fracture of the ribs, air coming out by the wound is not a certain sign of a laceration of the lung, as it may have been drawn in through the wound in expiration, and again forced out when

the lung is filled in inspiration; but in a simple fracture, as there is no external communication, it pretty clearly denotes that the lung is torn. The intercostal artery, in compound fracture, is sometimes wounded, as indeed it is so occasionally in simple fracture; in the latter case the hæmorrhage flows into the chest, and the danger is only learnt by the difficulty of the breathing and the prostration of strength, such as we have before detailed, with the plan of treatment; but in a compound fracture the hæmorrhage flows outwardly, and there may be a difficulty in stopping it; you cannot apply styptics, for they would produce inflammation, at least such of them as are powerful. Some have recommended a piece of sponge being accurately fitted between the ribs, so that by its swelling it restrains the bleeding from its pressure, but it is useless in practice; it is washed away if the bleeding be to any extent, and if you apply a roller to prevent it, the hæmorrhage will flow inwardly. Others have proposed a ligature round the rib to include the artery, but this is not advisable unless all other means have failed. You know that each intercostal artery divides into two branches, the larger runs in a groove just within the inferior edge of the superior rib, the lesser one along the superior edge of the rib below: now I trace the rib some way back to a sound part, but not so far as the thick dorsal muscles; then I cut down and secure both branches, which instantly stops the hæmorrhage. This we find a far better

method than puzzling at the wound, where you may not be able to get at the lacerated vessels, or if you do, great injury may arise in searching for them.

A fracture of a single rib but very rarely destroys, but this is a preparation in which it did: two men in a Breakwater lighter, were holding a large rope turned round a cat-head, attempting to secure another vessel in a high surge, when one forewarned the other that he must let go his hold, and at the very moment the rope was drawn out of his hand, and flying rapidly round, knocked down the man who spoke, bruising him very much, and striking the other with its extremity on the side, made him spring a little forward, and he fell down, dying immediately. On examination we found that one rib only had been broken, both ends of which had been driven inwards, piercing, as you see, the very apex of the heart, penetrated both ventricles, and then had returned to their situation by their own elasticity; the pericardium was full of blood, but none had escaped into the chest. You see, by the preparation, the wound of the heart and the broken rib,—now what was the cause of such sudden death? We know that wounds of the heart are not always instantly fatal, unless from hæmorrhage; here the loss of blood was not sufficient to kill,—was it therefore the shock that the diaphragm had received paralysing its powers, or was the heart ittself paralysed, by its muscular

power being so far lost from the injury of its ventricles, as to prevent them from sending onwards the blood to the lungs and the general circulation?

It is not often that a surgeon is called to Injuries of the Sternum, as they are generally so extensive as instantly to destroy, or so trifling as not to require his assistance. Sometimes a man driving a cart pushes open a gate, and, standing with his back to the post to let it pass, the cart in going through squeezes him up against it, crushing in the sternum, killing him at once. Sometimes young persons, the cartilages of whose ribs are very elastic, particularly in a scrofulous habit, have the sternum depressed, but on compressing the sides it rises to its natural situation, so that your assistance is not called for; but there may be cases where the sternum is fractured and a portion depressed without life being destroyed: then it is your duty to elevate it. It matters not whether the fracture be simple or compound, for your incision will make it a compound one, which must be either in a longitudinal or crucial form, so that the sternum may be perforated with a trephine, and the depressed portion raised to its proper level either with a common elevator or a blunt hook, taking care that the trephine be applied in the centre of the sternum, otherwise, by getting on the cartilages of the ribs, you may wound the internal mammary artery,

nerve, and vein, as they are just underneath that part, and without the pleura. If the bone were allowed to remain depressed, it would extinguish life, but if elevated all you have to contend against will be the inflammation which must ensue, though by active measures it may be overcome. Perforating the sternum is not of itself attended with very great danger, as it is done to allow of the escape of matter from the anterior mediastinum, formed there occasionally from the effect of injury, at others the consequence of disease. I have seen a case with no less than seven perforations, which were made by an eminent surgeon in Paris, to allow of the escape of an extensive formation of matter in the anterior mediastinum, the effect of inflammation not actively treated in the first stages; this gentleman died after suffering for many months, run down by the excessive drain, but not until he was landed in America.

It has been contended that both lungs cannot be wounded and the person live; this is not precisely so: though a wound of both lungs is almost invariably fatal, yet we have had a case where we had the certainty of their having been wounded, yet the patient recovered: a musket ball traversed the chest, and both lungs were supposed to be wounded; the man recovered under my care in this Hospital; at the end of three years this very person was injured by a fall into the hold of his ship, was sent here and died, which gave us

the opportunity of examining and ascertaining that we were right in our former conjecture, for the course of the ball could be traced through both lungs, though certainly not the thickest parts, yet sufficiently so to verify the fact. It may here be remarked, that it is very often said that balls have passed through both cavities of the chest, when indeed they have never been in it at all. A ball striking the thorax will be thrown off by the ribs, pass round under the integuments, and come out on the opposite side; and a pretty large one I have known pass round the back too, without breaking the spinous processes of the vertebræ, and in a manner dissect up the integuments from them, when you would not have thought it possible for it to have done so. After the battle of Corunna vast numbers of wounded officers were landed at this port, and amongst the rest was one whom I was asked to see, as a surprising recovery from the effects of a ball having passed through both sides of the chest. It then was only thirteen days from the injury, and he was enabled to walk out. After examination I found that the ball had entered one side and come out on the other, but certainly had never penetrated the cavity of the chest at all. He was not much pleased at my undervaluing the danger of his wound and his great recovery, but this officer, who was a colonel, and his surgeon, were afterwards satisfied that this opinion was a sound one, and indeed the red line under the

integuments could be traced from one opening to the other, and was even then tender to the touch. There are often mistakes about the passing of balls, which ought to make us very cautious in our first decision; for instance, we had an officer here who had been shot in a duel, having a wound on each side of the chest, so situated that there did not appear a doubt of the ball having entered on one side and gone out at the other: the lower part of the body was paralyzed, which was accounted for by the injury done to the spinal canal; in a short time he died, and by examination we were astonished to find that they were two distinct wounds, made by two different balls; one had entered on the left side, just under the sternal edge of the pectoral muscle, passed along, and was lodged under the deltoid; the other had entered on the right side, traversed the chest, struck and fractured the spine, and was found under the scapula. The duel happened in a drunken quarrel: there was but one second, who was so drunk that he laid down between the principals, and told them to fire over him. At the coroner's inquest it came out that at the third fire my patient was not able to raise his left arm, and had cocked his pistol for the fourth fire between his knees; at the fifth he fell, and was sent to me. Now there can be no doubt but that at the third shot he received the ball which lodged under the deltoid, and the fatal hit at the

fifth; but he never told me that he had been struck twice, being so intoxicated that he did not remember any thing of the transaction.

We will now enter on Injuries of the Superior Extremity.

There may be fractures of different parts of the scapula; it may be broken across; one or other of its angles may be broken off; its spine may be broken down. In such accidents the surgeon cannot do much; bandages to support and keep the parts quiet, leeches, rest, and cold applications, according to circumstances: when the spine of the scapula is fractured, you will find the action of the muscles connected with it interrupted. The acromion process or the cervix may be fractured: you know that the acromion is the extremity of the spine, and the deltoid arises from it, the clavicle and the spine of the scapula, so that when the acromion is broken off, those portions of the muscle on each side keep it very nearly in its situation; all you are required to do is to apply a bandage, cold applications, rest, and sometimes leeches. A fracture of the cervix of the scapula has been confounded with a dislocation of the humerus, which ought never to happen; though certainly there are two or three points in which they are similar, yet in others they differ so widely that with some degree of care they ought not to

be mistaken. When the cervix is broken the whole of the joint drops into the axilla, so that you have the projection of the acromion, and the sinking in of the deltoid much the same as in a dislocation downwards; but if you take hold of the arm, you can raise it,—you can press it in close to the side,—you can move it in all directions, giving a great deal of pain no doubt, yet it can be done; now in a dislocation you cannot raise it, because you press the head of the humerus against the ribs; you cannot bring it in close to the side, because you drive the head up against and under the glenoid cavity; and when the cervix of the scapula is broken you can place the bone in its proper situation, which in dislocation you certainly cannot do: now in injuries of those parts, be very careful, in the first place, to discover what they really are, otherwise you may afterwards find that you might have remedied them, when it may be no longer in your power. In accordance with the principles that have been so often laid down, and which do not require to be entered on again here, your first care in a fracture of the cervix, as indeed in all fractures, must be to reduce the inflammation; for which you should apply leeches and cold lotions, keeping the parts in that position which is easiest to the patient: when all inflammation has subsided, you raise the shoulder to its proper situation, which is known when it is level with the other; but the patient himself will generally be

able to tell you pretty nearly when it is so, by becoming very easy: having raised the shoulder to its proper height, you place a pretty considerable pad in the axilla, with the view of supporting it, and fix the arm with a bandage, resting it in a sling, which must be a short one, though not too much so: it having been directed by authors that the sling should be short, has occasionally led into extremes, and they have been made so as to keep the shoulder higher than it ought. It is a long time, many months, nay more, before a fractured cervix of the scapula becomes as firm, and allows of the arm being as useful, if ever, as before the accident.

A fracture of the cervix of the humerus is also sometimes mistaken for a dislocation; the bone drops, and causes some flattening of the deltoid, but this is not near so much as in a dislocation, because the head of the humerus remaining in the glenoid cavity, keeps it out: if you place your hand on the head of the bone, and move the arm by the elbow, and find that the motion of the head does not correspond, you know that there must be a fracture somewhere between them; besides, a crepitus will often assist you in detecting the situation of the fracture. When you put on your splints, which must not be done till the inflammation and tension have subsided by the usual means of rest, low diet, cold applications, leeches, and purgatives, which will require some days, at least six or eight, the

outer one must be so long as to reach much above the shoulder-joint, and you are to fix the part which rises above it with your bandage, passing it round the body under the opposite arm; this bandage may either go over the head of the splint, or, if you prefer it, through a hole in it, so that the arm may be kept steady, and the ends of the bone perfectly confined; and if, in a fracture of the femur, it was thought of so much consequence to have the outer splint so long as to be able to have it well secured by its upper end, with a roller from around the loins, so here, unless the outer splint be of such a length as to allow of its upper end being secured with a roller from around the opposite axilla, you never can have a straight arm: the inner splint is to be short, so that it may not press on the axillary nerves and vessels, and so well padded off as not to impede those that go down the arm. Sometimes a ball passes through the cervix of the humerus, shattering it very much, and yet the arm is not invariably lost. This happened to a gallant knight, the captain of one of our frigates, who received such a wound in action; his surgeon thought there might be a chance of preserving the limb; and on the vessel coming into the port he was landed at this hospital three days after it happened, when of course all we had to do was to go on with the attempt, and it proved fortunately successful, though there were days in the early stages in which we were very doubtful, from

the extent of the inflammation throughout the whole arm, the surface of the chest and neck, succeeded by great sloughing and immense suppuration, with such a loss of bone carried away by the shot, that it appeared as if we could with very little difficulty tear away the arm from the scapula. It was some years before the wound entirely closed, from having constant exfoliations, though in a few weeks after his admission he was enabled to walk about with the assistance of splints, and a sling to support the weight of the arm. At this time it is in very excellent condition, a little weak, though nearly as useful for all purposes, except lifting it over his head. There is one great advantage which fractures of the upper have over those of the lower extremity, — that by the assistance of splints the patients are enabled much earlier to walk about, and this often enables you to preserve the limb; for by moving about in the open air and amusing the mind, the health is so far improved that an operation is avoided; when if obliged for many weeks to remain in bed for a shattered lower extremity, the health might be so far broken down as to require amputation. Sometimes a ball will injure the humerus without actually breaking the shaft across. You see this specimen, where a ball entered the bone above the middle, ran up the humerus within its cavity, forcing out though not fracturing its sides, and came through at the cervix, and you perceive that it is very much shattered: so

much disease ensued that the arm was taken off at the shoulder-joint in the opposite Military Hospital, at which operation I assisted: from there having been repeated abscesses about the parts, there was hardly any thing to make a flap; but the man eventually did well.

In fractures of the middle part of the humerus, after the inflammation has subsided by the means of rest, leeches, and cold applications, as described in the treatment of other simple fractures, we put on splints, which can generally be done from the seventh to the twelfth day; the patient is gradually raised in bed, and put in the sitting posture, allowing the arm gently to drop down by its own weight, supporting a little the point of the elbow, and when you observe that the humerus is perfectly straight, apply a roller from the elbow upwards to the axilla, as far as it will go into its hollow: on the outside of this bandage apply three splints of common slit deal, well padded and lined with tow; secure these by three circular tapes, over which pass a roller, taking care that it be placed round in a different direction from the one under the splints, for should you pass both of them with the same turns you run a risk of twisting the muscles a little out of their direct situation, and sometimes even the bone too; but if you roll one, one way, and the other in the reverse direction, you avoid this mischief. If a delicate young person falls into severe illness soon after the humerus has

been united in a fracture, it may separate again, as this specimen is an example. This lad was my patient in the hospital for a fractured humerus; in the usual time he was discharged cured, to his ship; soon afterwards the vessel went on an experimental cruize, and encountered severe weather; the boy was attacked with fever, fell into a state of the greatest debility, had large sphacelations on the sacrum and hips, and was returned to my care in this state, with abscess of the parotid gland, and soon afterwards died. In the last days of life the arm became so weak that he could not lift it, and finally the callus separated, after having been united several weeks, during many of which this youngster had performed his duty on board.

In compound fractures of the lower head of the humerus, communicating with the elbow-joint, we allow ourselves greater latitude in endeavouring to save a limb than we do in fractures communicating with any other of the large joints. You know, if you attempt to preserve a limb where there is a communication with the joint, as, for instance, those of the knee or ankle, the patient may be destroyed by inflammation or locked-jaw, so that a favourable opportunity may not again occur to take off the limb, even if it were desirable; but we have remarked that in the compound fractures of the humerus, communicating with the elbow-joint, which have fallen under our care, no patient has been lost during the inflammatory stage, or from tetanus;

and if we could not ultimately succeed in saving the limb, we have always been able to bring it to such a state that we could amputate with as great safety as in the first moments after the accident. Now this experience has enabled us to go to greater lengths with this than with any other joint of the first order. Here is a humerus where the fracture extended into the joint; it was a compound one, which at first appeared to be doing well: at the end of some weeks a portion of bone protruded, and the arm was at length amputated. This poor fellow had just fallen, when we received him, from a great height, fracturing his skull, his nose, and one thigh, and the humerus was knocked to pieces, as this specimen shews you: had we immediately cut off the arm under such complicated injuries, he would soon have sunk; by putting it off, and allowing nature to rally, his life was preserved.

A fracture of the olecranon resembles in many points that of the patella, and there have been the same differences of opinion whether it should be united by ligamentous or osseous union; but osseous union is no more in the surgeon's power, as a matter of choice, in many cases of fractures of the olecranon, than it is in fractures of the knee-pan, and if it could be obtained, it would be preferable for the same reasons.

A fractured portion of the olecranon is often drawn up the back of the arm, just as the patella is up the thigh: sometimes it is only a little separated

from the ulna; but when it is drawn up three or four inches, you will never be able to bring it down so as to come in contact, whereby osseous union might be obtained; but in the lesser separation you may succeed. If the broken surfaces could be brought close into contact, the arm should be placed straight, and the olecranon kept in its situation by a bandage, and, to prevent its being bent, apply a short splint on the fore-part at the inside of the arm, so as to keep the limb straight; for if you do not recollect that the olecranon no longer stays it, you may extend it more than is natural, so that the broken edges will not be accurately in apposition, but the fracture will either be depressed or elevated, and not in a straight line with the ulna; so that if union takes place by ligament, the limb will be generally weaker. Some apply a long splint on the back of the arm, which we think unnecessary—for where do you apply it?—why, on the fractured parts, and where inflammation has only just subsided: a short splint on the front answers every purpose, and is besides much more convenient.

If you cannot bring the parts into close contact so as to obtain ossific union, you should not keep the arm quite straight, which is a very tedious position, but a little bent; nor should you apply any splint, though perhaps it might, but I do not know that it would, make the difference of a line in distance; if it did, it would not much signify; notwithstanding, your object should be to make the

ligamentous union as short as possible; for in proportion to that, so is the strength of the limb, similar to what we find in fractures of the patella: the joint should be put in motion as soon as it can, for perhaps every week it is kept fixed after a certain time, will make the difference of a month in its being restored to flexibility.

In all fractures communicating with the elbow-joint, when you find that it must be permanently stiffened or anchylosed, your position should be such during the cure as to favour the anchylosis taking place in the half-bent posture of the elbow, which will render the arm much more useful than if you allowed it to take place in the extended position.

In a fracture of the fore-arm you may have both bones broken; or the radius, or the ulna singly: as a general rule, I would rather have to treat a fracture of both bones than of one only, because it often happens that where only one is fractured the ends are driven in among the muscles, and you have no means of making extension so as to straighten them; you may therefore be under the necessity of letting the bone unite in that situation, and the motion of the arm is in some degree interfered with, as is the case with the boy now under treatment. Immediately the fracture takes place, the arm is to be laid on a sheet, with the short calico slips, and treated with cold applications and confinement to bed, similar to our management of all other

fractures of the extremities; and when the inflammation and tension are gone off, and the period for splints is arrived, which will be in about six or eight days, short calico rollers should be applied, or if you pass a long one, take care not to press too much, lest you should force in the extremities of the fractured bones: the splints should be laid along the flat of the arm, one on each side, and not on the edges of the radius and ulna, as is sometimes done, by which the bones have been squeezed in and have united together at one or two places by ossific union; so that the radius being joined to the ulna, the rotation of the fore-arm could never afterwards be performed: the splint on the inner flat of the arm should be of such a length as to extend along the palm of the hand, so as to keep it with the thumb uppermost; the same along the back, which should not be of so great a length: if the hand be not supported, it will drop from the wrist by its own weight; it will become prone with the bones twisted, and the patient lamed. Do you not occasionally meet persons with broken fore-arms, walking about with short splints, only reaching to the carpus, the limb resting in a sling, and the hand dangling down prone; and when the bones are united, it is unfortunately but too often found that the patient is incapable of turning the hand up without the whole arm going along with it?

I once had a youngster, the son of an admiral,

about eight years of age, who had about eighteen days before fallen from an apple-tree, and broken the radius and ulna: short pasteboard splits had been applied; the hand was dropping out over the edge of a pocket handkerchief, which was used as a sling, and when I attempted to bring the hand supine I could not; but as the ossific union was not quite accomplished, though it resisted very much, we pretty well succeeded by strong deal splints, and tolerably tight bandages, in correcting the error, though the arm ever afterwards had a slight twist.

OF INJURIES OF THE SPINE.

We have met with a great many cases of injured spine, for it is an accident very frequently occurring to seamen, from their falling from great heights from aloft or into the holds of ships, or from slipping in boats, and often from one deck to another. The vertebræ may be fractured in various ways, as in either of their processes, the spinous, oblique, or transverse, or in their bodies, and this may be with or without a displacement or depression of the bone: the spinal marrow may be compressed, wounded, crushed, or completely torn through; it may also be concussed, and its fibres torn from a violent shock, in the same manner as the brain, without any fracture of the vertebræ.

It is well known that the vertebræ may be fractured without any displacement; but it has admitted of argument whether there can be a dislocation without some fracture or fissure, it being contended that the processes are so locked in one with another, and connected together by such strong ligaments, that it is impossible for such to occur; but we have had two cases in this hospital extremely well marked, so that there could not have been the slightest doubt of their dislocation, and maceration afterwards of the vertebræ proved that there was not even a fissure of them; but this very rarely occurs. May there not have been cases of partial, we would hardly go so far as to say of complete dislocation without fracture, where the patients have recovered, so that the exact state of the injury was not ascertained?

In injuries of the spine, it is necessary for us to bear in mind the origin and distribution of the spinal nerves, for so shall we be able, from the symptoms, to tell pretty accurately the seat of injury, and from the seat of injury we shall know the symptoms that will present themselves.

As the nerves which supply the diaphragm are from the third and a portion of the fourth cervical, when the spinal marrow is injured at that part, so that the nervous power, fluid, or influence, or whatever it may be called, is no longer communicated by them to the diaphragm, it ceases to act, and the person instantly expires: it is an

accident where the promptest assistance can be of no avail. The spinal marrow is sometimes compressed above the origin of these nerves, from a fracture of the dentatal process, and sometimes from a rupture of the ligament, which in a sound state keeps it in its place, and hinders it from pressing on the medulla.

A fracture of the dentatal process is a rare accident; but when it happens, it is usually not from a blow at the back part of the neck, but from one in front, striking the head back. The ligament has been known to be destroyed from the venereal disease making ravages in the throat; the head without any fore-warning dropped forward, the spinal marrow was compressed, and the person died. Luckily this is a very rare occurrence, notwithstanding deep ulceration on the anterior and upper part of the pharynx. You know that the common opinion is, that a man who is hung dies from his neck being broken, or put out of joint, and some suppose that the dentatal process is broken off, or the vertebræ dislocated, from the ligaments being ruptured, or that death is occasioned by a species of apoplexy, so that the vessels of the head are ruptured; but nothing of this is ever the case, as far as I have seen; for I have had an opportunity of examining a number of men who have been hung at various times in this port, and sent to us for burial, as well as others; but I have never detected one who had any ligament or

process broken, or indeed any part of the spine fractured; nor indeed did I ever meet with a vessel ruptured in the brain from hanging, though this we should think very likely to take place. The vessels were found injected and congested to the greatest degree, similar to what is seen in violent attacks of the head; and those of the neck were distended both above and below the pressure of the rope; but were it not for the mark around the neck, I do not know whether you could tell that a man had died from hanging.

When the injury is between the fourth cervical and first dorsal vertebræ, the upper extremities will more or less suffer, in proportion as the injury approaches the lower of these vertebræ, every part below the diaphragm being paralyzed with a diminution, though not a total want of sensibility in some of the abdominal viscera, which get some nervous power by means of nerves derivable from the brain, unassisted by the spinal marrow. Here is a specimen, where two vertebræ are broken within the above space of the fourth cervical and first dorsal. You observe that they are more fractured on one side than the other, and the symptoms accurately corresponded: the arm on the least injured side of the vertebræ could move a little without assistance, but the other was quite paralyzed: the man lived forty hours, suffering acutely in the superior extremity, which retained some sensibility. When the blow is in the back, below

the first dorsal vertebra, the upper extremities will be safe; but the lower extremities, and that part of the body below the injury, will be paralyzed, and the viscera wholly or partially so, according as they are wholly or in part dependent on the nerves arising from the spinal marrow, below the seat of mischief. Here is a specimen of fractured dorsal vertebræ. The man was walking on a plank, and fell into the dock where his ship was repairing: he lived eight days. The spinal marrow was totally destroyed by the fracture; the chest was full of blood from the intercostal artery and lung being wounded by the fractured rib, which you may remark is driven inwards. Here is another specimen very much like the last, and occurred shortly after it, and in the same manner, from falling off a plank into the dock: you may observe that the rib is driven in, but it did not wound the artery or lung. You see that in both cases the spinal marrow was entirely torn asunder, and it is remarkable that both men lived eight days.

These vertebræ belonged to a patient who lived in this Hospital four-and-twenty years and three months after the accident, during the whole of which time he was never once out of bed, always lying with a bed-pan under him, and with the penis in a urinal; the fæces and urine continually leaking away, without his knowing any thing of it. You may suppose that it required the utmost degree of attention and cleanliness on the part of the nurses to prevent

excoriations: the nates never suffered from them after the first two or three years. The penis would occasionally inflame and swell very much, from the stealing away of the water: afterwards the glans became so hardened that it was insensible to the action of the urine. He lived after the first two years in tolerable comfort, suffered but little, became reconciled to his fate, learnt to read the Bible, and died at the end of twenty-four years and three months, and of a complaint which had not been suspected. The bladder was extensively thickened and diseased; the kidneys were full of calculi of a very large size, and one had dropped into the left ureter, and lodging there, had caused an ulceration very nearly through the intestine to which it adhered, and had life been prolonged only a very few days, the urine would have passed that way. There were no symptoms during his confinement to give any intimation of what was going on. He could not complain of pain, being devoid of feeling in those parts; and had he mentioned any in the region of the kidneys, it would have been ascribed to the fractured vertebræ, as the urine was generally clear; and though sometimes a little discoloured and thick, it was not sufficiently so either to excite his notice or that of the nurse; and until a very few days of his death, when he had vomiting, hiccup, loss of appetite, rapid emaciation, and great prostration of strength, were we aware that he was so ill. He could for

many of the last years of his confinement raise himself a little on his elbows, and we used to say to him that he had a new joint in his back. You observe by the specimen that one vertebra was crushed, and is nearly absorbed; that the separation between the spinous processes is very extensive; the spinal marrow was completely torn through and quite destroyed at one spot, with its theca. It has been said that when the spinal marrow is torn as this was, that death would very soon take place: however this patient, whose name was Jones, and whose accident was by falling into the hold of the Caroline frigate, lived upwards of twenty-four years unconscious of any feeling whatever in the extremities, or parts below the injury. The feet in course of time dropped from their own weight, so that their necks were stretched to the utmost, and a yellow kind of scaly integument formed on the soles, though the necks of the feet were smooth and shining. This is another specimen, where the upper part of the person was jerked forwards, crushing the body of the tenth dorsal vertebra, forcing its bony rim over the one below, where it is united by ossific matter. In this case neither the spinal marrow nor theca were wounded, but compressed by the encroachment of the fractured parts. At one time we thought the patient better, for sensation in some degree had returned, as far as one knee; but he lost it after a short time, became emaciated to the greatest extent, and died

ten months after the injury. In this case, from the compression not being at first complete, he suffered dreadfully from muscular spasms of the inferior parts, so that the legs and thighs would for hours together be in constant and painful action, raising them in a sudden and jerking manner from the bed, attended with intense heat.

When the injury is in the loins, or upper part of the sacrum, the abdominal viscera will be free, their nerves being derived from the par vagum, the splanchnic rope, and the great sympathetic, which come off from above the seat of accident; yet the inferior extremities and pelvic viscera will be paralyzed.

When the inferior part of the sacrum is hurt, only the pelvic viscera will be affected, the inferior extremities still having their power and sensibility.

What are the symptoms, then, which we are to expect in a fracture of the dorsal vertebræ, as that is the most frequent seat of injury? Besides pain and paralysis, we shall find the stomach and bowels enormously distended with flatus; there will be convulsive jerkings and hiccup, the urine will be retained, and the bowels will be obstinately costive, or rather perfectly inert and torpid; vomiting will come on; there will be restlessness, dry tongue, and most commonly a full pulse, though at times we may find a patient with a pulse small and wiry; the thirst will be extreme. The hiccup may be gene-

rally restrained by a warm plaister at the pit of the stomach : the bowels after one evacuation, nay, from the very first, will be unaffected for two or three days by the most drastic purges, though afterwards they usually yield ; and then the fæces will be continually presenting themselves just without the anus, as if squeezed out by the weight of more above, and of a deep black colour. The bladder will permit the water occasionally and unconsciously to leak away.

In a fracture of any part of the spine you can render very little assistance, although very much is expected from you, excepting relieving the symptoms as they may occur, the chief thing being rest and quietness. And here again let us, in this instance, warn you against the practice of immediate bleeding, which is not however so general in the state of collapse as it used to be ; instead of which we ought to give stimulants, to restore the vital energy to action, and these ought never to be omitted in this stage ; and when reaction takes place, and the person begins to become a little hot and restless, indicating the approach of inflammation, then bleed, and often freely too, for it will be required.

Particular regard must be paid to the state of the bladder : it is paralyzed, and cannot complain, whence it is not always thought of. We have had a patient sent to us three days after the accident had occurred ; and all that time the urine had been allowed to accumulate, distending the bladder

to the greatest degree, and doing it much mischief; for notwithstanding it could not express itself, from being insensible to pain, yet it is quite as liable to injury and disease; for although it be not itself aware of what is going on, yet its over distention affects parts which may be; for when it is full the urine is prevented coming down from the kidneys, the ureters are loaded, and they both become distended and overpowered. Now these glands have their nerves, it is known, from a higher source than the seat of injury in the vertebræ, consequently when filled with urine very great pain is created, which is attributed more to the fall than to its true cause. Often when the bladder has been relieved by taking off the water, particularly where it had been previously neglected, much, very much of what was thought to be pain from the hurt has been removed. It should be drawn off at least twice a day: it is a trouble which in most cases will not be of long duration, as the bladder loses its retentive power, when the urine continually passes involuntarily; which you should acquaint the friends is likely to occur, otherwise they will be inclined to attribute it to some mischief you have done with the catheter. You may sometimes find it necessary to employ clysters, to clear the rectum of fæces lodged in that gut; but enemas are very inconvenient in such cases, as the patient's position must be altered to administer them; and the turning of the body, particularly in the early stages, is

productive of very great suffering; nay, such displacement of the fractured parts has occurred as instantly to kill the person; which puts me in mind to caution you that when you examine the spine not to have the patient turned over on his face, or lifted up by the arms. How often do we hear a surgeon say, on first visiting a patient who has just met with an injury of the back, "Come, lift him up; let me see what's the matter;" and the person is dragged up by the shoulders, and consequently all the weight of the body is allowed to rest on the injured part. Instead of this, let him be gently turned on one side; and if it be necessary, you may change him to the other; thus you will be enabled to make your examination equally as well as in any other position, and without any risk or fatigue.

Setons have been much recommended in injuries of the spine. Of course they cannot be of much service in the early stages; perhaps after a time, and when the parts are in a quiet state, they may possibly in some instances be of some benefit; but I should not insert them as a matter of course, unless they promised in any particular case to do much good, as they create great pain and distress to the patient, who is obliged to lie on them, and to be continually turned to have them dressed. By many much good has been attributed to them; but I confess that in those cases which have fallen under my observation, where benefit has apparently

arisen under their employment, the greater part ought to be given to the prolonged rest, by which nature has rallied from the concussion.

You have heard a great deal lately of the advantages of operating on the spine in cases of fractures of the vertebræ, and some patients have been subjected to the saw; now supposing that this operation could ever be useful, it could only be so where a portion of the bone was depressed, and encroached on the spinal marrow without breaking down or injuring its structure: now how are we to know the exact condition of the parts? the spinal medulla is a slender and very delicate cord, inclosed in a hard bony case, whence that depression must be slight which does not irrecoverably destroy its function; and again, on what portion of the vertebra could you operate, its body being quite out of reach; the transverse processes you could not well come at: then is the operation only to be performed when the arch is driven in? and how are you to know when it is, or what may be the real condition of the fracture, or indeed often if there be any at all? Suppose, however, that you could operate with as much facility as on the skull, to which reference has been made by some of its favourers, you are to recollect that there is a vast difference between the bone covering the brain and that of the spinal marrow, for whilst the skull is merely to protect the brain, the spine not only protects the spinal marrow but supports the body; if you take

away a large portion of the skull, you only rob the brain of so much of its protection, which loss Nature makes up in some degree in successful cases by a thickening of the dura mater, but if you were to remove a portion of the spine, it is impossible to tell whether the parts will be ever so firm as to be able to sustain the body. But, throwing aside every other objection to this operation, its difficulty, its severity, its tediousness, and the agony it causes, and the injury it does to the surrounding parts, are more than sufficient reasons, I should think, to forbid its being employed. Whoever has been accustomed to remove any diseased vertebræ from the dead subject will not, I should believe, be very anxious to meddle with the fractured vertebræ of the living. We have had many severe cases of fractured spine where the patients recovered, and certainly some apparently very slight ones where the persons died, but there is not a single instance that I know, of any person having lived where the operation has been performed. We have had patients die here from fractures of the vertebræ, where, by the most careful examination, neither the medulla nor its theca appeared to have been at all directly injured, though paralysis was the consequence.

The Coccyx is sometimes broken. You must be very attentive to this fracture; if you are not, the

broken ends will turn in, and unite in that position, producing great misery. The finger should be passed up the rectum two or three times a-day, so that the coccyx may be placed in its proper situation. You cannot depend on any other method, and it is well worth the trouble, for if you do not succeed all the blame will be cast on you. The mischief that ensues will be often very great; the rectum and bladder will be much annoyed, and great pain felt in going to stool; and if the accident occurs to a female, who should afterwards become pregnant, much misery may be the consequence at the time of delivery. A lady lately consulted me where only the extremity of the coccyx had been broken off some years before; it was quite firm and turned inwards, and nothing could be done, unless the chance arising from fracturing it again, which she was unwilling to try, though she suffered at times very great inconvenience, particularly in the bladder; she could never sit on a hard chair, but rested on one side of the nates; could not ride in a carriage, nor go on horseback. And even this is not an extreme case. The spinal marrow may be concussed and torn from the shock, without any fracture, like the lesion of the brain in concussion, even where the bone is not injured. A concussion of the spinal marrow arises now and then from the very foolish and reprehensible trick of drawing away a chair to allow of the person falling. I have known a case where the patient died, and

I attended a young lady, some time since, where the spine was so shook that it was many months before she could leave her bed, though, eventually, she recovered. A sailor in a boat, under the stern of his ship, was stooping over the side, when the surge raised the boat and pressed his back, just above the sacrum, against the vessel's counter; the lower extremities were instantly paralyzed and continued so for some months, with the fæces leaking away, and the urine drawn off by the catheter; sensibility and power, very gradually indeed, returned, and in a twelvemonth he left the Hospital, walking with a stick, the lower extremities extremely weak and tottering: after a lapse of three years I heard of him that he was perfectly recovered. I think this was as true and severe a case of concussion as was ever met with, to be entirely cured. Would this one have been selected for an operation? for, at first, it was difficult to say whether the vertebræ were fractured or not, and even now it is not known whether they might not have been. If this man had been subjected to an operation, he would in all probability have died, as this would have been considered a favourable case for a trial of the new practice.

During the winter season the rooms of all patients with fractures of the extremities should be kept comfortably warm by day and night, more

especially after the inflammatory stage is passed; for should the frost be severe and the temperature low, there will not only be a considerable increase of pain, but you will almost invariably find the ossific process slower; and in fractures of the lower limbs at that period the feet should be well wrapped up in flannel, occasionally increasing the heat during the night by bottles of warm water to the soles of the feet.

Having omitted in its place to make some observations on the question—whether in compound fractures amputation should be performed during the progress of mortification, I think it will be better to add a few remarks. Should a limb be removed with the idea of stopping the progress of mortification, and thereby relieving the system, you would, in my opinion, commit in nine times out of ten a great error. Amputation during the time mortification is going on must, to have any chance of success, be performed whilst the pulse has a certain degree of regularity and force, the general strength of the body not too much exhausted, the hiccup not severe, the subsultus tendinum not well marked, the delirium not very violent; or if there should not be any, the state of watchfulness not intense, the tongue not too dry or deeply black, but having a brownish thick crust; the teeth not en-

tirely covered with sordes, the skin not too hot, the stomach having the power of occasionally retaining liquids, as well as some portion of medicine and nutriment; the bowels not too feeble, and the restlessness not to any excess: what surgeon, then, accustomed to the treatment of mortification, would under the above modified symptoms abandon the chance of carrying his patient through, and fly to an operation with the view of cutting off the cause of all the mischief? If amputation is not, therefore, performed whilst there is a chance of successfully treating your patient, till a line of separation is discovered, (when in the greater number of cases an improvement of all the symptoms takes place, by the demarcation between the living and the dead parts becoming daily wider,) you will either have the satisfaction of saving both the life and the limb; or, if you are driven to an operation, you are enabled to do it under circumstances of greater promise. If, therefore, you do not amputate under the above symptoms, but should wait till the pulse is extremely feeble and irregular, and until most, if not all the above enumerated symptoms have become so aggravated as to convince you that the mortification cannot be arrested, any amputation you would then perform would be worse than useless, as you would find that your patient would either die on the table, or gradually sink away in a few hours. I should, therefore, consider that the man who would subject his patient to an amputation under the former circum-

stances, would act prematurely, and be considered rash, from having not only cut off a limb, but diminished the chance of life, from having done it under symptoms where there was good ground to hope, that the progress of mortification might have been arrested; whilst he who would operate under the latter condition of things, cannot have reflected on the consequences that were likely to ensue, because he does it under such a state of exhaustion as to render recovery hopeless. In those amputations which take place whilst the mortification is extending, the stumps are invariably found affected in the same way, even should the operation have been performed at some distance from it. Are there no circumstances, therefore, that can arise to justify us in removing a limb whilst mortification is going on? I should say none, but violent hæmorrhage from the sloughing of an important artery which you have not the power of stopping. You must recollect, that frequently in extensive wounds of a limb you may have its lower part in a state of deep slough, whilst the upper is destroying by rapid mortification. Happily, hæmorrhage but seldom occurs in mortified parts, for you frequently see, particularly in that of the lower extremities of old persons, and in others who have been frost-bitten, as well as where it comes on after severe typhus fevers, that the feet will even slough away at the ankles with out the slightest bleeding, yet profuse ones from the principal artery will now and then occur,

which cannot be arrested by any styptics, the most powerful of which we have always found to be the spirit of turpentine: whilst you are applying them, let a tourniquet be employed, so that you may sponge well the parts and cram in lint in the direction of the bleeding vessel, thoroughly saturated with whatever styptic you may select, which is to be bound down sufficiently tight with a turn or two of a roller. It is of no use to search for the artery with the view of taking it up with the needle; it would only be a waste of time; for if it were possible to detect its mouth, or even the neighbourhood of it, your ligature would cut through the mortified parts as easily as if you were to attempt to tie in a portion of soft brain. It may also be asked, whether it would not be advisable to take up the artery high up, as you would do in aneurism; I certainly would not do it: I have seen it performed twice, but without success, not from the artery giving way, but from the mortification more rapidly increasing after the vessel was tied; no doubt, from the cutting off the nourishment of the blood by the main trunk, the powers of life were too feeble to force it on by the anastomosing vessels. I have secured with success the femoral artery close to the groin in violent hæmorrhage from ulcerated thigh stumps, and even twice performed it within a fortnight. Eleven stumps were landed here at once in a miserable state, having been sent home from the clearing out of one of our foreign hospitals; they were at the

time of embarkation open, but by no means in a bad condition. The transport which brought them was greatly crowded, had a long passage with tempestuous weather, so that the wounds degenerated, and were admitted into this hospital, sloughing considerably. Within a very few days the femoral artery of two of them gave way, and we had of course profuse hæmorrhage, with an extensively ulcerated surface and protruded bone. I immediately tied the artery close to Poupart's ligament, and we had no further bleeding. After a long confinement the ring end of the bone exfoliated, and the parts healed slowly up.

After a little consideration, we shall see, however, that there is a wide difference between this kind of bleeding and one from a great artery in mortification: in the former, the vessel is tied in a short stump, where the anastomosing branches are sufficient, and have power enough to carry on the blood for the nourishment of the stump; in the latter, the whole extremity is still attached to the body, some of its parts have lost their vitality, and the destruction of others is in rapid progress. How much, therefore, must all the mischief be increased, by cutting off the supply of blood through the most important vessel of the part! When, therefore, violent hæmorrhage cannot be stopped, I would instantly cut off the limb, as without it the patient must soon die, and you thus give him a chance.

A sailor, aged forty-five, was sent to me some

years ago from the Impregnable, with the leg extensively mortified, in consequence of a laceration of the integuments, which were then deeply sloughing below, whilst mortification was speeding rapidly upwards towards the knee: great hæmorrhage came on, which nothing could stop, and therefore I removed the limb above the joint. The man sunk extremely after the operation, so that I thought we should not have had any rally; by the next day the stump bandages were soaked through with an ill-conditioned black and most offensive discharge, which within forty-eight hours had increased so much that the fetor was so intolerable as to oblige me to remove all the other patients from the ward: when the dressings were taken off, the lips of the wound were gaping wide, and had the same mortified appearance as the diseased parts which we had cut off; the face of the stump was also black with a bloody discharge; however, by warm fomentations, the cold yeast poultice, camphor, bark, and wine, free ventilation, great cleanliness, and fresh fruits, with as much nourishment as the stomach would comfortably bear, assisted by small doses of laudanum, the stump in time, after extensive sloughing, began to clean, put on gradually a healthy appearance, the exposed bone exfoliated, and the parts very slowly, though ultimately, closed up. Nothing could surpass the danger through which this poor fellow struggled, much beyond what we should have in all probability experienced in ar-

resting the mortification, had not the bleeding driven us to cut off the thigh.

Another case not very long afterwards occurred, which however was so very similar in all it bearings to the one just related, that I will not tire you with the detail.

These are, however, the only two instances in which I have ever thought myself justified in amputating whilst mortification was in progress; under similar circumstances I should not hesitate a moment to do the same; but I do not well see how any other can arise to call for it: as mortified wounds produce the same kind of stumps; so you will find, as a general rule, that the cleaner the wounds are when you perform your operation, so in the same proportion will the healthy state of your stumps be at the first dressing. This was more particularly marked when we were occasionally driven to operate in the malignant ulcer, whilst in a state of foul slough. This ulcer is now seldom met with in the navy, from the persevering efforts of Dr. Baird, the late inspector of naval hospitals, who first pointed out its true character and mode of treatment.

STRICTURES OF THE URETHRA.

We now come to the Symptoms and Treatment of Strictures of the Urethra, which you observe, from the daily number of cases which are constantly under cure in this Hospital, is a very common complaint amongst naval officers and seamen; the treatment of which, within a very few years, has undergone much variety,—has been the cause of a good deal of controversy, and has excited in the minds of men not in the habit of daily meeting with this disease, so much indecision and perplexity, that many surgeons in the routine of pretty extensive general practice are at a loss, on being applied to by a patient labouring under a stricture of the urethra, what method to pursue.

Strictures are commonly divided into two sorts; spasmodic, or what may be called temporary; and permanent ones.

Spasmodic, or temporary ones, if violent, or of frequent recurrence, will lay the foundation of a permanent disease of the urethra; and permanent

strictures, if not removed, or at least palliated in their early stages, will produce lamentable diseases of the urethra and its surrounding parts, as well as of the bladder, ureters, and kidneys, and sometimes all combined; and although, in the generality of cases, when the stricture is removed, all the disturbance which it has excited will subside, yet it is not invariably so; for instance, the diseased state of the bladder may have arrived at such a point that nature may never be able to set herself right, though its cause, the stricture, may be removed; the disease of the bladder may go on notwithstanding from one bad stage to another, till life is rendered miserable, or finally destroyed. From this knowledge, it is our duty never to trifle with the treatment of a stricture, nor to defer it to a more convenient opportunity, which in time of war so frequently occurs to naval officers, who from the anxious desire of not quitting their ships, about to sail perhaps on foreign or distinguished service, where honours and promotion are likely to be obtained, are induced in spite of their sufferings to put off the treatment of their strictures to a remote period, till which such an aggravation of disease has often come on to the bladder and other parts as no art could remove. Whenever my opinion has been asked by them, whether it was consistent with their safety to leave their strictures alone for a few months, my answer has always been, "Get rid of your disease first; your health

is the primary consideration; if that be permanently injured, you will be rendered incapable of going forward in the service, and promotion will afford you no recompense; and although your stricture is now in a tolerably tranquil state, yet it is not in my power to tell you how soon it may change its character, and render decisive measures necessary, incompatible with your present active situation."

Although permanent strictures are so very common amongst naval officers and seamen, spasmodic ones, as far as I have been able to judge, are not more frequent than amongst other classes of society; which is hardly to be credited, when we take into consideration that the common seaman is exposed, both by day and night, to all the changes and vicissitudes of climate in all quarters of the globe; to the sitting in boats for hours together in the hardest rain and severest weather, the sleeping in wet beds, the putting on of clothes frequently not dry; and whilst in harbour, getting on shore whenever it is in their power, and after drinking to excess of the worst and most ardent spirits, lying about in a state of intoxication, the bladder becoming distended, and the urine retained; their being for months at a time at sea, secluded from all intercourse with women, and then, when permitted leave on shore, indulging for several successive nights in the most licentious communication with them; the total change of diet from salt to fresh, and *vice versâ*, are circumstances which we

should naturally calculate as more likely to produce in them spasmodic affections of the bladder and urethra, than in any other class of men; and yet the fact really is, that they have not spasmodic strictures, though they certainly have permanent ones in a far greater proportion than the same number of other people; yet spasmodic stricture with them occurs sufficiently often, with all its misery, to make it of importance to acquaint you with the symptoms and mode of treatment.

Another cause of spasmodic stricture is a natural or acquired phymosis, which when it becomes so contracted as not to deliver the water as freely through the point of the prepuce as it flows from the extremity of the urethra, it collects within the foreskin, distending it to the greatest degree; and from the bladder at the same time forcing the water on from behind, the urethra becomes inconvenienced, and spasmodic stricture frequently comes on, for the cure of which nothing will be permanently of service till the phymosis is removed. Last year I operated on a gentleman in his eighty-fifth year, who was suffering greatly both in body and mind, from a phymosis which had been coming on about seven years, producing such spasms as frequently to retain the urine for hours; and even when there was no spasm in the urethra, he would allow the bladder to be distended to a considerable degree for a length of time, from the dread of the pain he felt in passing the water by the natural passage. On

laying open the prepuce all his complaints vanished like a charm, and he was perfectly well in a few days.

A person, for instance, who had always made water without any pain or inconvenience in a free and copious stream, with the proper degree of force, goes to bed in perfect health, and after some time awakes with a desire to make water, and to his surprise finds that he is incapable of passing more than a few drops, and those with considerable pain and straining, so much so that he gets out of bed, and tries, but without effect, what the change of posture will do: he lays himself down again, and from exhaustion falls asleep for a short time, awaking with an increased and vehement desire of making water, which cannot be gratified; he becomes frightened at his inability, gets restless and thirsty, changing position from one side of the bed to the other, stretching violently out his legs, and as suddenly drawing them towards the abdomen, placing his arms above his head, so as partly to conceal the face: the pain increases, the bladder becomes more and more distended, till it be felt above the pubis, head-ache begins, the skin is hot, the thirst great, nausea comes on, the loins begin to be troublesome from the distention of the ureters, and all the symptoms rapidly increase. At times he will pull the penis, exclaiming that the water is stopped about its lower part, so that the perineum feels as if it was to a certain degree full. Though the at-

tack most frequently comes on after the patient is in bed, yet there is no period of exemption; for very frequently it will be after dinner, when there has been great previous fatigue, and a long interval of fasting, succeeded by a full meal and indulgence in different sorts of wines. Sometimes the spasm first shews itself after a long journey, where the urine has been retained for more hours than the bladder is ordinarily accustomed to; but at whatever time these symptoms arise, or from whatever cause they be produced, yet when they attack suddenly a person who had been enabled previously to make water in a full and pleasant stream, it is called a spasmodic stricture. On being consulted by a person thus circumstanced, he implores you instantly to pass a catheter, with the idea that on drawing off the water immediate relief will be obtained. There is no doubt that if the catheter could be easily introduced that it would be a speedy mode of treatment; but as it frequently happens that the spasm is so great, if not entirely to prevent the introduction of the instrument, at least it will produce great difficulty and pain, and often a flow of blood; and although the patient might obtain great temporary ease, yet that the spasm would be likely to return with more violence than ever, and such injury might be done to the urethra as to lay the foundation of permanent mischief. The better mode, because it is the safer, is first to try the effect of a full bleeding at the arm, particularly if the person is

otherwise in the plenitude of health and vigour of youth; then to make him him sit over the vapour of boiling water, by filling the receptacle of a night-box, so that by means of a blanket wrapped around the loins, the full effect might be directed to the lower part of the abdomen and generative organs; and if after a trial of a quarter of an hour there be no flow of water by the penis, let the patient be put into bed between the blankets, taking a large dose, say three or four grains, of opium, with five of calomel, so that he might be overpowered with sleep, during which the spasm will most commonly give way, and the water leak off; and if only a few drops be seen at the point of the glans, or any can be milked off by the penis, be assured that more will soon follow, and the safety of your patient secured. But if after having had some sleep you find that there is no relaxation of the parts, or should the pain have been so great as to prevent his getting even a momentary doze, then it becomes a question whether after a short interval it be better to bleed again or to try the effect of the catheter. I confess that I am always anxious to defer as long as I can with safety, the introduction of any substance into the urethra, from knowing that the disease is more likely to be satisfactorily removed, where it can be effected, without its use, and is neither so apt to return, or to produce complaints that may be permanent; therefore if the bladder is not apparently much distended and distressed, and

the retention had not existed for many hours, the bleeding had better be repeated, with the steaming of the lower parts, which you will find less fatiguing than the hip or general bath, which in many instances cannot be procured: and should there be time, let a sufficiency of poppy-heads be boiled in the water with which you foment; and if that cannot be done, put a pint of laudanum into a gallon of boiling water for your steam. But do not suppose that I am against the employment of either the hip or the general bath, for no one can have a higher opinion of both; and when there is an opportunity, it will be perhaps as well to use the general bath after having tried the steaming without effect; and immediately after the second bleeding give fifty drops of laudanum, with a drachm of sweet spirit of nitre, and two or three of the liquor ammon. acetat.; and should there not be any violent nausea, give frequent doses of antimonial wine or tartar emetic, to such an extent as just to keep within the line of vomiting. Let three grains of opium be passed within the verge of the anus, and left in the rectum; preferring, at this period of the complaint, this practice to the common one of throwing up warm water with laudanum, as the irritation of the pipe is likely to offend and do mischief; though in after stages, where the catheter has been used and spasm continues, opiated clysters will be highly serviceable. Let the patient drink freely of diluent, mucilaginous, or slightly acidulous drinks: enforce

it well; for persons suffering under retention of urine, from whatever cause, though parching with thirst to the most distressing degree, are dreadfully afraid of taking any fluid; but I always encourage their copious use, because nothing I conceive is more likely to keep up spasm than when the system is hot and dry from fever, aggravated by a total abstinence from fluids; and on the contrary, nothing more likely to abate fever and spasm, than diluting drinks; and when once the water flows by the urethra, the more diluted it is, the less irritating; and you will find, if you watch attentively, that a bladder, when it contains only half a pint of urine, secreted when the system is heated and the dread of taking fluid great, will be more distressed, and the symptoms more urgent, than one filled with three times that quantity of water, formed where thirst has been satisfied with copious draughts. Should the spasms, after twice bleeding, be still sufficient to retain the urine, whilst the other symptoms are not very urgent, and there be sufficient time, the perinæum should be covered with leeches, after which, should all these means fail of producing even the escape of a few drops of urine, we must have recourse to mechanical assistance for relieving the bladder: but be assured, that where only a few drops steal away, that within a few hours, such effectual relief will be obtained, by a freer flow of water, as to reward you for your anxiety in having delayed the introduction of a catheter or a bougie,

which in this condition of the urethra, so very frequently lays the foundation of a permanent disease of the parts; not so if the water can be got away by other means, which do not interfere with the inside of the passage. Should however the symptoms be urgent, of which you cannot form your judgment from the length of time, nor from the expression of pain by the patient, but being more especially guided by the fulness of the bladder above the pubis, and the abdominal tenderness on the anterior part, with a disturbance of the stomach, so as to render it dangerous to the bladder to defer any longer taking off its contents, I then prefer the introduction of a pretty full-sized catheter, warming it well in hot water, and thoroughly oiling it: having previously filled the urethra as far as we can with oil, by means of a small syringe, then slowly and gently coax or slide on the catheter into the bladder; for if you go violently or hastily to work, you increase the difficulty, and though not exactly immediately endangering the safety of the patient, yet so much mischief is done as to entail years of misery. If you cannot succeed with one shaped catheter, try another and another; and if they are gently handled, you will do no harm, and will ultimately be successful. The most common way is for the patient to be laid in bed on his back; but I like trying the catheter first whilst he is standing, if it be possible, erect, with his body against and supported by an assistant from behind:

but if you cannot succeed in one position, have recourse to another, remembering never to employ any violence or be in any haste, and never forcibly pressing forward the point of the instrument. Should you find the introduction of the catheter impossible, take a moderate-sized bougie of the common white wax, and failing with this, use others smaller and smaller, though the nearer they are to the middling size the less likely are they to go wrong; but it will every now and then happen, that a very small one will get past the spasmodic obstruction, where a large one never would; and sometimes by pressing for some minutes the point well up against the obstruction, at the same time supporting and compressing with your finger the outer side of the perinæum corresponding with it, you will be materially assisted in your object. It appears as if this outward pressure overcame the muscular and spasmodic power of the urethra, rendering it unequal to any farther resistance to the entrance of the catheter. If after the leeches had been applied, you find that a few drops of water had stolen away, giving great temporary relief, but that you were not satisfied that others would follow, cover the penis, the scrotum, the perinæum, and all the parts about the anus, with a large emollient poultice, frequently repeating its application. As a general rule, the larger the bougie that is employed the safer, though I by no means use the enormous ones which are made: by a moderate-sized one you insure to yourself that its point is not

arrested or entangled in the lacunæ of the urethra, and thereby mistaken for a stricture; so on the other hand, these prodigiously large bougies would stretch and injure even a healthy passage; if therefore they be at times injurious even to a sound urethra, how much more are they calculated to injure a passage with an inflamed, a contracted, and an irritable lining? Mark well what is but too frequently the consequence of attempting the introduction of a very large bougie under such circumstances,—that the person is put to intolerable pain, that its advance along the course of the urethra is by the slowest degrees, which is shewn by the great force that is employed to get it on; and that when you come down to the spasm, you can proceed no further, the patient absolutely writhing under your treatment, and that when it is withdrawn, nothing but blood flows, the glans and the whole penis suddenly swelling: foiled in this plan, you are much worse off than you were before. On the other hand, the smallest bougies are introduced one after another without success; the surgeon, anxious to get them on, presses them forwards; but they twist or crack, or their points are driven back and doubled on themselves; and if they are further driven on, they lacerate and tear the urethra, without being followed by a flow of water; and unfortunately, the practitioner being vexed at his ill success, tries bougie after bougie, using more violence with every succeeding one, till the patient can endure the treatment no longer; a state of

things that in all probability might nine times out of ten have been avoided, by having first pursued the previous plan we have pointed out. But let me intreat of you, whether you attempt the passage of the catheter, a large or a small bougie, never to use any violence. The urethra is a canal to be at all times treated with the greatest caution and kindness: recollect that it is a highly sensible tube, connected with most important parts; that Nature has formed it for two purposes, one to carry off the water, the other to convey away the semen; and that for the latter, it has been endued with a much greater degree of irritability, feeling, and delicacy, than would be neeessary for the former. There is a danger also of scraping off a portion of the wax in pushing forward a common bougie through a strongly spasmodic stricture: this having occurred, may occur again. I was once called up in the night, and requested by a private practitioner to visit a patient of his in the town, who was in the greatest torment from a retention of urine. I found a gentleman of the highest consideration, who had been attacked a few hours before with a spasmodic stricture for the first time, for the relief of which the surgeon had passed down a common white bougie, which after some difficulty had got into the bladder, and on being withdrawn the urine had come away pretty freely: he soon fell asleep, and was left, as it was thought, in perfect safety. In about six hours he was again called to

him, from having then a total retention of the water, with the most urgent efforts to void it, and nothing that was done afforded any relief, when at the end of eight hours from the use of the bougie I saw him, and I do not think that any person could be in greater misery; he said he was sure, that there was something in the passage in the way of the water different to what he felt before; on desiring to see the bougie, to ascertain its size, it appeared as if it had been scraped with a knife or sharp instrument, especially on one side. I pretty easily succeeded in passing down immediately a tolerable sized black bougie into the bladder, on withdrawing which it was coated over with a thin layer of softened white wax, which no doubt the spasmodic state of the urethra had scraped off from the bougie which the surgeon had used on the first trial; no water succeeded this introduction, but by continuing to pass and withdraw it several times, it brought with it some portions of wax, the water at length flowed away in a small stream till the bladder was emptied, when the patient fell asleep for fifty minutes, whilst we were by his bed-side, and on awaking, by making a forcible effort to void the urine, a considerable plug of wax was driven off, when all the symptoms subsided, and he got perfectly well without any further trouble.

In using a small, or any other bougie, the moment that you feel its point turning, withdraw it; the pressing it forwards can only add to the difficulty and

mischief, without the possibility of success ; and yet you see practitioners driving on with small bougies, one after another, even when the patient is fully convinced that it is doubling on itself ; therefore if you cannot succeed in getting on fairly with the point, how is it possible to get it on when it is doubled or twisted? It is my opinion, and one not hastily formed, that in the greater number of spasmodic strictures, the mischief is not so much from the complaint, as from the violent and hasty measures which are taken, not only in spasmodic stricture but in various other kinds of retention of urine. The tinct. ferr. muriat. has been greatly administered and extolled, but from all the observations I have been enabled to make, I confess that I think no very great reliance should be placed on it, and certainly in acute attacks of stricture I now never employ it ; no doubt the complaint has frequently yielded under its use, combined with other decisive measures ; but if the whole circumstances were fairly inquired into, very little credit is due to the iron ; and were it not out of respect to the name of the eminent surgeon who first brought it into notice, it would long since have ceased to occupy much attention in the treatment of this complaint. After the spasm is overcome, you will find the following diluents the most useful, by mixing with a quart of the common decoction of althæa, an ounce of manna, and from one drachm to an ounce of syrup of poppies, or

the same quantity of poppy syrup, and manna, with a quart of almond milk, lessening or increasing the manna and syrup as may be required.

Spasmodic stricture, either with a certain degree of retention of urine or a diminished stream, frequently occurs in the inflammatory stage of gonorrhœa, particularly where active injections or strong stimulant medicines have been employed; and if we have reason to withstand the use of the bougie in spasmodic stricture, unconnected with a clap, how much more ought we to do so when it does proceed from this cause! Pursue therefore vigorously, the mode of treatment by local and general depletion; give mild purgatives, for strong ones irritate the neck of the bladder; employ diluting mucilaginous drinks, and the most perfect quiet, till the inflammatory symptoms of gonorrhœa are subsided, when in general you will find the spasm gone and the stream increased; but if you meddle with the inflamed canal, either with a bougie or any thing of that sort, with the view of preventing or removing any contraction of the urethra, it is ten to one but you do mischief, and nothing but a retention of urine, which cannot be removed by the means we have pointed out, ought ever to induce you to use a bougie, whilst the gonorrhœa is in the inflammatory stage: first cure the running, or abate its virulence; and when the urethra is become perfectly tranquil, examine it with a bougie, and any contraction so recently formed may be

removed; whereas if you meddle with it in the inflammatory stage, you will increase the irritability of the passage, aggravate all the symptoms, and frequently produce an abscess, which may lead to a disease of a very tedious nature: be not alarmed at the diminished stream of water in a troublesome gonorrhœa, for as soon as the inflammation is over it will improve.

In a virulent clap, where the discharge has been very great, it will now and then occur towards its last stage, when the secretion has become very thick and glutinous, more particularly after the patient has passed a night of several hours in sleep, that on awaking he will not be able to pass a drop of water, he becomes dreadfully alarmed, fancying that there is either a disease of the bladder, or that a stricture has formed in the urethra, and immediately sends for his surgeon, who finds that the obstruction has arisen from the sides of the passage adhering, or, as it were, being glued together by the thickness and tenacity of the matter, when, if the desire to void the urine be not very distressing, the patient had better sit over the steam of boiling water, which will soon soften the discharge; but if the symptoms are urgent, gently introduce a common bougie well oiled, which will very readily separate the sides of the canal, and instant relief will take place. In order to avoid a similar return, you had better direct the

patient to make water once or twice during the night, till he be perfectly cured of the gonorrhœa.

PERMANENT STRICTURES.

In entering on the Treatment of Permanent Stricture, we embark on a very wide field; for there are so many different kinds, the symptoms are so various, and complicated with such a variety of circumstances, as produce the most extraordinary feelings and effects on the constitution at large.

Permanent Strictures may be divided into, 1st, Such as affect the urethra alone; 2ndly, Those which have an external communication; 3rdly, Those connected with a diseased state of the prostate gland and bladder, without external scrotal or perinæal openings; and 4thly, Those in which the whole are combined.

Strictures of the urethra have of late years become very common, which in a great measure has been attributed to the indiscriminate treatment of gonorrhœa in all its stages by injections: though this may have been one great cause of their frequency, yet their number has apparently been much augmented, not from their actual increase, but from the attention of practitioners having been so much directed to disordered states of the urethra, that their true nature has been better understood;

so that what were commonly treated as gleets and seminal weaknesses, are now discovered to be discharges connected with stricture. Though injections of a stimulant and acrid nature, thrown up in the inflammatory stage of gonorrhœa, go a great way in forming a contracted and strictured state of the urethra, yet I would say, that stricture is as often, if not oftener produced by a neglected clap, in persons allowing of the continuance of the discharge for months, without taking any local measures to get rid of it; and it is from this, more than from the use of too active injections in an improper stage, that I attribute the foundation of the larger proportion of strictures, more particularly amongst seamen. We know that a seaman, as far as regards his own health or personal comforts, is one of the most thoughtless, indifferent, and helpless fellows in the creation: when they contract a gonorrhœa, if it is not so virulent as to prevent them from doing their duty, and is not of such a nature as to compel them to make application to their surgeon, they will allow it to run on for months; it is impossible then, an unnatural secretion can exist for such a length of time from any part, without doing either permanent or temporary mischief, which in the urethra is marked by the formation of stricture, and therefore it arises as commonly, if not more so, where the gonorrhœa has been neglected as where too active means have been employed. There can be no doubt that

strictures are found in persons who have never had a gonorrhœa; but with very few exceptions, not only amongst seamen, but persons of a different description, you will discover that at some previous time or other they had had a gonorrhœa, some treated with, but the greater proportion without injection. When a sailor gets a clap whilst the ship remains in port, sooner than make it known to his surgeon, by whom he would be instantly reported to his captain, and have his leave of going on shore stopped, most commonly takes what he calls solution drops, which is the oxymuriate of mercury dissolved in gin; and if this does not succeed, he has recourse to various quack medicines: the inflammatory stage being passed, he goes to sea with a gonorrhœal discharge, which is not sufficiently urgent to make him apply to the surgeon, so that he gets off undetected, and has a discharge from the urethra for months, which in time changes to a gleet, and the beginning of stricture is laid, for which perhaps nothing is done for two or three years, when he is inconvenienced from the frequent calls to make water, applies for relief, and the obstruction is discovered. Though this is the way in which I should say that the greater proportion of strictures arise, yet there are others which are not dependent on any fault or indiscretion of the patient, as severe hurts on the perinæum producing inflammation in the urethra, and exposure to severe weather. Strictures sometimes no doubt are

produced from the criminal practice of self-pollution, which in young men irritates the urethra, but in those of more advanced age, brings on a chronic enlargement of the prostate gland; and where a sedentary life is followed, induces piles, and such irritation of the lower part of the rectum, as leads to the most distressing diseases.

Permanent strictures of the urethra frequently exist for a long period before the patient is aware of their formation, notwithstanding both the size and condition of the stream have been altering for a length of time; and it is not till he is either threatened with a total retention, is teazed by a very frequent desire to void the urine, or perceives a slight gleety discharge on his shirt and point of the penis, attended with a troublesome itching, that he fancies there must be something wrong, and applies to his medical adviser. Frequently, however, before this takes place, his general health has undergone a wonderful change; he has become exceedingly depressed and fretful, the functions of the stomach and bowels are disordered, his disposition is irritable or morose; he avoids society, is displeased with the world, and finds fault with all his former enjoyments; and from not knowing the cause of his illness, the stomach and bowels are accused as the seat, and should either violently drastic purgatives be occasionally given, or smaller doses of aloetic medicines daily taken, the irritation and mischief increase, and he is uselessly subjected to a strict

regimen, and the greatest restraints are imposed as to diet, not only as it regards the quantity and quality, but the precise hours are marked out, without discovering that stricture is the cause of all. The urine not only diminishes in size according to the form and situation of the strictures, but varies in shape, sometimes coming off twisted, at others it is forked; then it will scatter about, whilst again you will see it in two perfectly distinct streams, and sometimes the water will only leak away without any force in a sort of dribble, like a person in very advanced age, wetting the shirt after the small-clothes are buttoned; occasionally it will come off in drops; but all these kind of streams are liable to change, dependent on the state of the mind, the weather, diet, bowels, and innumerable other causes, some of them apparently of the most trivial nature, so that one day the patient will say he is tolerable, at another, or even another part of the same day, that his sufferings are great; and this you cannot wonder at, when you may remark that even in persons of perfect health the flow of urine varies considerably both as to force and comfort. The desire to void the water is at times so great that it will come on every ten minutes or less; and when the bladder is thus irritable, the painful exertions that are made to get off only a very few drops are quite distressing, arising from the excessive irritability of that viscus, inconvenienced by the pressure of so small a quan-

tity of water which it is incapable of expelling, as it has not the power of contracting itself into such a small space as to press on the fluid and force it away. Shiverings are then frequently produced, which in strictures of the urethra do not invariably mark the formation of matter, and are not attended with such alarming effects as such rigors would be in other complaints: these shivers go through the regular stages like an attack of ague, and for which they have been very often mistaken and erroneously treated. When these symptoms suddenly augment in violence and last only for a certain time, we say that the patient is labouring under a paroxysm of stricture; when, by allaying the irritation and quieting the parts, they will gradually tranquillize down to very nearly, if not entirely to their former state, though there is always a danger that every succeeding attack will be more violent and more frequent, till a permanent disease of the bladder is produced. Although the symptoms of a stricture may be well marked, you ought never to be satisfied till its actual existence has been ascertained by the introduction of a bougie or a catheter: take a white wax bougie of a pretty full size, and if it be in winter, soften it a little by drawing it three or four times through your hand, then oil it well, and let it be gradually and gently introduced into the urethra whilst the patient is standing erect, with his back against the wall, that he may not retreat, and at the time that the bougie is going on, in-

sensibly bring forward the penis till it be fully on the stretch and in a direct line from the body. Should there be only one stricture, you will be stopped about seven inches from the orifice of the urethra; if there be two, one will be found at five, the other at seven inches down: and if there be three, they will be at two, five, and seven; and when your bougie is impeded beyond the seven inches, it will not be from a stricture, but from an enlargement of the prostate gland, (which is a much rarer complaint than it has the credit of,) or from the point of the bougie getting entangled in the mouth of one of its enlarged, gaping, excretory ducts, or, what more commonly happens, from having omitted to draw well forward the body of the penis; the point of the bougie instead of entering the prostatic part of the urethra, from the loosened state of that canal not having been put on the stretch, turns down towards the rectum, and pushes against the lateral and external part of the prostate, the patient exclaiming that you are driving the bougie through the fundament. In the height of the war, I was desired to give my opinion on the case of a captain of a militia regiment who was then under treatment for strictures, when he told me that two had readily yielded to the armed bougie, but that there was a third which, instead of being conquered, was every day becoming more and more obstinate, and it appeared to him that the surgeon would burn a passage into his rectum, and come out on the other side: suspecting

what was the cause, from having seen similar cases, I directed him to keep for a few days very quiet, and to leave the parts for a week unbougied, and that at the end of eight days I would call and ascertain what was the matter with the urethra; when, having previously ordered him to throw up a syringe full of oil, I passed a moderate sized white wax bougie with the utmost facility into the bladder, by merely depressing my hand when the point had reached the prostate. The patient was so astonished at the ease with which it was done, that he could scarcely believe that it had entered the bladder, but it was repeated with the same success at the end of another week, and he was pronounced cured. A month afterwards he went to London on business, and although feeling quite well, he thought that there must still be some mistake, and applied to Mr. Cline, who, with equal facility, introduced a bougie, and gave him the same assurances of being cured, and he has remained so ever since. He is now in town, it being more than twenty years ago since this happened, and he often talks of the misery both of body and mind that he uselessly suffered, and the narrow escape he had.

In all patients where there is a suspicion of stricture, let me advise you, before introducing a bougie, to examine with the greatest care the whole course of the canal on its external part, from the point of the penis to the prostate; for it will fre-

quently occur, as to make this precaution necessary, that the impediment to the flow of water is not from any thing to be found in the internal part of the passage, but from some little tumor or substance on the outer side under the integuments, and closely attached to the urethra, so as by its pressure to contract and encroach on its calibre, in such a way as would impede the passing of a bougie, and give you an idea of stricture, when literally there is no actual obstacle within the canal itself. Sometimes it will be found like a small cartilaginous pea, at others in the shape of a hard cartilaginous ring, entirely investing the circle of the urethra: again, you will find it of an oblong shape; but of whatever form or size it be, it is intimately connected, and almost forms a part of the external portion of the urethra, and without this cause having been detected, much misery and suffering have been endured, by the uselessly introducing of bougies. The obstruction to the flow of urine being produced by causes external to the passage, cannot of course be cured by means applied internally; though in some cases, by the mechanical dilatation of the urethra, some temporary relief has been gained by the bougie, from raising for a short time the pressure; but in innumerable others, your own suggestions will convince you, how much mischief may have been done, from this erroneous conception of the seat and cause of the obstruction. Although distinctly formed strictures are at the dis-

tances in the urethra which we have described, yet there are such endless varieties of shape, length, and condition, that it is impossible to lay down any precise rule on the subject; neither will the stream point out the situation where the stricture is to be met with, nor will it in any way satisfactorily inform you of the nature of the obstruction. You will not gain much knowledge from the violence or mildness of the symptoms, as they as often arise from one, which is easily cured, as from one of a more tedious nature. When you have discovered a stricture, the first question put by the patient naturally is, "whether the cure is likely to be long or otherwise?" This is not in your power to answer: if you do, and are right, it must have been by chance; for sometimes an obstruction, producing the most alarming symptoms, may be speedily overcome, whilst another, where but little inconvenience is experienced, will cost you a deal of anxiety and a length of treatment. In illustration of the violence of the symptoms not being a criterion of the difficulty of cure, I may mention that some years since a person of high rank consulted me for very great sufferings of nearly twenty months duration, which no doubt proceeded from the state of the urethra; but he said he had always been afraid of having it ascertained by having "any thing put up it," but that now he suffered so much that he was willing to consent to any plan that was recommended. On introducing a common wax bougie a stricture was detected at seven inches,

and though no degree of force was used in passing it down, yet when its point came in contact with the obstruction, he could not endure it: it was immediately withdrawn, and was succeeded by a regular aguish attack for the first time, which lasted nearly three hours, and greatly debilitated him. In about a week, he was sufficiently rallied to stand it again, but it produced exactly the same result; I determined therefore, when he was again equal to it, to use a moderate-sized bougie, armed with the lunar caustic, to allay the excessive irritability of the canal, which he bore remarkably well; it was withdrawn in about forty seconds. In six days it was re-applied, and met with the same resistance; but in about a minute something appeared to yield, and the bougie went on to the bladder, the patient instantly exclaiming, "By G—, you have got through!" From this moment all his bad symptoms vanished, and in one week he felt perfectly well, and has continued so ever since; and has himself every six months introduced the common bougie as a precautionary measure, which has never excited any disturbance.

It would be useless to detail to you the histories of cases apparently mild which have resisted for a length of time the usual means of treatment. It is impossible to decide, when you meet with an obstruction in the urethra, whether or not it may be difficult of removal; for a stricture which may yield in a short time, will, during its existence, form as

strong a barrier to the passing through of the bougie, as one which will require weeks or months of treatment. Sometimes the whole canal will feel, from external examination, in an unnaturally hardened state, resembling soft cartilage; and wherever the structure of the penis, though in an unerected state, seems like a cartilaginous tube throughout, be assured you will have considerable difficulty in removing the disease. In former times, that is, previously to the last five-and-thirty years, the smallest black and medicated bougies were in constant use, and were continued in the urethra for many hours each day, and almost throughout the whole night. One of the earliest cases of stricture that I attended as a private patient was about the year 1794; an admiral who had been troubled with obstructions in the urethra for a length of time, had been in the habit of wearing in the urethra a small black bougie for at least twenty hours, and sometimes the whole of the twenty-four, securing its end round the root of the glans with a tape, and walking about with it in the bladder as if nothing was there; although he suffered acutely from the complaint, yet he introduced the bougie himself, and nothing would induce him to let any professional man meddle with the urethra. Besides the constant use of the bougie, he was incessantly taking all kinds of advertised medicines. Thus things went on from worse to worse for nine or ten years, occasionally talking to me of his complaint; when at length his suffer-

ings became so great, that he could bear them no longer, and was willing to allow of my examining the passage. On introducing a moderate-sized bougie a stricture was met with two inches down, which was overcome in a short time, and so was one at five; but on coming to one about seven, it seemed to meet with some unusual obstruction, so that the next time a small wax one was passed, which went on further, and seemed to have grated against and disturbed some extraneous body; and on withdrawing it, there was an indentation on one side as if made by something rough. Three days afterwards the same occurred again; and on examining the urethra from the outside, there was no doubt of a stone being lodged there, which I cut down upon, and easily extracted; and immediately such relief was obtained, that although the patient was well advanced in years, he soon rallied, and got well in a rapid manner, the parts healing up without any after-inconvenience from the strictures. It was no uncommon thing about this period for patients to go about with small black bougies in their bladders, and for great numbers to be lying on sofas, managed in this way for hours every day; and numerous were the instances where strictures were not suspected, and the luckless patients treated as if labouring under gleets, gravel, diabetes, as it was then called, enlarged prostates, and diseased bladders, for several of which complaints it was no uncommon thing to be deeply

salivated, and to have the constitutions broken down by taking every variety of advertised medicines; at length a better order of things ensued, and about the year 1795 and 1796 the application of a bougie armed with the lunar caustic began, through the efforts of Sir Everard Home, to attract public attention. At that time I was serving in this hospital as an assistant-surgeon, during the surgeoncy of Dr. Geach, to whom I mentioned the practice, and requested his permission to try it, which he for some months resisted, by saying, "How can you expect to pass down lunar caustic with safety into the urethra? No, I will never allow it to be done whilst I am surgeon here." His mind, however, which was ever alive to the relief of his fellow-creatures, gradually yielded, and he consented to the trial being made; being greatly induced to it from the number of perplexing cases then under charge, which did not give way to the usual means. As soon as we had procured the armed bougies I was directed to make trial of them; and within six months the Doctor became not only a convert to, but one of their most zealous advocates, and from that time to the present I have been in the daily habit of using them in this hospital and elsewhere; and I have no hesitation in saying, that where I cannot get rid of the stricture by the wax bougie, I prefer them to all other means that I have ever employed; and I am disposed to believe that it is owing to their abuse, and not their

fair use, that the practice has been brought so very much into discredit.

In making this statement to you, gentlemen, it becomes me to lay before you the grounds on which I found this opinion. Since the first application in this hospital, in the year 1795, of the bougie armed with the caustic, at least one hundred thousand patients have been admitted within its walls; and from the frequency of stricture amongst seamen, many and many hundreds of cases of this complaint, in all its varieties, have been under my charge, besides innumerable others who have sought for my advice; and although I so strongly rely on this method of treatment, yet I have never ceased, not only for my own satisfaction, but from a sense of duty, bringing to the test, more particularly for the last five-and-twenty years, whilst I have been the first surgeon of this establishment, every method that has been powerfully recommended for the removal or alleviation of stricture; and although a few, yet a very few, have been removed and some alleviated, where the application of the armed bougie had been unsuccessful, yet the decided superiority it has had in my hands over every other method, makes me very much attached to its application. The plan of treatment that I almost invariably adopt with a patient under stricture is, in the first place, to attempt its removal by dilatation with the common wax bougie; that mode failing, to try with the same kind of bougie to break down

the obstruction, if it can be done *with very gentle means;* and supposing that we are foiled in both these ways, then to apply the bougie armed with the lunar caustic: if the mode by dilatation is likely to be successful, the common wax bougie is not to be introduced oftener than every third day, and to be kept in only a very short time, beginning with one that with some little difficulty may be admitted through the strictures, gradually increasing its size, till the urethra will easily take a large one; but when you attempt to break through a stricture with a bougie, never force down more than one at a time; and in endeavouring to make your passage through it, beware of the exertions that are used, otherwise you will lacerate and materially injure the canal. When the cure is attempted by dilatation, if after six or eight applications of the common bougie, you have not been enabled to increase its size, it will be as well not to persist, and I seldom hazard the breaking down of the obstruction where there is more than one stricture, as they are generally of a firmer and more obstinate kind than where there is a single one. Should your bougie pass through, you had better instantly withdraw it, and leave the urethra quiet for two days: if you cannot succeed by dilatation, nor by breaking down the obstruction by moderate means, then have recourse to the armed bougie in the following way:—First, having ascertained by a common white wax bougie the exact distance of the stricture from the orifice of

the glans, let the next day an armed bougie of a moderate size be applied to the obstruction, by rapidly passing it down to the stricture, and keep it well in contact, by a screwing pressing-forward motion of the point for about a minute, and immediately after it is withdrawn, let the patient remain quiet on the sofa; and if the desire to make water be very great, let it be indulged, but not otherwise, as it will sometimes produce a chilliness or rigor, when it is allowed to flow through the urethra immediately after the caustic bougie is withdrawn. If things go on well, the caustic is to be applied on the third or fourth day, but never earlier than the third, keeping it in from a half to one minute, seldom longer. By persevering in this way, almost all strictures can be got rid of. Take care that the caustic at the end of the bougie be not so prominent as to project much beyond the edge, and in passing it on, let it be done pretty rapidly, otherwise, if you go on slowly, the urethra will taste the caustic, and close on it, so as to prevent you getting on, without using such a degree of force as would be painful, and sometimes dangerous, and without force, your bougie would not get within an inch or two of your stricture; so that, if you meet with this kind of spasm, do not persevere, but withdraw the bougie, and give it up for at least two days. Practitioners, not in the habit of using armed bougies, are often and often arrested in this way, and fancy that the end of it is in con-

tact with the stricture, when it has only been stopped by the contraction of the urethra, and is not within some distance of it; thus its application proves worse than useless; an armed bougie is therefore to be passed on rather rapidly, whilst a common one is to be introduced slowly and gradually. Should it be succeeded by any hæmorrhage, you must always wait till it has completely ceased three days before you reapply it. When your strictures are so destroyed that the urethra will readily take a full-sized common bougie to the bladder, you may consider your patient cured; but, by way of precaution, let one be introduced every fortnight for at least six times, then once a month, and afterwards occasionally, so that any disposition of a return of the complaint may be detected; for whenever the urethra has been strictured, it requires to be well watched, as the disease is apt to form again. Patients most commonly think themselves, equal to the management of the bougie for this purpose; but in course of time, they either abandon it from negligence, or pass it too often from alarm. About seven years ago a naval officer of very high rank applied to me, saying that he had formerly strictures in the urethra, which were removed by the armed bougie; that he had been in the habit for a length of time of occasionally passing a common one of a very full size, but that latterly he was very much alarmed from his symptoms, lest the

complaint would return; and in consequence, instead of using the bougie every now and then, he had been obliged to pass it twice a-day, and indeed to keep it in for some minutes at each time; that although he took especial care to enter the bladder, still the irritation, instead of subsiding, annoyed him more and more; that there was almost a leaking away of the urine, for which he had for several weeks been using powerful diuretic medicines, and had been to a mineral spa; his water, however, became fouler and fouler every day, and sometimes there were small clots of blood; and the thoughts of the strictures returning, and being obliged to undergo the same kind of treatment that he formerly experienced for their removal, had made him miserable. Having ascertained, by introducing a full-sized bougie, that there was nothing in the urethra, I told him that all his complaints were brought on from the excessive teazing of that canal and the neck of the bladder, by his continued introduction of the bougie; that on the first appearance of irritation he ought to have soothed the parts, and ceased from passing it; that he was now entirely to leave it off, to sit every night over the steam of a warm poppy-head fomentation, to keep the bowels open, to drink freely of mucilaginous drinks, and to take ten grains of the Dover's powder, with five of rhubarb, every night at bed-time. By this plan every un-

pleasant symptom subsided; he was restored to his usual health in a few weeks, since which he has once a month passed a bougie.

Sometimes, where hæmorrhage has been produced after passing a bougie, you will be called within a few hours to the patient, who is unable to void any water, and is in the greatest pain from the fruitless efforts of the bladder to get rid of it: you will generally find this to arise from a clot of blood mechanically stopping up the urethra, and by gently passing down a small wax bougie, it will dislodge or break through the clot, which, as soon as the bougie is withdrawn, will be forced off, and instant relief will ensue. Should the retention come on where there has not been any hæmorrhage whatever, you must not meddle with the urethra, but try warm fomentations of poppy-heads and chamomile flowers to the parts; if the pulse demands it, and the symptoms are urgent, bleed, and give a large dose of laudanum with some antimonial, and be assured that in a very few hours (with scarcely an exception) your patient will be relieved; whereas, if you set to work with catheters, catgut bougies, and the like, you will do a great deal of mischief.

Ten years ago, being in London on leave of absence, I was solicited by some friends to visit a captain in the navy, who, they said, was dangerously ill with a stricture, and at eleven at night I accompanied them to his hotel, and found him sitting

in a hip-bath; he told me that he had been slightly strictured for about a year, and although his water gave him but very little trouble, yet as he had just received an appointment to command a ship, he was anxious to have the state of the urethra ascertained before he left town. Two days previously he had consulted a surgeon, who, having found what he called a slight stricture, had broken through it with a very large bougie, (afterwards acknowledging that he had employed more force than he intended), immediately his water was retained: when I saw him, he had been for thirteen hours out of the last twenty sitting in a hip-bath, which afforded relief, as a few drops of water would occasionally steal away; he was very weak, having been bled, cupped on the loins and perinæum, and taken a great quantity of opening medicine; he was in a constant state of perspiration, frequently vomited, and was most anxious to be allowed to sleep, which he had been desired not to encourage till he could empty the bladder: the room was so small that it scarcely held more than the bed and the hip-bath, with a little furniture; there was a large fire, with five candles and some friends, and a table almost covered with bloody bougies of different sorts, cracked, twisted, and bent in all directions, showing the service they had been lately employed on, and the lower part of the patient's shirt was saturated with blood: my advice was, that he should instantly be put into bed; that the room

should be cooled by putting out the fire and candles, and removing the hip-bath; that he should take two grains of opium, with a little barley-water. On getting into bed he immediately fell asleep, and dozed the greater part of the next twelve hours, during which time water stole away, and in the afternoon of the next day he was almost free from complaint, excepting being greatly exhausted, and suffering much pain along the course of the urethra, from the frequent introduction of various-sized bougies: in three days he was enabled to sit up in a large chair, and in about a month was allowed to join his ship, though the urethra had not been in the least benefited by its treatment. Notwithstanding the hip-bath for a time is often of the greatest use, yet the sitting in it for hours is a most pernicious practice in these complaints; the very position, independent of the heat, encourages a fulness of the vessels of the parts, and many, which are accustomed to convey the serous part only of the blood, become filled with the red globules, the doubling-up of the lower part of the body in the hip-bath being of all positions the most favourable to the descent of the blood, and as unfavourable to its ascent by the veins, and therefore there is an accumulation, so that the hæmorrhoidal vessels become particularly full, prominent, and protrude, encouraged also by the straining and forcing to get rid of the water. If it be necessary to continue the warm bath for any

length of time, let it be in a tub, where the patient can lie along in the horizontal position, with the head just out of the water; but the hip-bath or warm fomentations for any time short of an hour, will seldom produce the fulness of the vessels, which we have just spoken of.

Where the contraction of the urethra is of such a kind as to obtain the name of a long stricture, the armed bougie will seldom do good; it must be treated with common bougies, on the plan of dilatation, beginning with the introduction of such small ones as the contracted part will allow to pass, and by gradually increasing their size, a very good cure may by perseverance and caution be generally effected. Do not introduce the bougie in such a case oftener than every second day, and never keep it in beyond ten minutes, even should the passage shew little sensibility; but if it be very irritable, and appear to resent the application, it should be withdrawn as soon as it has once passed the contraction.

You observe, that I lay great stress against the employment of undue force, in the passing of any instrument or bougie whatever, down the urethra; many and many have been the evils of such a practice; it cannot be too strongly guarded against: always keep in mind that you should never be violent; with this impression you will seldom go wrong. Amongst the many unfortunate instances, I will give you the following: a man was brought to me

in this hospital, in the last stage of life, insensible, with cold extremities, laborious breathing, and an expiring hiccup, dying two hours after his landing. He belonged to a gun-brig, having been attacked eight days previously, whilst in perfect health, with a retention of urine, from having been exposed to very boisterous wet weather; the usual means were ineffectually employed, and when the symptoms had become urgent, the assistant-surgeon who had the charge of the crew, attempted without success to draw off the water with a catheter, renewing the trial after a few hours without reaching the bladder; things were becoming desperate, and at the end of some time he made a further endeavour to relieve the person, and to his surprise, after great efforts, although the catheter went on its whole length, no water flowed; he was convinced then, from the facility with which he could turn round the point of the instrument, that it was in the bladder, and there was no water there, and that it was a case of suppression by the kidneys, and not one of retention by the bladder: the patient grew worse and worse, and died as we have before stated. On examination it was discovered (and the preparation now in my collection too lamentably but instructively shows) that, from the violence which had been used, the catheter had pushed through, or, what may be more truly said, torn away the membranous portion of the urethra, close to the prostate, and had gone between the rectum and the

bladder, which was found distended to the greatest degree with water, filling the ureters and choking the kidneys; the urethra was free from any disease, proving that the retention was in consequence of a spasmodic attack; the surgeon was induced to believe that there was no secretion, by the catheter having passed between the rectum and bladder; and the facility with which he could turn round the instrument arose, not from its point being in the bladder, but from entering the free space between it and the rectum.

A stone in the bladder will sometimes produce a spasmodic contraction of the urethra, so as for hours to prevent the flow of water; and even this will arise, occasionally at a time, when the patient is not labouring under what is called "a paroxysm of stone," but when the bladder is in its ordinary tranquil state, as far as it can be so whilst a stone is lodged in it; you must therefore be cautious not to offend the urethra by the introduction of any bougie or catheter, otherwise much mischief may ensue; you should soothe the parts by rest, leeches, fomentations, and opiates. The frequent renewal of these attacks will encourage the formation of a permanent stricture, and nothing but the removal of the offending cause from the bladder can give the patient effectual relief. An obstruction in the urethra will oftener lay the foundation of stone, from not allowing such a free flow of urine as would otherwise force off substances which might form the

nucleus, and the water being longer retained deposits sediment and accretions around it; an instance of which I will now give you. A lieutenant, about thirty years of age, whilst on the North American station, about seven years since, perceived a diminution of the stream of urine, and applied to the surgeon of his frigate, who examined the urethra and detected a stricture, for which the common bougie was twice applied, but not suffering very much, he determined to defer its radical removal till he came to England and could put himself under my care, which occurred in about two years, within the last few months of which he suffered so much, and his symptoms became so very urgent, as led me immediately to suspect a stone independent of the stricture; as soon as this was overcome, a sound was introduced, and a stone easily detected, for which I performed the usual operation, and he rapidly got well. In its extraction it broke; the nucleus was found, as you see, to consist of a piece of lint, but how it got into the bladder must be matter of conjecture.

Sometimes the stricture will be of a hard cartilaginous substance, nearly obliterating the canal by drawing up the urethra at one point into a very small space, on which bougies, whether armed or not, will have no effect, and if you use violence you will force a false passage. A man advanced in life, belonging to the ordinary at this port, was sent some years since into this hospital for a stricture, having been re-

duced to the greatest degree of emaciation, from the constant misery he had for a length of time suffered; on taking a bougie to examine the urethra, he said it would be impossible to use it, as the smallest one could not be passed for some years, and he immediately drew out of the sleeve of his jacket a common stocking needle, and told me that he had never been able, for at least two years, to void a drop of water without having previously inserted it into the contraction, and that, with my permission, he would show me how he did it, and taking the needle, without even oiling it, he passed it down head foremost about two inches, when he said that it was in the stricture, and that its application was seldom very painful, the parts being so very callous, and that on withdrawing it, which he did immediately, he should be able to make water, which he passed before us in small but quick drops. On examining the passage from without it appeared as if the urethra was puckered up into a hardened point. His health had been nearly destroyed by his extreme sufferings, caused by the incessant desire to void the urine, which appeared to be forced from the bladder in a fair stream, and then to be dropt out through the narrow contraction, attended with almost daily rigors. On the third day after his admission, having caused him to introduce the needle in the usual way, I laid open the urethra, by cutting through the stricture, till I could draw it through the incision, and, after removing the whole

of the cartilaginous structure, a tolerable sized bougie was passed into the bladder, meeting with very little impediment in the course of the canal; the relief was quite marvellous; in about six weeks the urethra had closed, the health was restored, and a full sized bougie went easily into the bladder. No case that ever came under my charge was more satisfactory, from the perfect cure this poor fellow obtained with such little risk.

There are many strictures of a cartilaginous nature over which neither bougies or any instrument introduced by the urethra have any effect, and unless the parts are incised from without, Nature must yield, by the patient dying in a miserable way. Some of these strictures have external fistulous openings, others not; whether they have or not, many of them are curable by the free incision of a scalpel through the contractions; in some, a small portion of the diseased urethra must be removed, in others, it must be left to slough away; but many a life may be preserved by adopting this practice, which is a very safe one; the only hazard is, that the incision may not close, but become fistulous; but even if this should happen, what is it compared with the patient's safety, and most of those thus treated have afterwards enjoyed life to a very great degree, whereas if the strictures are not cut through, nothing but misery is left to the patient on this side of the grave. You must first pass a catheter or bougie down to the stricture which you intend to divide,

and with this for your guide, your way is clear enough, and should there have previously been fistulous openings, your difficulty will not be increased. When you consider how much the urethra suffers and recovers itself in operations for lithotomy, you ought never to hesitate in dividing it where the stricture is of such a nature as to bid defiance to any treatment by the canal itself, and when the patient's life is in danger, you ought not to pause; and I am satisfied, if this kind of practice were more common, many persons would have great cause to rejoice, who are now left to pine away in misery.

Strictures connected with external fistulous openings, are to be treated in the same way as if there were none such; for unless the strictures be so overcome, that the passage for the water is cleared, it is in vain to look for the fistula permanently closing; and therefore it is worse than a waste of time, to attempt healing the openings, before you have cleared the passage of the obstructions which have been the cause of them, for as long as there is an impediment to the free flow of the urine through the usual channel, it will naturally find its way by the nearest outlet. Your plan should be therefore to remove the strictures, and then attempt to close the openings; but although you have no chance of shutting up the fistulæ during the time the strictures are unsubdued, yet whilst they are under treatment, you may employ every means to keep

the parts quiet; abate inflammation, promote suppuration, and induce a healthy condition, so that as soon as the canal is clear you may have nothing to retard you.

In a very irritable state of the urethra, even where there are three strictures, you will generally find, that as soon as one is removed, so much of the irritation will be subdued, that the frequent calls to make water will be lessened, and it will pass with much more ease; and in the greater number of cases, some relief will be experienced, after having touched the stricture only two or three times with the armed bougie, nay sometimes after the first application. Though this be generally true, it is not always so; the following remarkable instance to the contrary occurred to me more than twenty years since: a lieutenant of the Navy, about thirty-five, placed himself under my charge in lodgings at Devonport, having been terribly strictured for a length of time, and had been fruitlessly under the care of various practitioners, by whom bougies had been used, though not the armed ones. When he became my patient he was greatly emaciated, with a constitution so broken down that he appeared seventy; his water was continually dribbling away, particularly during the night, so that the bladder seemed to have lost all power: this constant state of annoyance depressed his spirits and made him careless of life, so that at times, his despair was so great, as to create a

suspicion that he would destroy himself. I began to treat him with the armed bougie every third day, unless any hæmorrhage came on, which, however slight, always makes me desist for three days after its total disappearance; the first stricture kindly yielded to seven applications, and the second took thirty-two without any improvement in any respect in the general health or in the retentive powers of the bladder; we then commenced the caustic on the third stricture, which never gave way till the fifty-seventh application, when the bougie went on to the bladder, the patient exclaiming—"You have done it at last!" That very night he never wetted the bed, being the first time for many years, and from that day he never had any further trouble; the health rapidly improved, so that in three months he was perfectly well, enabled to take horse exercise, and enjoy without any restraint the pleasures of the table, with complete control over the bladder. The singularity of the case consists in the symptoms continuing the same from the beginning, notwithstanding that two strictures were destroyed, and that no benefit whatever took place till the third entirely gave way, when, as if by a charm, the bladder regained its retentive and expulsive powers, and was capable of holding within an hour the urine, without any unnatural desire to void it, notwithstanding it had dribbled away involuntarily for years.

Sometimes you will find the urethra lessened in its calibre throughout, without any particular ob-

struction at any given part, so that in introducing a bougie, it appears to be squeezed or wedged forwards, producing excessive pain and some hemorrhage, so that you will be unable to make much progress at each introduction, which should be with a common white one, beginning with a small size, gradually and cautiously passing it every third day as far as you can, consistent with the person's feelings, till you have once reached the bladder, and when you have accomplished this, increase the size, and ultimately you will obtain a cure.

It is a matter of no small importance, that a patient should not take any exercise immediately previous to the passing of a bougie, that if he comes from a distance, and has to walk, he should remain quiet at least an hour before the urethra is meddled with; otherwise, if he has walked fast, or the weather is severe, or been on horseback, which is the most injurious, you will every now and then be foiled in passing down the bougie to the stricture, which will be stopped an inch or two short of it, unless you should use more force than is justifiable, and it is really surprising with how much greater facility the patients in an hospital, who are directed not to move about on the morning on which the bougie is to be used, receive its introduction, than those who are not so advantageously situated.

It frequently occurrs that when the third and last stricture is destroyed, and the bougie goes on to the bladder, you will find yourself foiled the very next time that you attempt to pass it, by an obstruc-

exactly where the first stricture was situated,—do not force on the bougie, it is merely a spasmodic contraction, for which violence will do great mischief; wait several days, during which you had better apply a few leeches to the under part of the penis, in the direction of the urethra, and after they have done bleeding, foment well the parts three times a-day, and keep the penis wrapped up in a warm bread and milk poultice; after a few days you will find, by the freedom with which your bougie gets into the bladder, that there has not been any real return of stricture.

I have remarked, where the coverings on the tubes of the corpora cavernosa appeared to be of a firmer structure than usual, as to give the penis the feel of being harder than natural, that strictures under such circumstances were almost always very difficult to overcome; but that those which were accompanied with a good deal of purulent, or muco-purulent, or even mucous discharge, were more easily curable, than where the urethra appeared to be nearly dry.

There are no cases similar to affections of the urethra, where the patients seem not only to bear, but really to suffer pain so differently. Some men of the strongest nerve will be alarmed, and almost shrink, from the application of the bougie, from its actual pain; whilst others, of the mildest and most timid nature, will allow of their introduction without shewing the least reluctance or signs of inconvenience.

The orifice of the urethra will frequently be so very much contracted, and even sometimes extend nearly the length of the glans, as not to admit of a bougie sufficiently large to cure the regular stricture below, consequently we must make a passage for it either by dilatation, the caustic, or the knife; in general we shall find that enlarging it with the scalpel, and keeping in for a few days a tolerably sized bougie, will answer the purpose extremely well.

When I spoke to you on the mode of treating fistulous openings, I forgot to mention a case, which happened some years since, of the necessity of first curing the strictures before doing any thing with the hope of closing the external openings: a purser of the Navy, sadly strictured, with various external fistulous openings of the perinæum and scrotum, through which nearly the whole of the water escaped, and who had been treated for nearly two years by various surgeons, came into the hospital, having travelled from London by slow stages, sitting on a padded horse's collar, to prevent any pressure on the diseased parts. On my first visit, he told me he had reason to suppose he had been strictured for years; that about three years since abscesses had formed in the perinæum and scrotum, which now bore marks of the treatment he had undergone, being puckered up, and cut in various directions; that from their first breaking the water had come through; and although some of these

outlets would close, yet they were either preceded or succeeded by others, so that the urine only came in drops through the point of the penis, whilst the fistulæ allowed of its flowing away in small streams: what he told us of the treatment surprised us not a little; in finding that although every thing that surgery could suggest, had been employed for the external treatment, nothing had been applied in the shape of bougies, or any other instrument, for the removal of the internal obstructions, having been assured that it would be quite useless, to trouble them, till the external parts were sound. Our opinion was however different, by acquainting him, that we should first endeavour to remove the strictures, without which nothing, according to our experience, would be of any permanent benefit; and whilst we were effecting this, we should merely tranquillize the external parts, and bring them into a condition most favourable to close, when the water should cease to harass them. In the removal of this gentleman's strictures, we had extreme difficulty, from the urethra in the neighbourhood of the fistulæ being so hard and callous; however, by perseverance, in eleven months we got fairly into the bladder, and in about three more this officer was discharged from the hospital entirely cured.

When the water still flows through the fistulæ after the strictures are removed, and the canal so clear as to admit of a catheter; it becomes a consideration of great importance to determine, which

is the most likely plan for a cure, either to draw off the water with a catheter once or twice, or oftener, in the day, if required; to keep one constantly in the bladder; or to take the chance of the parts healing, now that the urethra is clear, without adopting any precise rules on the subject: the fact is, that sometimes one practice will succeed and then another, it being impossible to lay down any determined regulations on the subject. The first thing to be done is to clear the urethra, and after that, to give the fistulæ a chance of being cured, by merely attending to them, as you would have done had they been common fistulous openings from the formation of matter, unconnected as outlets for the urine from the urethra. When you have tried this simple plan, and failed, you have to decide between keeping a catheter constantly in the bladder, or passing one at every time that it requires to be emptied. With some patients it is impossible to retain a catheter, or any extraneous body in the bladder, from its great annoyance, not only to it, but to the system at large, so that a perseverance would be extremely injurious; but where the catheter is kindly received and retained, it is the method we at first generally attempt, and proving unsuccessful, from the patient not being able either to retain it in the bladder, or from its not answering the purpose, by the water leaking away by its sides, and thence stealing through the fistulæ; we have then re-

course to its occasional introduction. In whatever way you attempt a cure, you must be prepared to meet with many disappointments and vexations, even after the strictures are destroyed, before you happily succeed in restoring your patient to health: as a general rule, you will find, that after the strictures are destroyed, either the openings will heal without much trouble, or they will be exceedingly difficult to manage.

Sometimes the parts will rapidly heal up even after a large portion of the urethra has been removed. I was desired by the general officer commanding the Western District, to visit an officer about whom he was exceedingly interested, belonging to a regiment ordered to Ireland, who had been returned so often on the sick-list to the Horse Guards, that they were afraid he would be obliged to go on half-pay, unless strong hopes could be held out of his being in a short time restored to health. On my visit, I found that he had been severely strictured, which complaint had been removed, but that the fistulous openings from the urethra into the perinæum had been very difficult to treat, so much so, that the surgeons, under whose charge he had been and still was, had either pared away with the knife, or removed with the caustic, what they called the callous edges of the urethra; so that when I saw him, the catheter, which had been constantly kept in the bladder for some weeks, was exposed at least half

an inch very low down in the perinæum, the surgeons applying the caustic to the edges of the open urethra almost every day, as they had not, they said, so far shewn any disposition to cicatrize over the instrument; but, on the contrary, the catheter had become more and more exposed: the patient had been kept exceedingly low, and was greatly dispirited. My advice was, that the instrument should be instantly withdrawn, to see what nature would do, when left to herself, assisted only by the parts being quieted and soothed as much as possible, by warm fomentations and mild poultices; under this treatment the urethra closed, the fistulous openings cicatrized, and in about seven weeks this officer happily was able to join his regiment.

Though luckily a very rare case, yet the urethra will suddenly burst to a great extent, filling the scrotum, though no previous violence from external hurt had been received by the parts, nor any injury done from the passing of instruments. Such an instance fell under my observation within the last three years, of a gentleman who had been inconvenienced in the urethra for a long time; and one day, whilst out walking, he felt, on attempting to make water, something suddenly give way; the scrotum instantly filled, and not a drop of urine could he get off by the orifice in the glans; within a few minutes he reached his home, when a con-

sultation was held; the scrotum was laid open, the effused water evacuated, and a catheter with some difficulty was passed by the lacerated urethra into the bladder, whilst the upper portion of the canal was cleared by inserting a bougie through the incision, and pressing it upwards till it came out at the natural orifice, when one was occasionally introduced in the usual way by the mouth of the urethra, keeping the catheter for several weeks in the bladder by the lacerated passage, occasionally withdrawing it to have it cleaned. In about three months the case, which was admirably managed by the surgeon in charge of the patient, turned out so well that the parts entirely healed, and the water was discharged without difficulty by the natural passage, and in a comfortable stream.

There is also a condition of the urethra which might well be called a "permanent stricture, occasionally spasmodic," most commonly coming on in patients of a very irritable and full habit: where the stricture itself is but slight, and of recent formation; in those cases the stream of urine is not much lessened, but there is a frequent and vehement desire to void it, with great irritation, and a tingling heat along the whole course of the urethra, which has lost much of its mucous secretion, and then such spasm comes on that the water is for a few minutes entirely retained, when, after

a short but severe straining, it resumes its usual stream, and the patient often thinks but little of the attack, attributing it to some previous indiscretion either in eating or drinking, being glad enough to seize any opportunity of accounting for the paroxysm, so as to put off the evil day, by avoiding at this period of the complaint, taking such decisive measures as would permanently remove the cause. You will find that the spasm is generally brought on from exposure to wet, great fatigue of body, strong emotions of the mind, whether of excitement or depression; or from having committed excesses either of the table or the bottle; and, but too often, a cause is to be found for these attacks, from the great desire that patients labouring under these irritable conditions of the urethra have for intercourse with the other sex, which indulgence is almost sure to be attended with mischief; and yet, with this knowledge, so great is the excitement, that the patient is driven to gratify his passions, notwithstanding the suffering that he is certain soon afterwards to experience. Under these circumstances, it frequently occurs that the patient is unwilling to submit to any local treatment of the stricture, hoping that the spasms may not again recur, without which the diminished stream of water would be but little inconvenience. Should such a reluctance to the bougie be apparent, a good deal may be done by attending to

the diet, regulating the bowels, tranquillizing the system by small doses of hemlock, and soothing the parts by warm fomentations: should he, however, take the wiser course of wishing to get rid of the cause of complaint, you must be cautious not to meddle with the stricture whilst the spasmodic attack is present; first bring the parts to a state of tranquillity, and then when you have once ascertained, by the gentlest introduction of a common bougie, the seat of stricture, which in general, in this condition of things, will be found to be only one obstruction at seven inches, you must manage the cure by merely touching the parts every third or fourth day with a bougie, armed with the nitrate of silver. If you endeavour to clear the passage with a common bougie, you will almost invariably at every introduction bring on a violent return of the spasm, whereas the caustic seems to act immediately in lessening or removing the irritability of the canal, and by a few applications you will get through the obstruction, and cure your patient. It but too frequently, however, happens that he does not think himself sufficiently ill to submit to any decisive measures,—is contented with those means which temporarily remove the spasm, leaving the stricture unsubdued: in time the attacks greatly diminish in frequency and violence, by the stricture becoming less irritable, but then it is by assuming a more obstinate and permanent

character, and consequently one of more difficult removal.

Having stated to you, gentlemen, that I consider it is the abuse, and not the proper use of the armed bougie, that has brought its practice into such general discredit, it is necessary for me, after having given you our plan of treatment, to say that we have never met with a single case of retention of urine that has required either the bladder to be punctured, or the urethra laid open to allow of the escape of the water; and that we have never had any retention of urine that existed after the introduction of the armed bougie beyond twenty-four hours at the utmost; that it has never been followed by any hæmorrhage at all alarming or injurious, excepting once in the instance of a delicate young officer of a scrofulous habit, aged twenty-three, then a lieutenant, now a post-captain, who was in the hospital for strictures, when, after two had been destroyed, and the third had been touched five times with the caustic, violent hæmorrhage came on, which continued more or less for several days, reducing him so very much that I felt alarmed for his safety; luckily, however, by degrees it ceased, and he rallied his strength; I did not, however, venture on the introduction of even the common bougie till two months after the total cessation of the bleeding, when it passed on freely to the

bladder, and he soon left us with a sound urethra, and otherwise in as good health as he had ever previously been.

No abscess has ever formed in the perinæum, so as to break, which had not existed previously to the use of the caustic. Many and many times uneasiness has been felt, tumours have been formed, and abscesses threatened in the perinæum, opposite to the stricture, which have gone off by the discontinuance for a time of the bougie, and which no doubt might have been easily provoked to a very troublesome state, had it been persevered in after these warnings had come on. In these attacks, the free use of leeches, perfect rest, cold applications, mucilaginous drinks, combined with liberal doses of opium, should not be neglected.

Then you will naturally ask me, if such has been the success of your treatment in the management of the armed bougies in the removal of strictures, how comes it, that a practice which not many years since was so much followed and so highly patronized, should now have fallen into such disuse? My answer is,—that the bougie armed with the lunar caustic has, in our opinion, been applied too large, with a surface of caustic too extensive and too prominent; that it has been applied too frequently, having been introduced at too short intervals; that it has been kept in too long, and too much violence and force have been

used in driving it, not only down to, but absolutely through the stricture, tearing it away, and lacerating the urethral lining: if this has often been the mode of application, you may easily figure to yourself the mischief that has been done. If you wish to form an eschar the size of a shilling, you pencil out with your caustic a surface not larger than half its extent, and in a few hours your burnt part will be black to the size you first intended; therefore, if you take a bougie as large as the urethra can possibly receive, with the caustic very prominent at its end, you will every now and then be foiled in getting it down to the stricture; for the urethra having tasted the caustic, will contract around your bougie, giving you either the idea that you are already in contact with the stricture, or you will not be able to reach it unless a very painful degree of force be used, which will also occasionally tear the lining of the passage; and when you get down to the stricture with such a broad surface of prominent caustic, your burning will extend much beyond the obstruction, which should be the only object of your application, and an eschar will be formed on the sides of the urethra, which ought not to have been touched; the consequence of which frequently is, that when the slough comes away violent hæmorrhage ensues, and so much have the sides of the urethra suffered, which had been previously sound, that inflammation comes

on, tumour arises, matter is formed, and an external opening takes place, allowing of the escape of the urine; all which untoward circumstances might have been avoided by using a much smaller bougie, which would have readily passed down; its caustic would have been applied to the stricture alone, and the urethra would have escaped injury. We say that the armed bougie has been introduced at too short intervals, for in our practice we never apply it oftener than once every third day, and even not then, if we think that the eschar from the last application has not been thrown off, which may often be detected washed away in the urine, floating in the form of a little dark filament, similar to a small portion of the flake from off the bottle of old crusted port-wine; or should there have been experienced more pain from the last introduction than is usual, or any appearance of blood, we put off the bougie till the pain be lessened or gone, and the hæmorrhage entirely ceased for three days. Besides, by inserting the armed bougie oftener than every third day, you are only applying the caustic against a burnt part, the pain from which being not immediately felt by the protection afforded from the eschar, you are deceived, and the bougies kept in much longer than you otherwise would have done, so that a large quantity of the nitrate of silver is liquified, leaks about and burns other parts of the passage, not at all necessary

for the removal of the complaint. Bougies have been often retained for three or four minutes at a time; many are the evils which arise from this practice, such as spasms at the neck of the bladder, retentions of urine, abscesses in the course of the urethra, fistulous openings in the perinæum and scrotum, diseased prostates and bladder; we however do not permit the armed bougie to be kept in the urethra beyond a minute.

I have thus candidly given you the result of my experience, which has led me to consider the lunar caustic as the safest and best means of curing by far the greater proportion of strictures that will not yield to the common bougies. There are cases which the armed bougie has not been able to overcome, and for which we have been obliged to employ other means; the instances are comparatively very few; such, however, have and will occur.

As my principal object in the above remarks has been to describe the symptoms and treatment of Strictures in the Urethra, it is not my present intention to enter into a detail of the various diseases of the prostate gland and bladder, which are lamentably but too frequently the consequences of neglected or improperly managed strictures.

As frequent reference has been made in this work to various specimens of fractured and injured bones, and other preparations, the Author will be at all times most happy to shew them to any gentleman who will do him the favour of calling at his house.

THE END.

W. WILSON, PRINTER, 57, SKINNER-STREET, LONDON.

ERRATA.

Page 11, *for* " Amon." *read* " Ammon."
— 29, *for* " eare," *read* " care."
— 52, line 4, *for* " prevents," *read* " prevent."
— 91, two " ifs."
— 201, line 4, *for* " speeding," *read* " spreading."

CASES

OF

MENTAL DISEASE,

WITH

PRACTICAL OBSERVATIONS

ON

THE MEDICAL TREATMENT.

FOR THE USE OF STUDENTS.

BY

ALEXANDER MORISON, M.D.

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TO

THOSE GENTLEMEN

WHO HAVE ATTENDED HIS LECTURES,

THIS PUBLICATION

IS RESPECTFULLY DEDICATED,

BY

THEIR OBLIGED SERVANT,

ALEXANDER MORISON.

EDINBURGH,
1st *May* 1828.

CONTENTS.

Introduction,		1
	On the Nosology of Mental Diseases,	2
	..... Medical Treatment,	4
	..... Moral Treatment,	7
	MANIA, or General Insanity,	11
Case 1.	Mania, (cured)	12
	Remarks on Bleeding,	13
2.	..... (died),	15
3.	..... (cured),	18
	Remarks on Purgatives,	20
4.	..... (cured),	21
	Remarks on Cold-bathing and Restraint,	23
5.	..... before puberty, (not cured),	24
	Remarks on the above,	27
6.	..... Puerperal, with Catalepsy, (died),	28
	Remarks on Emetics,	32
	on Catalepsy,	ib.
7.	.... (cured),	34
	Remarks on Hæmorrhoidal Discharge,	35
8.	.... (not cured),	36
	Remark on Oil of Turpentine,	39
9.	.... (cured),	40
10.	.... (relieved),	41
	Remarks on cold applications to the head,	
11.	.... (not cured),	45
	Remarks on Issues made by caustic applied to the head,	49
	on Stramonium,	ib.
	on Rotatory Motion,	ib.
12.	..... Intermittent, (cured),	51
13.	..... Remittent, (not cured),	52

MONOMANIA, or Partial Insanity, . 55

Case 14. Monomania Elated, (uncured), . . 56
Remarks on Seclusion in Darkness, 59
15. .... (not cured), . . ib.
16. .... terminating in Dementia, . 61
17. .... do. do. . 64
18. .... do. Paralysis, . 66
..... Religious, ... 69
19. .... var. Theomania, (uncured), ib.
20. .... do. (cured), 72
21. .... do. (cured), 73
22. .... Demonomania, (not cured), 75
Remarks on the above, 76
..... Timid, ... 78
23. .... with Refusal of Food, (not cured), ib.
Remarks on the above, . 81
24. .... (not cured), . . 82
Remarks on exciting Religious Ideas, 84
25. .... (cured), . . . 85
Remarks on the Use of Camphor, 86
26. .... (not cured), . . . 90
..... Amorous, ... 91
27. .... with Epilepsy, (not cured), 91
Remarks on Local Abstraction of Blood from the Head, 93
28. .... with Lust, (not cured), . 94
..... Chimerical, . . . 96
29. .... with Hysteria, (cured), 97
Remarks on Warm-bathing, 101
Remarks on Cold Applications to the Uterine Region, 102
30. .... with Hysteria, (not cured), ib.
Remarks on Hypochondriacal Monomania, . 105
31. .... (relieved), . . 106
..... Melancholy, . . . 108
32. .... (cured), . . ib.
33. .... with Deafness, (cured), 110
34. .... (cured), . . 112

35. Monomania Melancholy, with propensity to Suicide, (cured), . 113
Remarks on the use of Opium, 115
36. .... (not cured), . . 118
Remarks on Stibiated Ointment, 122
37. .... (cured), . . 123
38. .... (not cured), . . 124
39. .... (cured), . . 127
40. .... with Pregnancy, (not cured), 128
41. .... with Paralysis, (not cured), 131

DEMENTIA, or Fatuity, . . 134

42. Dementia, (died), ... 135
Remarks on Morbid Appearances, 138
43. ..... (not cured), . . . 140
44. ..... (not cured), . . . 142
45. ..... (not cured), . . . 143
Remark on Electricity, . . 147
46. ..... (not cured), . . . ib.
47. ..... (died), ... 149
48. .... (relieved), ... 151
49. ..... (cured), ... 152
50. ..... (cured), ... 153
51. ..... (relieved), ... 155

Numerical Table of different Varieties, 159
Explanation of the Plates, . . 163

INTRODUCTION.

THE information we possess respecting the clinical treatment of mental diseases being very limited, I have been induced to add a little to it by this elementary publication, the object of which is to contribute towards supplying that deficiency, by presenting to students a collection of cases of ordinary occurrence, in which the medical treatment usually employed is detailed, in hopes that others, having extensive opportunities of observation, will favour us with their experience in this department, either on the principle of arrangement here adopted, or on any other that may tend to render our ideas more correct, and our treatment more successful. To those who have paid attention to this subject, the difficulty felt in obtaining clinical instruction respecting these diseases is well known. Various causes conspire to produce this difficulty, the principal of which are the

general repugnance to expose connections thus afflicted, and the injurious excitement which the sight of strangers frequently occasions in the insane.

Much diversity of opinion exists as to the best mode of arrangement, or the Nosology of mental diseases: that mode which arranges diseases according to the different morbid states of the organs giving rise to them, that is, to a proximate cause, as it has been termed, certainly appears to be the most rational, and ought to be adopted wherever it is practicable. The imperfect knowledge we as yet possess of the connection of mind and body, prevents its adoption as regards mental diseases, in which, if it could be done, our distinctions ought to be founded upon the cerebral affection giving rise to the morbid phenomena manifested in them. Such an arrangement seems to be hinted at by some of those who advocate the craniological phrenology, or doctrine of the mind promulgated by Dr GALL, and the different kinds of partial insanity have been referred by them to different morbid states of particular convolutions of the brain, in which Dr GALL says the different propensities and affections re-

side, and they direct topical treatment to the supposed diseased organ. If, however, in examining the brains of those who have laboured under only one variety of partial insanity, diseased appearances, such as those of inflammation, or its consequences, be found, they are very seldom confined to one convolution, but are more or less diffused over a number, and particularly in the membranes covering them.

The arrangement proposed by Drs PINEL and ESQUIROL, founded on the morbid manifestations of the mental functions, appears to me better suited to the present state of our knowledge. In proof of the applicability of this mode of arrangement, I may state, that, in a collection of nearly 300 cases, taken indiscriminately, with a view to ascertain the point in regard to practical purposes, I have found little difficulty in assigning to each a definite place in it. Of these cases I have selected such as exemplify most of the kinds of general and of partial insanity, and have added an abstract of the numbers of each. The proportion will no doubt be found to vary in almost every attempt to classify a number of cases:

it, however, serves to shew that certain kinds are much more common than others.

Before proceeding to the detail of those cases, it may not be out of place to say a few words on the general principles upon which the medical and mental treatment are founded. In every case of mental derangement, it is presumed that more or less corporeal disorder exists. Hence the propriety of dividing the treatment into medical and mental, or, as it has been usually termed, moral.

In the employment of the former, we are directed by indications, presenting themselves, to counteract the various deviations from the healthy state which may occur in the corporeal functions. The first object of inquiry is the origin of the disease. In every case where the mind is disordered, it is now generally admitted, that its organ, the brain, is either primarily or secondarily affected,—probably not so universally the former as some late authors contend. Still, in every case, our attention must be first directed to investigate its probable condition, which varies in different cases. In some, the irritation of this organ attending the mental derangement is inflamma-

tory ; in others, a state of active congestion or fulness of bloodvessels, without inflammation, prevails. This fulness, again, may be of a passive description, depending upon a semiparalytic dilatation of the cerebral vessels. With a view to obviate these morbid states of the bloodvessels in the head, the abstraction of blood generally or locally,—the application of blisters,—the insertion of issues,—and the application of cold, are all indicated, more or less, in different cases, and upon rational principles, as well as other evacuations tending to diminish determination of blood to the head ; and, to remove the effects of these morbid states of the vascular system, such as thickening of the membranes, depositions of serum, &c., certain remedies, supposed to excite absorption, among others, mercury, diuretics, and local stimulants and drains, have been employed.

The influence exerted upon the brain by disorders existing in other organs, leading to derangement of its functions, appears to be intimately connected with the state of the nerves and ganglions of the great sympathetic nerve, supplying the organs of digestion and of generation. The unusual sensations experienced in the abdo-

men leading to erroneous ideas respecting their nature, so common in some varieties of insanity, as well as those occurring in epilepsy and hysteria, are, it is probable, phenomena of a deranged state of this system. How great an effect slight irritation thereof may produce, is proved by delirium and convulsions, symptoms dependent on the nervous system including the brain, being produced by worms in the intestines irritating the extremities of these nerves, without any reason to suppose inflammatory action.

Where abdominal irritation, then, may be supposed to exist, the employment of remedies acting upon the stomach and bowels is rationally indicated, and they are of extensive utility in mental disorders. The connection of the genital organs with mental disorder is likewise well ascertained. In females, menstrual irregularities and other uterine affections,—in males, onanism and excessive venery, are frequently followed by or attend upon insanity. Hence the good effects sometimes produced by the re-establishment of the menstrual, the occurrence of the hæmorrhoidal discharge, and the removal of debility,—and the propriety of employing medical treatment corresponding to these indications.

With regard to the nervous system itself, it does not appear irrational to suppose, that irregular distribution or congestion of that agent, which is the material vehicle of sensation, may take place in the nerves, that this ascendant fluid may flow too rapidly, or accumulate too much, in certain parts of the nervous system, independent of sanguineous disorder, and produce increase of general sensibility, and of muscular irritability, giving rise to painful and unusual sensations, the cause of those sudden delusions, and of those violent and irregular movements so common in the insane. To mitigate or subdue those, recourse is had, and upon rational principles, to the soothing properties of the warm bath, and of narcotics of different kinds, and to the invigorating effects of tonics.

It is in directing the mental or moral treatment, however, that the arrangement, founded on the diversity of the mental phenomena, is chiefly useful; for cases arranged under the same head, and requiring similar mental management, may require very opposite medical treatment.

In order to conduct the mental treatment with efficacy, the most important object is to obtain

full information of the patient's previous history, and particularly of the mental cause giving rise to, or at least intimately connected with, the production of the disorder. Such may be excessive application to business or to study, political anxieties, commercial difficulties, religious doubts, disappointed affections, remorse of conscience, and various passions. Possessed of such knowledge, we are the better able to appreciate the phenomena of his delirium, the association of his ideas in general, and the tendency of those ideas on which his mind chiefly dwells, thereby foreseeing and preventing mental irritation, removing or diminishing uneasy sensations, and lessening the frequency of fits of fury or of despondency.

On remissions occurring, we are the better able to direct the patient's attention to subjects least likely to agitate him, avoiding those on which the train of erroneous ideas or delusions depend. By ascertaining and applying what is most wished for, or making him avoid what is most dreaded, we are the more enabled to exercise with judgment the opposite emotions and affections that may be suitable to the different kinds of partial insanity.

In such cases, then, where mental treatment is applicable,—for in furious madness seclusion, medical treatment and adequate restraint, and in chronic dementia and idiotism, safe custody and kind treatment only are required—the leading indication is to diminish and remove delusions or erroneous ideas, by exciting the attention, and by withdrawing it from favourite, but hurtful, subjects of thought. With this view, recourse must be had to occupation exercising the body, or employing the mind, or both, by such means as labour of various kinds, active or sedentary amusements, walking, riding, travelling, music, drawing, reading, &c. In general, it may be observed, that a daily round of easy occupation, not attended with danger, ought to be established, in which the patient may be employed, as in the discretion of the physician may seem best adapted to his former habits and his present state. Where numbers of patients are assembled, the treatment to be observed necessarily requires a judicious classification; for it would be highly prejudicial to allow those who have their particular dislikes, those who may awaken distressing

ideas in others, or those who may strengthen each other's delusions, to be together.

The excitement of certain emotions or passions is sometimes of use in mental treatment; in particular, the agreeable emotions of hope and of religious consolation, and the disagreeable ones of shame and of fear. To excite the latter in a moderate degree, certain mechanical means have been employed, as the rotatory machine, and the douche of cold water—and they have been sometimes employed with advantage. A few cases are on record, where dexterously humouring the patient's delusion has been successfully tried; but these are so rare, that little dependence is to be placed in that mode of treatment. To conclude, it must be kept in mind, that no general rules of mental treatment can be laid down applicable to every case. Each patient must be studied individually, in order to acquire such knowledge of his mind, as to enable us to control and regulate its operations.

I have to express my acknowledgments to several medical friends for their ready communication of cases, of which I have availed myself in making the following collection.

CASES

OF

MANIA, OR GENERAL INSANITY.

THE essential character of Mania, is general delirium; that is, delirium extending to a multitude of different objects, evinced by confusion and incoherence of ideas succeeding each other with morbid rapidity, and without connection. The perceptions are erroneous, and frequently accompanied with violent passions, as contempt, suspicion, anger, and hatred, permanent hallucinations, however, are rare,—the attention cannot be fixed,—the memory is confused,—and consciousness of existence seems lost, although events occurring during the disorder are frequently recollected,–the imagination is excited,–the judgment is erroneous, and the efforts of volition are vague and unsteady; there is an irresistible tendency to

motion, the muscular power is frequently increased, and there is a strong disposition to act from the impulse of the moment; exacerbations of excitement giving rise to fits of fury are frequent.

CASE I.

A. A. H. an unmarried female, æt. 24.

July 18th.—This young woman talks incoherently, she laughs and sings the greater part of both day and night, and is very uncleanly in her person; she does not appear to have any tendency to injure herself or others. About three months ago she was seized with symptoms of typhus fever, accompanied with violent delirium; the fever, after a considerable time, subsided, and left her in her present state.

Her catamenia are suppressed.

℞. Pulv. Rhei, gr. xij.
Calomel. gr. ij. M. statim.

℞. Magnes. Sulphat. ℥iij.
Infus. Sennæ, ℥iss. solve. Sumat alt. diebus.

25th.—Mitt. sang. nucha cucurb. ope, ℥xiv.

28th.—℞. Antim. Tart. gr. ij. pro emetico.

Aug. 1st.—Continues nearly in the state above described.

Repet. haust. purg.

Sept. 1st.—No change.

Mitt. sang. nucha cucurb. ope, ℥ xiv.

Oct. 1st.—The expression of her countenance continues wild, and her eyes are staring, but she can now sometimes answer questions with tolerable propriety.

Nov. 1st.—No farther manifest change has taken place.

Dec. 1st.—The menstrual discharge, which had been suppressed since her first attack, has reappeared; but her mental disorder still continues.

15th.—She has suddenly experienced a remarkable amendment, being now clean in her person, and correct in her discourse.

In this case, I think we are entitled to conclude, that the amendment was connected with the return of the menstrual discharge; perhaps some benefit was derived from the laxatives and abstraction of blood previous to October 1st.

Bleeding is principally indicated, in mental diseases, where increased action or congestion is

accompanied by plethora, or suppressed discharges by decided inflammatory affections of the contents of the head, thorax, or abdomen, or has been produced by external injury or insolation. The necessity for bleeding is not limited to mania, it is frequently required in monomania. We must be cautious not to carry it too far, and be aware that mental causes may be keeping up the disease of the mind, and with it, by sympathy, nervous irritation and increased action of the blood-vessels: and that although excessive bleeding may diminish the latter, it does not reach the mental cause; so far from it indeed, that tranquil patients are sometimes rendered furious by injudicious bleeding. It is almost unnecessary to say, that, when venesection or arteriotomy is decided upon, precautions must be taken to secure the patient during the operation. Local detraction of blood by leeches, applied on the lower part of the abdomen or the perinæum, is sometimes of service in cases of this description, where a natural discharge has been suppressed.

CASE II.

M. A. an unmarried female, ætat. 40.

Jan. 29th.—Has been insane for five or six days. Ten days ago, having previously been in good health, she was seized with sore throat, accompanied with a papular eruption about the wrists, to cure which, she took, of her own accord, nearly two pints of port wine; since which time she has been in a state of delirium. The sore throat and eruption are almost gone; she now talks incoherently,—has various delusions of vision and of hearing, and is very restless, scarcely sleeping at all. Her pulse is 72. Her feet are rather cool. She has not been insane before, but she has a strong hereditary disposition to insanity, her father and two sisters having been insane; one of these sisters is now in the house in a state of dementia.

℞. Pulv. Jalap. gr. xv.
Calomel. gr. iii. M. Sumat statim et repr. alternis diebus.
Applicr. Lotio frigida capiti raso ex Alcohol. ℥iv. Aq. ℥xii. M.
Utatur pediluv. statim.
Hora somni sumat Tinct. Opii. m. xl. et repr. post horas quinque.

To have milk and vegetable diet.

30th.—Continued very restless and noisy, until an hour ago, when she fell asleep.

31st.—Her sleep was of short duration; on awaking she became more violent, and it has been necessary to restrain her by the strait waistcoat.

Omittr. Tinct. Opii.—Contr. alia.

Feb. 2.—Continues violent and noisy,—has little or no sleep. Pulse natural.

5th.—Last night she had four hours sleep,—to-day she is as violent as ever,—laxative has operated freely. Pulse is rather quicker, face rather flushed.

Cont. Lotio frigida et Pulv. purg.

7th.—Slept an hour and a half last night,—bowels open. Pulse 80, of natural strength at the wrist, appears rather full in the carotid arteries,—face flushed;—continues very noisy, and requires restraint; the purging powder is given with difficulty.

Appr. Hirud. xx. capiti.

R. Cambog. gr. iii.

Antim. Tartar. gr. i.

Ext. Colocynth. Comp. gr. xii. M. Fiant pil. iv. statim sumend. et alt. man. repetend.—Omittr. Jalap. et Calomel. Cont. Lotio.

10th.—Continues quite as incoherent in her discourse, but her violence is diminished. Face flushed. Pulse 80.

Cont. Pil. et Lotio.

14th.—Is more silent,—less incoherent and less violent. Restraint is removed; her pulse has increased in frequency, but not in strength; it is at present 100.

Cont. Pil.

Fricetur caput Unguent. Antim. Tartar.

18th.—During the last four days her mental disorder has diminished, and her corporeal disorder has increased. She has been less violent, more rational, and less incoherent in her discourse, but her pulse is 110 and feeble, her tongue is loaded, and her face is pale, and rather collapsed. The tartar emetic ointment has produced pustules on the neck, but not on the scalp. Nothing could persuade her to take her medicine during the last three days, and her friends would not consent that she should be constrained to take it. She has had no motion since the 14th.

Utatur Supposit. ex Elaterii gr. vi. et postea injicr. Enem. domestic.

19th.—Died. Permission to examine the body refused.

CASE III.

A. F. G.

Nov. 12.—Has been in a state of insanity about fifteen days; she is very noisy and quarrelsome, teasing and disturbing all about her, and fancying every stranger she sees an acquaintance. She was delivered above a year ago, and suckled her child till signs of mental derangement appeared. She conceived that her neighbours wished to poison her—that her husband was about to commit murder, and that she must follow him to prevent him, and attempted to get over a wall for the purpose. Since that time she has evinced great violence, particularly directed against her husband and her children. Previous to this attack, which is the first, her health appeared to be good. It does not appear that she has any hereditary disposition to insanity, and no cause can be assigned.

She requires restraint, to prevent the effects of her violence.

℞. Pulv. Jalap. ℈j.
Calomel. gr. ij. M. Sumat statim, et repr. alt. diebus.
App. cucurb. cruent. nuchæ ad ℥ xij.

23d.—Continues violent.

Rep. cucurb. cruent. ad ℥ xij.

Repr. Calomel. et Jalap. p. r. n.

27th.—℞. Pil. Hydrarg. gr. v. quotidie.

℞. Camphoræ gr. x. bis die.

Dec. 11.—No change.

Rep. Pil. Hydrarg. bis die, et

Rep. Camphoræ ℈ j. bis die.

25th.—Still continues violent.

℞. Mist. Cinchonæ ℥j ss. bis in die. Omitt. Hydrargyrus et Camphora.

26th.—App. Empl. Lyttæ nuchæ.

℞. Mist. Cinchonæ ℥jss. 3 in die.

Jan. 4.—Has been occasionally quieter for a few hours, but is generally in an irritable and violent state, talking loudly and incoherently.

Descendat in Baln. Tepid. ter in hebdom.

8th.—Continues to talk incessantly, and is confined to her bed-room.

℞. Mist. Camphor. ℥iss.

Tinct. Hyoscyam. ℥ss. M. Sumat hora somni.

26th.—℞. Ext. Opii, gr. i.

Ext. Hyoscyam. gr. v. M. Ft. pil. om. nocte sumend.

Cont. Baln. tepidum et Pulv. purg. p. r. n.

Feb. 1.—Is better and more quiet on alter-

nate days, and is now allowed to be without restraint.

11th.—Is much improved, and expresses a desire to return to her family.

The use of purgatives, which are more employed and more useful perhaps than any other remedy, nevertheless requires caution. The milder ones, and in moderate doses, in general succeed better than the very drastic purgatives, such as elaterium, the oil of croton, and hellebore, which frequently add to the nervous irritation already existing. It is chiefly in the early stages of mania and monomania, where the strength of the constitution is undiminished, that those used in this case, calomel and jalap, are most beneficial. Where much debility prevails, and in dementia, we must be more sparing in their employment.

Costiveness is in general a prominent symptom in mental alienation; and spontaneous diarrhœa has sometimes operated a cure, pointing out the utility of the judicious use of purgatives. Besides removing alvine accumulation, by the stimulus given to the mucous membrane of the alimentary canal, they tend to remove obstruc-

tions consequent on deficient vascular action in the system of the vena portarum, as well as to effect a salutary change in the disordered state of the branches of the great sympathetic nerve and its ganglions,—sympathy with which, it has been supposed, often leads to the morbid manifestations of the mental faculties.

CASE IV.

A. D. F. a female servant, æt. 19.

June 22.—About eight months ago was in a state of melancholy, from distress of circumstances. From this she soon appeared to recover, and went into service. A short time after, however, she became furiously deranged, and has continued so.

At present she is very passionate and abusive, swearing much, and suddenly breaking out into violent fits of fury.

Her habits are very dirty. On account of her violence she has been restrained by a strait waistcoat and handcuffs.

Pulse 120. Skin of natural temperature.

℞. Calomel, gr. i.

Pulv. Jalap. ℈i. M. statim.

℞. Sulphatis Magnesiæ, ℥iii.

Infus. Rosæ, ℥iss. M. bis quotidie.

29th.—Little change.

℞. Tinct. Digitalis, m. xv. 3tia qq. hor. sum.

July 8.—Auge Tinct. Digital. ad m. xx. pro dosi.

20th.—The disease continues, although she is now occasionally more tranquil.

Omitt. Digitalis.

Adhib. affusio aquæ frigidæ subita omni nocte.

23d.—The cold affusion appears to be of service.

27th.—Adhib. Affusio aquæ frigidæ bis in 7mana.

31st.—Her pulse is now less irritable, and in other respects there is evident improvement.

Omitt. Sulph. Magnes.

℞. Infus. Sennæ ℥iss. omni mane.

Aug. 10.—She is now capable of occasionally employing herself, is out of restraint, and is civil and decent in appearance.

℞. Haust. Sennæ alt. diebus.

31st.—Is convalescent.

Sept. 5th.—Is now perfectly composed.

This is an example of violent Mania, exhibiting an almost constant and unusual degree of fury, by degrees subsiding into convalescence. The cold affusion appears to have been of service.

The cold bath is hurtful when there is a tendency to plethora, apoplexy, or great debility, or when there is organic disease, and unless reaction takes place after it, it is unsafe; hence the propriety of not continuing it too long.

When used as a tonic in cases of insanity produced by debilitating causes, it is best in the form of the shower-bath.

With regard to restraint, which was indispensable in this case, I would observe that it must be employed with great reserve and caution, as it more frequently tends to irritate than to calm the patient. At the same time, it ought to be kept in mind, that restraint, judiciously applied in incipient insanity, may be a remedy of the greatest importance, because it may rouse the patient, unconscious of his deranged state, to reflect on it, and change the train of his ideas.

It is unnecessary to say, that, in all other cases, the object ought to be merely to restrain the movements of the insane tending to injure them-

selves and others, without producing pain, or impeding the free circulation of the blood. The means usually employed are the strait-waistcoat of WILLIS, the belt of HALLARAN, with leather mitts or muff, leg locks, and the tranquillizing chair, as it is called.

MANIA (BEFORE PUBERTY).

CASE V.

A. B. æt. 14.

Jan. 21st.—Labours under mental derangement, and has done so since April, when decided delusions first appeared, with paroxysms of violence. His manner is hurried; he rapidly passes from one subject to another in discourse, rises abruptly from his chair to walk about the room with rapidity, and, whenever he wants any thing, expresses his desire for it with impetuosity.

He is occasionally violent, especially towards a brother and his tutor, but has shewn no disposition to hurt himself.

With all this, he is frequently capable of giving rational answers. He dislikes reading, or hearing another person read or write; but is fond of looking over maps, especially those containing places visited by him on a tour, of which he appears to have a perfect recollection.

He labours under various delusions, conceiving old women to be witches—that dirt is put into his food—that persons teaze him—that he is deprived of property, or that he is owner of almost all the country, &c.; he dislikes a crowd and strangers, especially old people and clergymen, and is confused by their presence—fancies he sees ghosts, and quits his bed in the night-time—looks angry at certain pictures, and strikes them. He appears at times in a state of reverie or abstraction, he generally lolls in a chair, and sucks his finger or cravat, and calls himself by the name of a dog.

His countenance now and then has a vacant expression. His spirits are in general good, although he occasionally sheds tears.

He has from infancy been much indulged, and his passions were very violent until eight years of age, at which period he seemed to acquire some controul over himself. Went to school where

he made tolerable proficiency, but was considered very self-willed and daring, for he would strike boys much bigger than himself. While there he occasionally started up from his meals, and screamed out—was shy, and would rarely look a person in the face, even a schoolfellow when he met him.

His digestion has been disordered, and his bowels have been costive, with deficiency of bile, and he has generally experienced relief from laxatives, the irritability of his disposition being diminished by them. He seldom complains of headach, but has acquired a habit of scratching his head. Has been occasionally given to a debilitating practice. He seldom perspires, but is much addicted to spitting, increased by exercise and agitation. Sleeps in general well. Pulse 80. Tongue a little furred.

There is reason to believe that he derives hereditary disposition to insanity from both parents.

To have his head sponged with cold water every morning, and rubbed dry; his diet to consist principally of milk and vegetables; and his body and limbs to be well rubbed morning and

evening. The following purgative to be occasionally given:

℞. Scammonii gr. vi.
Calomel. gr. ii. M. p. r. n.

and the double suspensory bandage, to prevent the debilitating practice, was directed to be worn.

I have given this case not as exhibiting medical treatment, but as an instance of insanity occurring at an early age (13,) in a person with hereditary tendency to it. Moral means skilfully adapted to the varying circumstances of the case were employed, by an intelligent tutor, and, to a certain degree, with advantage *. Dr HASLAM mentions cases of mania occurring at a still more early period of life, and Dr SUTHERLAND had under his care one case of a boy of 12 years of age, where the disease was occasioned by sudden terror, and, by suitable treatment, was completely removed. The cases of insanity I have myself met with at a more early age, I consider as cases of mental imbecility rather than of mania.

* This moral discipline was directed to establish regular habits, to restrain violence, to amuse and occupy the mind, and to convey instruction in a mild and regular manner.

PUERPERAL MANIA (WITH CATALEPSY.)

CASE VI.

A. A. married female, æt. 36.

Feb. 11th.—About six weeks ago first shewed symptoms of mental disorder—manifested by incoherent discourse and irrational conduct—walking up and down stairs in an anxious manner, frequently listening near a room, in which she conceived there was a female slanderer. At that time she was suckling her child, about five months old, which was immediately removed. In a few days after the first appearance of insanity, she fell into a cataleptic state, and has now a return of the same. The sense of feeling and faculty of speech are abolished or much impaired. The power of deglutition seems to be lost, so that every kind of aliment put into her mouth is rejected. Her eyes seem to be steadily fixed; her urine and stools are passed involuntarily, and she is never observed to slumber: the arms and legs remain in whatever position they are placed: she either cannot or will not put out her tongue,

nor open her mouth. Her pulse is soft and regular; breathing natural, skin of natural warmth. Seems to have no desire for food.

One stool yesterday morning: has voided no urine since yesterday, but there is no distention of the hypogastric region.

The former attack of catalepsy lasted a week, at the end of which time she became restless, very incoherent in her discourse, and violent in her manners: her respiration became quicker, her face flushed, and her eyes suffused. In a few days more she became much calmer and more collected, and expressed a desire to see her child, which had fallen off considerably. Grief, on observing this change, appears to have brought on a recurrence of her disorder.

She was in good health previous to her present attack.

Has had blisters applied, and laudanum and other medicines administered, without relief.

12th.—Her urine has been drawn off by the catheter, has perspired profusely since yesterday.

Appr. Emp. Lyttæ capiti raso.

℞. Antim. Tartar. gr. x.

Aquæ Distil. ℥ v. M. Sumat. ℥i. omni semihora ad vomitionem.

13.—The whole of the tartar emetic taken without effect, and afterwards ℈ii. of sulphate of zinc; soon after, about an English pint of viscid bluish mucus was vomited.

One motion:—has never slept.

Pulse 96, soft; skin soft, and moderately warm; stupor continues, however she seemed to know her child when presented to her, and she moved her arms a little.

℞. Tinct. Opii gtt. xl. Sumat hora 6ta p. m., et repr. post horas quatuor, si opus sit.

14th.—The first anodyne draught could not be administered:—the second was got over about midnight, after which she slept three hours. She has spoken a little, but is now silent, in a state approaching to stupor; she, however, grasps with violence any thing put into her hand.

Omittr. Tinct. Opii.

15th.—Remained in a state of stupor until this forenoon; had no sleep, but ate a good deal at breakfast-time. She is now (mid-day) less comatose,—speaks loudly and incoherently, and appears much agitated.

Hab. Vini albi ℥viii. Sumat cyathum subinde.

16th.—She slept two hours last night; in the

morning early became very noisy, and continued in a state of violent maniacal delirium for a good many hours.

She now eats and drinks what is offered to her.—Pulse about 80.

℞. Tart. Potassæ ℥iii.
Decoct. Avenæ ℔iii. Solve, et utatur pro potu communi, incipiens statim.

17th.—Took food once since yesterday's report heartily,—she has been in a state of violent fury all night,—slept none. Pulse as yesterday, about 80. Salts operated four times copiously.

℞. Tinct. Opii. m. L. omni hora ad 3tiam vicem nisi prius dormiverit; incipiens hor. 6ta P. M.

18th.—Had no sleep, although she had the three draughts:—had two motions before evening yesterday,—none to-day,—she has lain quiet and in a state of stupor, except for a quarter of an hour this morning when she was noisy.

Pulse very frequent and feeble; face somewhat livid, bedewed with perspiration.

At 5 P. M. died.

The cranium was opened, and the contents were carefully examined; but no deviation from the healthy structure could be detected.

In this case a powerful emetic was required, to produce vomiting; these remedies have occasionally been eminently useful in insanity, but as far as my own observation and inquiries extend, not very often. They are sometimes useful in the commencement, especially in small doses exciting nausea, and they sometimes arrest an expected paroxysm; besides promoting the abdominal circulation, increasing the secretion of the biliary and pancreatic fluids, as well as the cutaneous discharge, they may excite an useful diversion of ideas, by the disagreeable impression made upon the nervous system. Considerable caution is necessary in their employment. When inflammatory action or congestion in the head prevails, these should be diminished before having recourse to emetics. Some patients, as in this case, bear large doses, but it is prudent to try, in the first instance, the ordinary dose. Tartar emetic, from its easy administration, is generally preferred.

The occurrence of catalepsy in the insane is not so uncommon as some have imagined, and is sometimes followed by recovery of reason. In the practice of Dr SUTHERLAND four or five cases have occurred; one in a male in St Luke's Hospital,

who, after an attack of violent mania, fell suddenly into a state of catalepsy, that is, of stupor, in which the limbs remained in the position they were placed, and the respiration and circulation were diminished. So suddenly, indeed, did he fall into this state, as to give rise to a suspicion (his pulse being little affected) that he was feigning, in order to prove which, he was placed on the edge of a large cold bath, warm blankets, &c. being prepared to receive him. The result was, that he fell to the bottom like a stone, and did not make the slightest struggle when in the water. Another, in private practice, of a young lady, aged 19, similarly affected, but in whom the coma was so complete, that respiration could be detected only by means of a mirror placed before her. This state succeeded one of great excitement from *panaphobia*, in which terror of every object was combined with the delusion of the furniture, &c. being animated. Both of these patients required to be fed for nearly three months, and both recovered completely, reason being restored on the termination of the cataleptic state. In the latter case, slight convulsive movements of the thumbs were the first signs of recovery, the emaciation was extreme: the medical treatment consisted in

giving a few grains of calomel every second or third day, with an enema next morning, without which the bowels did not act.

In a case of partial insanity with depression and propensity to suicide, manifested by cutting her throat, another female, after three fits of catalepsy, succeeding each other at the interval of two or three days, was likewise restored to reason.

PUERPERAL MANIA.

CASE VII.

A. G. E. female servant, unmarried, ætat. 32.

Jan. 9th.—About two months ago had a child, which she did not suckle. A fortnight after delivery, she became insane, and after continuing a week in this state, she made an attempt at suicide, by cutting her throat with a pen-knife. Her insanity was likewise manifested by incoherent talking upon every subject, at the same time evincing the greatest distress; and she could not sleep. She has never been insane before, and is believed to have no hereditary disposition to mental derangement.

She appears to be rather better within a few

days ;—there is a considerable degree of dulness and appearance of imbecility in her manner.

℞. Pulv. Rhei gr. xv.
Calomel. gr. iii. M. Ft. pulvis, statim sumendus et alt. diebus repetendus.

19th.—Has a considerable degree of hæmorrhoidal discharge.

Desistat ex usu pulv. purg.
Utatur unguent. Gallarum.

Feb. 1st.—Is manifestly improving,—hæmorrhoidal discharge still continues.

9th.—The discharge of blood has subsided.

27th.—Repr. pulv. purg. p. r. n.

March 5th.—During three weeks has conducted herself with propriety, and though not very lively, has probably her natural degree of intelligence and animation. She may therefore be considered convalescent.

The occurrence of spontaneous discharge of blood, as already observed, is frequently the means employed by nature to remove the mental disorder; and the above, I think, may be considered a fair instance of its salutary operation. The observation of the hæmorrhoidal discharge curing mental disorder, is as old as HIPPOCRATES;

as a substitute for it, the application of leeches around the anus may sometimes be of service.

CASE VIII.

B. G. C. a married female, æt. 29.

Jan. 9th.—Is in a state of great irritation and restlessness, often screaming violently, and talking or singing incoherently. Has been delivered about five months, and suckled her own child till seven weeks ago, when she took another child to suckle along with her own, and continued to do so for three weeks, but complained much of weakness and faintness. The parents of the nurse-child, suspecting her own to be favoured, took it away: the suspicion, suddenly expressed, affected her so much as to produce convulsive motions of the muscles of the face, and an impediment in her speech. This nervous affection appeared to subside in three or four days; but about a fortnight ago, agitation and fear, produced by seeing another of her children in a violent passion, gave rise to an hysterical paroxysm. This agitation likewise subsided for about a week, at the end of which signs of mental derangement were observed; such as rising in the night-time, and walk-

ing about in great distress; a state of melancholy continued some days, and was succeeded by that of great irritation, above described. She has had no evacuation from her bowels for several days. Breasts turgid.

℞. Infus. Sennæ, ℥jss.
Magnes. Sulphatis, ℥ss. 2da quaque hora donec alvus respond.
Fovr. Mammæ Decoct. Papaveris.

12th.—℞. Pulv. Jalap. gr. xv.
Calomel. gr. iij. M. alt. diebus, vel pro re nata.

Feb. 1st.—Has improved considerably in bodily health, in consequence of proper attention to the state of her bowels. The secretion of milk, too, has subsided; but she is extremely weak.

℞. Mist. Cinchonæ, ℥ jss. ter in die.

March 13th.—Bodily health continues to improve, but is not accompanied by corresponding mental improvement; she now conceives her husband to have been burnt in an oven.

Descendat in balneum tepidum ter in hebdomade.

April 20th.—Mental disorder is little improved; her bodily health is much stronger.

May 20th.—The association of her ideas continues confused and incorrect, and there appears to be considerable torpor of mind

July 6th.—No improvement.

℞. Ol. Terebinthinæ, ℥ ij.
Mucilag. Acaciæ, ℥ ij.
Aq. Menth. ℥ xij. M.
Capt. Cochl. iv. ter indie.

31st.—No change.

Desistat ex usu Mist. Terebinth.
App. hirud. 1 pone aurem alt. diebus.
Rep. pulv. purgans.

Sept. 4th.—The same torpor of mind prevails, without any signs of amendment; she cannot be induced to employ herself; occasionally indeed she sews two or three stitches, but is incapable of persevering.

App. Empl. Lyttæ nuchæ.

Oct. 9th.—She has lately exhibited a degree of transient violence, soon succeeded by her usual torpid state of mind. She has become fatter; has good appetite, easy digestion, and quiet sleep.

Desistat ex usu hirudinis.
App. Emplast. Lyttæ perpet. pone aures.

Nov. 1st.—Remains nearly in the same torpid state; once she continued at needlework for some minutes, but was unable to persevere longer.

6th.—℞. App. Empl. Lyttæ capiti raso.

13th.—℞. Zinci Sulphatis ℈ j. omni mane ad 3m vicem.

16th.—No change.

Fiat setaceum in collo.

Rep. pulv. purg. u. a. pro r. n.

Dec. 11th.—For a few days has appeared somewhat more chearful, and more easily roused from her torpid condition of mind.

R. Ammoniæ Subcarb. ℈ ss.

Aquæ destill. ℥ jss solut. ter in die.

19th.—Has been occasionally violent, and disposed to strike those about her, whom she conceives to be constantly swearing at her. Restraint by the strait waistcoat has been applied for two days, on account of this violence.

App. Empl. Lyttæ capiti raso.

Omitt. Ammonia.

Jan. 11th.—Has relapsed into her former state of torpor and imbecility, occasionally interrupted by acts of violence.

The oil of turpentine has been brought into notice by Dr PERCIVAL, particularly in cases of Mania combined with Epilepsy. Drs HORN, GUISLAIN, and others, have tried it extensively in such cases, but without good effect; nor does it appear to have been more efficacious in cases of alienation without epilepsy.

CASE IX.

A. F. C. married female, æt. 39.

Nov. 26th.—During the last two months there has been great violence in her manner and conduct, and great incoherence in her discourse. She sleeps very little; is perpetually talking; and is extremely vociferous, though in good humour. She has not attempted violence on her own person, or on those about her, but has run naked into the street in the night-time calling out fire and murder; she has likewise attempted to escape by the windows. In July, four months ago, was delivered of her fifth child, which soon died; she has never been quite well since; but the progress of her mental disease was slow, so that it is not more than two months that she has been regarded as decidedly insane.

Immediately after the birth of her first child, upwards of twelve years ago, she was insane, and continued so about four months: her recovery was complete, and she has had no return of the disorder until now. There is no reason to believe that her complaint is hereditary.

℞. Calomel. gr. iij. Pulv. Rhei gr. xv. M. Statim et rep. pro re nata.

App. cucurb. cruent. nuchæ ad ℥ xiv.

Dec. 1st.—Talks the whole day, and with great vociferation, and is also disposed to be mischievous. She is quiet during the night, but is occasionally disturbed, she says, by witches.

11th.—℞. Camphor gr. v.

Ext. Hyoscyami gr. v. M. forma pil. ter die.

Jan. 1st.—Her reason appears now to have nearly resumed its empire: she has lost all appearance of the state in which she was two months ago, feels capable of useful exertion, and expresses a desire to return to her family.

The camphor and hyoscyamus appear to have co-operated with the efforts of nature in removing this woman's complaint.

CASE X.

B. J. J. married female, æt. 23.

June 25th.—Is very incoherent in her discourse, noisy, and inclined to be violent; but

does not attempt to injure herself or others, although she tears her clothes.

Her youngest child is five months old, and was at the breast when her mental disorder began to shew itself for the first time, which it did three weeks ago, by incoherence in her conversation, and by expressing her conviction of the truth of things for which there was no foundation, such as the death of her husband, &c.

For some weeks before this she had scarcely ever slept.

Since her disorder began, her child has been weaned; her bowels have been very torpid, having had no evacuation for above a week, until yesterday: she is inclined to refuse her food.

℞. Pulv. Rhei, gr. xv.
Calomel. gr. iij. M.; statim, et alt. diebus.
Mitt. sang. cucurb. ope capiti admot. ℥ xiv.

July 1st.—Bowels now act without difficulty.

Aug. 1st.—She still continues to tear her clothes, and is insane upon every subject; her violence renders the occasional application of restraint necessary. She will not allow stockings to remain upon her legs.

Sept. 1st.—The same incoherence, and the same disposition to tear her clothes, continue.

Sept. 18th.—Cadat in caput aqua frigida dum in balneum tepidum descendat.

Nov. 1st.—Although she does not destroy her clothes so much as she did, she is more uncleanly in her person than she was; and she now fancies herself of great importance, for, when questioned about herself, she instantly begins to talk of some royal or noble relations. She exhibits more imbecility of manner.

23d.—Perstet in usu balnei.

App. Hirud. iv. temp. om. noct.

Dec. 1st.—She is often very violent and unmanageable, so much so as to require the handcuffs occasionally: she is now extremely dirty. Has not menstruated.

Omitt. Hirud.

Fiat setaceum in collo.

Jan. 4th.—Continues to have the same exalted ideas of herself and of her parentage, with the same uncleanly habits.

8th.—Has menstruated for the first time since her illness.

18th.—℞. Pil. Hydrarg. gr. v. omni nocte et mane.

25th.—App. Emplast. Lyttæ capiti raso.

29th.—Mitt. Sang. cucurb. ope capiti admot. ℥ xij.

℞. Pulv. purgant. u. a.

Feb. 5th.—She has lately decreased much in flesh, and is very inactive: it is with difficulty that she will move or speak.

Omitt. Pil. Hydrarg.

℞. Antimon. Tartariz. gr. ij. statim.

℞. Ammon. Subcarb. gr. x.

Aqua destill. ℥jss. ter indie.

March 15th.—Her mental disorder is diminished: she is less averse to exertion, and is not so weak.

App. Empl. Lyttæ pone aures perpet.

℞. Infus. Gentian. co. ℥jss. ter indie.

The application of cold to the head, with a view to diminish vascular action in the brain, is made in various ways, by means of clay, ice, water, and refrigerant solutions. To prolong the cooling process, I have got a large hollow piece of sponge, for the purpose of imbibing the solution, and formed to fit the head like a nightcap: this may be squeezed out when getting warm, and the solution frequently renewed. To co-operate with these, by way of derivation, the patient may be kept in a warm bath.

The douche of cold water has likewise been

directed upon the head, as well to diminish vascular action, as to repress violence, to overcome obstinacy, and to rouse the patient when indolence or stupor prevails. The douche consists of a column of water, of greater or less dimensions, let fall from a moderate height, generally upon the crown of the head. The diameter of the tube, through which the water is made to pass, should not exceed an inch. If symptoms of inflammation or congestion exist, detraction of blood ought to be made before having recourse to it; and we are not to persist too long in employing it, for dementia appears to have been brought on, or accelerated, by doing so.

As the practice is not so well known in this country as it is abroad, I have given a drawing of a portable douche machine, from Dr GUALANDI'S work.

CASE XI.

C. O. A. a female, married, æt. 36.

June 12.—Is in a state of violent excitement, so as to render constant restraint necessary. She

is perpetually screaming or talking incoherently, and sleeps very little.

About six months ago was delivered of her eighth child, and, three months after her delivery, a state of indifference and of inattention to every thing around her took place, with neglect of her usual occupations and duties: this was followed by incoherence of discourse, and great violence of manner, which still continue.

About twelve years ago, three months after the birth of her first child, she was seized with an attack of insanity, which assumed the character of depression, with tendency to suicide; and she made two attempts to destroy herself, one by drowning, and the other by cutting her throat. She continued in a state of mental derangement four months, when she recovered perfectly, and has continued free from every symptom of mental disorder, until the commencement of the present attack, during which she has made no attempt at suicide. There is reason to believe that she has an hereditary disposition to insanity.

℞. Pulv. Jalap. gr. xv.
Calomel. gr. iij. M. Ft. pulv. statim sumend. et pro re nata repetend.

Mittr. Sang. nucha cucurb. ope ℥xii.
Appr. Empl. Lyttæ capiti.
℞. Extr. Cicutæ gr. v.
—— Opii gr. i. M.—Omni nocte.

23d.—No change.

℞. Pulv. Digital. gr. i.
Extr. Stramonii gr. ¼ M. Ft. pil. ter in die sumend.
Omittr. Opium et Cicuta.

29th.—℞. Camphor, gr. x.
Antim. Tartar. gr. ¼ ter in die.
Omittr. Digitalis et Stramonium.

July 4th.—℞ Mist. Cinchonæ, ℥jss. ter in die.

21st.—Continues the same.

℞. Extr. Hyoscyami, gr. x. ter in die.
Omittr. Camphor et Ant. Tart.

28th.—℞. Tinct. Humuli, ℥ss. omni nocte.

Aug. 1st.—The same great degree of irritability continues, so much so as to require her being tied to the chair in the strait waistcoat during the whole of the day.

19th.—℞. Ipecac. gr. iij.
Potassæ carbonat. ℥ss.
Mist. Camphor. ℥jss. M.; ter in die.
Admov. hirud. ii. temp. quotidie.

Sept. 5th.—No change.

Desistat ex usu hirud.

Oct. 23d.—Being more tranquil, although not materially improved, she has been released from restraint during the night.

℞. Infus. Rosar. ℥jss.
Acid. Sulphur. dilut. ℥ss.
Tinct. digitalis m. xv. M.; ter die.

Nov. 3d.—There being more excitement now than for some time past, porter, which she had been allowed, is discontinued, as also the medicines, except an occasional purgative.

Dec. 26th.—Admov. causticum capiti, ut fiat fonticulus.

Jan. 1st.—The application of the caustic to the head destroyed the scalp and pericranium at the spot touched, and laid bare the bone: the wound is now nearly as large as a half-crown piece, but there is scarcely any discharge from it: the edges are remarkably dry. There is no improvement in the state of her mind.

March 16th.—The wound is beginning to contract, and the bone, though denuded, remains sound. Mental disease continues unabated.

Descendat in balneum tepidum ter in hebdomade.
Rep. Pulv. purg. u. a.

April 1st.—Wound in the scalp has now a favourable appearance.

May 1st.—Wound gradually diminishes; her bodily health has slowly improved, but there is no improvement in her mind.

June 1st.—Scalp nearly healed. There is rather less difficulty in managing her, and she will sometimes answer questions addressed to her more readily, but the improvement is very slight, not sufficient to excite much hope of a cure.

A variety of remedies were used without effect in this case, which I have selected, to shew the danger of applying caustic to the head. The actual cautery itself has been applied on the crown of the head; but, as this case proves, even the potential cautery, by denuding the bone, is very hazardous.

Stramonium was first employed by STORK, and has been used by several German practitioners; SCHNEIDER, in particular, who gives a case of puerperal mania, cured by it. REIL employs it in extract, beginning with one grain in the course of twenty-four hours, gradually increasing it.

In cases of the above description, where great turbulence prevails, rotatory motion, a powerful

means of repression, has been proposed by DARWIN, and practised by COX, HALLARAN, and other practitioners: the disagreeable sensations produced by it tend to excite fear, and to rouse the indolent insane; the former effect may sometimes divert the mind from the train of ideas impelling to suicide. Benefit is likewise said to be derived from it in periodical insanity, that is, employed when paroxysms threaten, it sometimes retards their occurrence, and diminishes their violence. The general effects of it are, diminution of the velocity of the circulation, and of the intellectual energy: it occasions a disagreeable sensation in the forehead and pit of the stomach, difficulty of respiration and speech, general uneasiness in the limbs, vertigo, nausea, and sometimes vomiting; loss of consciousness, and sleep; the countenance in general becomes pale, though sometimes flushed with temporary redness of the conjunctiva of the eye.

An agent so powerful, it is obvious, must be useless or dangerous, where organic disease, or great insensibility, exist, and where there is disposition to plethora, apoplexy, or phthisis.

I have given a view of what I conceive to be

a good form of the rotatory machine, and one of easy construction.

MANIA (INTERMITTENT).

CASE XII.

A. O. H. married female, æt. 33.

June 12.—About a month ago she shewed symptoms of mental disorder, being five months after child-birth. The first sign of it was her attempting to go out by the window, having previously taken leave of her children. Afterwards she expressed aversion to them, to her house, and to every thing about it, with a continual desire and attempts to wander about.

At present, her disorder assumes a periodical form. In the morning, as soon as she awakes, she begins to talk incoherently, and is incapable of restraining herself: she continues in this state until noon, or a little longer. In the evening she is perfectly calm and collected. This is the first attack of insanity under which she has laboured, and there is no reason to suppose that

she has a hereditary tendency to it. The failure of her husband's circumstances preceded its appearance.

℞. Pulv. Rhei, gr. xv.

Calomel. gr. ii. M. sumat statim, et pro re nata.

℞. Pulv. Cinchonæ, ʒi. 6tis horis abs. parox.

25th.—Has made rapid progress towards recovery.

July 5th.—Is desirous of returning to her home.

23d.—No signs of mental disorder remain.

In this case the usual treatment of intermittents was eminently successful.

MANIA (REMITTENT).

CASE XIII.

B. A. G. a male, æt. 36.

June 15th.—Is subject to attacks of insanity, recurring about once a month, exhibiting symptoms of considerable violence for a few days, or a week, followed by an interval of comparative composure. These paroxysms are preceded by lowness of spirits, aversion to wear clothes, pro-

pensity to lie naked, and to be uncleanly: he then becomes mischievous, answers quick and harshly, and swears a great deal; but can scarcely be said to be dangerous to himself or others, although it is thought necessary to secure one of his hands in bed. Pulse rather quick. The intervals are of short duration, but complete; he being able to work, and employ himself quietly and decently in them.

℞ Mist. Camphor. ℥ jss.

Liquor. Antim. Tart. m. xx. M. bis quotidie.

23d.—Auge Liq. Ant. Tart. ad ℥ss.

July 2d.—Pulse reduced in frequency — appears to be gaining flesh.

Omitt. Mist. Camphor. et Liq. Antim. Tartar.

℞ Camphor. gr. vi.

Confect. Aromat. gr. x. M. Fiat bolus bis quotidie sumendus.

℞ Pulv. Ipecac. ℈ss. om. nocte.

13th.—Has a recurrence of the paroxysm, and is turbulent.

Omitt. med.

℞. Extr. Cicutæ gr. iii.

Mist. Camphor. ℥iss. M. bis indie.

20th.—Paroxysm has abated. He complains of weakness, the effect of his violence.

Ommit. Ext. Cicut.

℞ Pulv. Cinchona, ℥ss.
Camphoræ, gr. v.
Syrup. q. s. fiat. electuarium bis die sumendum.

Sept. 7th.—Has another paroxysm.

℞ Extract. Papav. gr. v. alt. noctibus.

26th.—Is considerably better, and is now very quiet and inoffensive, and willing to oblige.

30th.—The paroxysm has returned.

Oct. 5th.—Paroxysm has abated.

℞ Mist. Camphor. ℥iss.
Liquor. Antim. Tart. m. xxv. omni nocte.

Nov. 1st.—Has, upon the whole, been more orderly and quiet.

Dec. 1st.—A long remission took place during last month, no violent paroxysm intervening; during which period he has been very steady.

The bark appears to have been of use.

℞ Decoct. Cinchonæ ℥iss. Tinct. ejusdem ℥i. M. bis quotidie.

℞ Mist. Camphor. ℥i s.
Liquor. Antim. Tartar. m. xxv. omni nocte.

Feb. 27.—Accessions and remissions have succeeded each other regularly. The bark was taken twice a-day during the interval, but with little permanent effect, as he must be considered uncured.

CASES

OF

PARTIAL INSANITY,

OR

MONOMANIA.

THIS term is applied to the different varieties of partial insanity, in which we find a small number of predominant and exclusive ideas, upon which the delirium manifests itself, and the attention is fixed, the judgment often being sufficiently sound upon every other subject; whilst in mania, there is incoherence and diversity of ideas and actions, as if the patient thought and acted at random; terms expressive of the predominant ideas or emotions occurring in them, and forming their peculiar character, are employed to mark a considerable number of different varieties, which may be distinguished, and of which the principal are the following.

I.

PARTIAL INSANITY,

WITH ELATED IDEAS.

These may relate to dignities and honours with which the patient thinks himself invested; in some, exceeding all probability, in others, magnifying actual situation. Some appear entirely occupied by agreeable sensations or passions, and exhibit no chagrin; in general the patient is easily excited, tenacious of his dignity and importance, and loquacious; he has a proud and self-sufficient air.

Paralysis is a frequent concomitant of this variety, which often ends in dementia, and seldom is cured.

MONOMANIA ELATA.

CASE XIV.

C. F. G. male, ætat. 36.

Aug. 17th. — Has been deranged about six weeks; his chief delusion is, that he is possessed

of great wealth. He appears to be passionate and obstinate, his demeanour is impetuous, and his discourse surly, and sometimes incoherent; he has a sullen scowl on his countenance, his movements are rapid, and he is apt to tear his clothes.

The exciting cause of his disorder is said to have been hard drinking.

His general health is not affected.

℞. Pil. Hydrarg. gr. v. omn. nocte.

℞. Infus. Sennæ ℥iss. Magn. Sulph. ℥iii. M. mane sequente.

Sept. 17th.—No change.

Omitt. Hydrargyrus.

Mittr. sang. cucurb. ope cap. raso ad ℥xii.

Cont. Infus. Sennæ, &c. cum Tinct. Jalap. ℥i.—p. r. n.

Oct. 22d.—Little effect from the cupping.

Nov. 19th.—℞. Tart. Antim. gr. ¼.

Aq. M. Pip. ℥jss. M. bis quotidie.

Dec. 3d.—Auge Antimon. Tartar. ad gr. ½ pro dosi.

The nauseating doses of emetic tartar had no effect in alleviating his vehemence.

Omitt. Antim. Tart.

Jan. 17th.—℞. Ext. Hyoscyami gr. v.

Mist. Camphor. ℥iss. M. bis quotidie.

31st.—The effect of the hyoscyamus, though

not very powerful, has been evident in quieting his angry impetuosity.

Feb. 16th.—His ideas of great possessions and extreme opulence have diminished; but he is continually walking about, and will not willingly suffer a moment's delay.

℞. Calomel. gr. ii. Ext. Rhei gr. xv. M. pro re nata.

May 6th.—Continues impetuous in his manner, but offers no violence.

Mitt. Sang. cucurb. ope capiti raso ℥xii. Postea.

Utatur Lot. Muriatis Ammoniæ capiti raso.

℞. Ext. Hyoscyami gr. v.

Mist. Camphor. ℥iss.

Sp. Æther. Comp. ℥i.

Tinct. Opii. m. x. M. bis quotidie.

13th.—No change.

Appr. Emp. Lyttæ capiti.

Auge Extract. Hyoscyami ad gr. vii.

16th.—To be kept in a dark chamber when noisy, and a cold linseed poultice to be applied to the head *.

℞ Infus. Sennæ ℥iss.

Magnes. Sulph. ℥ii. M. omni mane.

June 10th.—Much imbecility of mind and body has succeeded his violent impetuosity.

* The sponge-cap, moistened with a refrigerant solution, is a better mode of applying cold to the head than the above.

℞ Ext. Colocynth Co. gr. x. in pil. ii. divid. p. r. n.

℞ Decoct. Cinchonæ, ℥ii.
Tinct. ejusdem ℥i.
Acid. Sulphur. dilut. m. xx. M. bis die.

July 10th.—His mind continues in a state of imbecility. His health and bodily strength appear to be recruited.

The dark chamber is of great use in some cases, by removing causes of excitement. When we wish to try the effect of sudden impression, which is sometimes useful, the patient is put into a large well lighted room, the windows of which being suddenly closed, he is left in total darkness.

CASE XV.

B. C. J. male, ætat. 30.

June 16th.—This patient has been some time deranged; at present he does not speak any. Not long since he threatened to kill a child, which his wife bore him before marriage, alleging that it was not his. After his marriage he enlisted. His insanity is supposed to have some connection

with the circumstance of having had his fortune read to him by a Gipsy, who assured him that he was to be a very rich and great man.

℞ Ext. Col. Co.
Pulv. Jalap. *a a* gr. v. M. Fiant. pil. iii. pro re nata.

18th.—℞ Infus. Sennæ ℥iss.
Magnes. Sulph. ℥iii.
Tinct. Sennæ ℥i. M. Sumat cras mane.
Appr. Vesicat. nuchæ.

29th.—Continues silent. When spoken to, however, he laughs, and is more willing than he was to do as he is desired. Never attempts to do mischief.

℞ Camphor. gr. viii.
Confect. Aromat. gr. x. M. fiat bol. bis quotidie.

July 13th.—Continues silent and harmless, but has been heard to speak.

℞ Ammon. Carbon. gr. x. in Aq. Destill. ℥iss. solut. bis quotidie.

℞ Infus. Gentian. Co. ℥x.
Infus. Sennæ, ℥v.
Tiuct. Cardam. Co. ℥i. M. om. mane.

31st.—He will now converse, and is more lively in his movements than hitherto, but his insanity regarding wealth and grandeur is undiminished.

℞ Haust. Gentianæ et Sennæ altern. man.

Sept. 26th.—No farther alteration. He still entertains the idea that he is possessed of great wealth, and he is averse to employment.

Cont. Infus. Sennæ et Gent. alt. man.

Oct. 30th.—He entertains the same delusion as to his wealth; is sullen, and unwilling to listen to reason, but continues to speak.

℞. Mist. Camphor. ℥iss.

Liquor. Antim. Tart. m. xx. M. om. mane.

Dec. 14th.—The same obstinate opinion of his own wealth remains. He replies to questions respecting it with sullenness and insolence.

℞. Calomel. gr. iii.

P. Rhei, gr. x. M. Fiat. pulvis, alt. noctibus sumend.

20th.—No amendment, except that he will occasionally speak.

MONOMANIA ELATA (TERMINATING IN DEMENTIA).

CASE XVI.

C. O. J. male, ætat. 19.

March 1st.—This young man has been de-

ranged about eighteen months. He thinks that he is very rich, and has a coach and four, and he has other extravagant notions. He has likewise a degree of imbecility in his manner. Has no violent symptom, is harmless and good-humoured. There is reason to believe that hereditary disposition to insanity exists in this case; the immediate exciting cause of the disease, however, is said to be hard drinking.

℞. Calomel. gr. iii.
Pulv. Rhei, gr. x. M. alt. noctibus.
℞. Infus. Sennæ, ℥iss. alt. man.

26th.—℞. Liquor. Antim. Tart. m. xx.
in Infus. Gentian. Co. ℥iss. om. nocte.

April 1st.—No change.

℞ Liquor. Antim. Tart. ℥ss. bis quotidie.

30th.—Has improved materially. His conduct is more rational, and his loquacity is diminished.

May 16th.—Has been seized with symptoms threatening apoplexy, for which cupping, to the extent of 12 ounces, has been employed.

Appr. Empl. Lyttæ cap. raso.
℞. Calomel. gr. iv.
P. Rhei, gr. xv. M. omni mane.

24th.—His bowels are moved with great difficulty.

℞ Extract. Elaterii, gr. iii. fiat pil. in rectum mittend. Utatur pediluv.

31st.—The dangerous symptoms appear to be now removed, and he is in a state nearly similar to that in which he was before the threatened apoplexy.

Cont. Calomel. et Rheum, p. r. n.

July 1st.—His general health appears to be re-established, but he is in a very stupid and silent condition, and is in the habit of standing in one place and position for hours together.

Perstet in usu Calomel. et Rhei, p. r. n.
Fiat setaceum in Nucha.

Aug. 6th.—Can scarcely answer the most simple question, and appears to be partially paralyzed.

Feb. 26th.—Has continued without amendment, and now seems in a state of complete dementia.

MONOMANIA ELATA (TERMINATING IN DEMENTIA.)

CASE XVII.

C. B. E. a male, æt. 47.

Dec. 30th.—About nine months ago his mental derangement first shewed itself by the frequent occurrence of great abstraction, his mind being apparently engaged on subjects from which it was not diverted by any questions or remarks. Since that time his disorder has gradually increased. He has now the appearance of a drunkard in a state of continual intoxication.

Some weeks ago he went to a neighbouring market, and bought up all that it contained. His ideas generally run on large purchases and projects, which he proposes to complete; among others, he says that he is building a town.

In order to prevent him making foolish purchases, it has been judged proper to confine him for about a month, but he has never been very violent.

Occasionally he is much dejected.

This is said to be the first attack of insanity

to which, it is believed, he has no hereditary disposition. He has been much given to indulgence in fermented and distilled liquors.

℞ Pulv. Rhei, gr. xv.
Calomel. gr. iii. M. alternis diebus.

Feb. 1st.—No change.

Mar. 1st.—The disorder of his mind is unabated; a state of great bodily weakness has supervened, and he is much emaciated.

℞ Mist. Cinchonæ, ℥jss. ter in die.

To have generous diet, with a moderate allowance of porter and of port wine daily.

9th.—℞ P. Cinchonæ, ʒss.
Pulv. Cretæ cum Opio ℈i. M. Fiat pulvis ter in die sumendus.

April 1st.—He continues weak, but less so than he was a month ago. Insanity unabated.

May 1st.—Bodily strength improved. Mind unchanged.

Omitt. Cinchona, &c.
Repr. pulv. purg. p. r. n.

June 1st.—Though his strength is restored, his mental disorder presents a very unfavourable character. He has a dull projecting eye, and the appearance of incipient paralysis.

Sept. 1st.—Mental capacity continues to diminish.

Dec. 1st. — Mental and corporeal imbecility continue to augment. He becomes gradually more torpid, dull, and obstinate. The temporary increase of bodily strength obtained since April has rather diminished.

CASE XVIII.

A. H. G. a male, æt. 43.

July 20th.—Imagines himself a first-rate singer, and that even now (although in a state of confinement) he performs every night in the theatre. His ideas in other respects are incoherent.

The present attack of insanity is of about two months duration, but he was insane two years ago, and perfectly recovered. He is occasionally mischievous, but not at all dangerous to himself or others.

His bodily health is considerably affected. He has great tremor and strabismus, with stammering in his speech. His memory is likewise much impaired.

His habits of life have been irregular, and he has been accustomed to blow large wind-instruments.

20th.—Mitt. Sanguin. nucha cucurb. ope, ℥xvi.

℞ Camphoræ, gr. x. bis quotidie.

℞ Infus. Sennæ, ℥iss.

Magnes. Sulph. ℥iii. M. alt. mane.

Aug. 28th.—The symptoms threatening apoplexy or palsy continue.

App. Vesicat. Nuchæ.

Cont. Haust. aperiens.

℞ Ext. Coloc. Co. gr. v. omni mane.

Sept. 18th.—This case does not afford any hopes of amelioration. The tremor and other symptoms continue, indeed are increased; but he still holds the same lofty ideas, conceiving himself worth millions of money—that he is to sing at the opera, &c.

℞ Calomel, gr. ii.

P. Rhei, ℈i. M. bis hebdomade.

Mitt. sanguin. nucha cucurb. ope, ℥xii.

Oct. 30th.—His health is pretty good, with the exception of those symptoms above noticed, which lead to the apprehension of paralysis. The use of the calomel has been attended with some benefit to his corporeal health, but he continually dwells on his musical abilities, and his great wealth.

Fiat Setaceum in colle.

℞ Infus. Sennæ, ℥iss.

Magnes. Sulph. ℥ss. M. p. r. n.

Rep. Pulv. Rhei ℈i. cum Calomel. gr. ii. alt. nocte.

Dec. 20th.—Imbecility of mind increases. His answers to questions vary every minute. He will call the same person by different names, and give an incoherent account of any subject with a stammering and tremulous voice. His gait, too, is feeble and unsteady.

Jan. 10th.—Has had an attack of apoplexy this day; 16 ounces of blood have been taken from the temporal artery, he has likewise been cupped and purged.

12th.—Is much recovered from the apoplectic fit, but remains paralytic.

In the treatment of this case, the chief object has been to prevent the increase of paralytic symptoms by occasional bleedings—blister—seton—calomel, and other purgatives.

The above is a case of what, by some French authors, is termed the General Palsy of the Insane, in which the prognosis ought always to be unfavourable.

PARTIAL INSANITY, WITH RELIGIOUS IDEAS.

When partial insanity refers to the events of another world, it is termed Religious Monomania.

The term Theomania has been applied to the variety in which pride and vanity are united to religious hallucinations; those who are thus afflicted conceive themselves to be God or Christ, or that they have intercourse with spirits, and so forth.

Others conceive that they are possessed of the devil—that they are damned, &c. The term Demonomania has been applied to this variety, in which fear and remorse are prevalent.

(Theomania).

CASE XIX.

B. B. G. a male, æt. 40.

June 19th.—This man conceives himself to be

the Almighty, or the Saviour of the world—that all around him are possessed of evil spirits, whom it is his duty to chastise. He is violent in his manners and actions, and incoherent in his discourse. His general health is not affected.

About six months ago slight symptoms of derangement appeared, although for some time after he continued at his work as a labourer; however, he soon began to wander about the town, quarrelling with those he met, and threatening to set fire to the houses.

About eight years ago he received a wound in the head, and he is said to have hereditary disposition to insanity, but has been of sober habits.

℞ Pulv. purg. ex Jalap. gr. xv. et Calomel. gr. iii. M. statim et alt. diebus.

Descendat in Balneum tepidum ter in hebdomade.

Sumat Ext. Hyoscyam. gr. iv.

Ext. Opii, gr. i. M. Fiat pil. om. nocte sumenda.

July 13th.—This fancied divinity, and belief that others are possessed of the devil, lead him to occasional violence, from the idea that he has a right to drive out these devils by blows.

Desistat ex usu Balnei et Pil.

Sept. 1st.—No alteration in his mental disor-

der, appearance, or conduct; but he is fond of being employed, and remains quiet so long as he is occupied, this being the only mode of preserving him from disputes.

Sept. 20th.—Is more violent than usual, and more dangerous, being inclined to attack those about him, in order to expel the devils of which he thinks them possessed: he is in consequence placed under restraint in his room.

Mitt. sang. nucha cucurb. ope, ℥xx.

Nov. 1st.—Disorder undiminished; has again consented to engage in some employment, and to receive a small payment for it.

Dec. 11th.—Some days ago he broke all the windows in his room, saying that he did not like the apartment; supposes that he is talked to by invisible beings.

R. Pulv. Ipecac. ℈j. alt. mane.

21st.—No change.

Omitt. pulv. Ipec.

Sumat Camphoræ gr. v.

Hyoscyami gr. v. M. form. pil. ter in die.

Feb. 1st.—The same hallucinations and the same violence continue.

(Theomania).

CASE XX.

H. A. male, æt. 40.

June 24th.—Has been in a state of mental derangement for some time, conceiving himself to be under spiritual influence—that he is favoured by God with superior wisdom—that holes in the wall are full of spirits, and he has other delusions connected with religion: he is sometimes dejected and incoherent, but is quite harmless; he is excessively dirty; at times he is willing to be employed; his general health does not seem to be much affected, his appetite, digestion and sleep being good.

℞ Pulv. Rhei, gr. xv.
Calomel. gr. iij. M. alt. diebus.

July 5th.—No change.

Mittr. sanguinis cucurb. ope c. r. adm. ℥viij.
Admov. Emp. Lyttæ capiti.

Aug. 5th.—No mental improvement: has got a habit of perpetually looking at his nose. He

now conceives himself to be Jesus Christ. His filth is so extreme, that he will place his fæces in patches upon his face, and sometimes makes them up into little balls, amusing himself by placing them in a certain order.

Sept. 1st.—A considerable eruption of small boils has lately appeared, and since then he has answered questions with more propriety; is more attentive to his appearance, and is more willing to oblige than he had hitherto been.

16th.—His delusions on religious subjects have left him.

Omittr. medicamenta.

31st.—Mental and bodily health have continued to improve rapidly; has shewn no signs of insanity for some time.

CASE XXI.

A. A. E. male, æt. 32.

July 28th.—Has been insane about 4 months, for the first time;—his derangement manifested itself by incoherent discourse respecting religion, about which he has had many delusions,

sometimes conceiving that he has been extremely sinful, and is expiating his crimes in hell; at other times saying that he is in a state of glory in heaven; he likewise fancies that he can fly. Once he stripped himself naked, and, putting on an old sack, walked into the street, saying that habit best became such a sinner; he likewise went into a deep river in obedience to a passage in the Bible, which he conceived applied to himself. Excessive reading on religion, together with unusual exertions in business, by which his mind has been kept in a state of excitement, is believed to have brought on his disorder, to which he has no hereditary disposition.

Mitt. sang. nucha cucurb. ope, ℥ xiv.

℞. Pulv. Jalap. ℈j.

Calomel. gr. iij. M. statim, et alt. diebus.

Aug. 1st.—Refuses to take his medicine, complains bitterly of the treatment he undergoes when forced to take it, and is displeased with all around him.

Sept. 1st.—There is considerable improvement in his mental condition; he is much less wild in his notions.

Oct. 1st.—His complaints have ceased, and he

looks with satisfaction on those around. His extravagant and absurd notions no longer exist.

(Demonomania).

CASE XXII.

A. G. O. married female, ætat. 50.

Feb. 2d.—About five months ago she became insane, for the first time. Her disorder at that time manifested itself by extreme melancholy, and by talking to herself incoherently. In this state of depression she continued till about a fortnight ago, when her disorder assumed a more active character; if contradicted or opposed, she was much agitated, and occasionally violent; her actions were irrational, and she frequently talked of royalty; but her present conviction is, that she has sold herself, her husband, and her son, to the devil, and that she is therefore excluded from Divine mercy.

She has not attempted to commit violence upon herself or upon others, and there is no reason to believe her complaint to be hereditary.

She has occupied herself much in reading old religious books.

℞ Pulv. Rhei, gr. xv.
Calomel. gr. ii. M. statim et p. r. n.

12th.—℞ Antimonii Tartar. gr. ii. omni mane.
℞ Camphoræ gr. v.
Extr. Hyoscyami gr. v. M. forma pil.—h. s.

22d.—No change.
Omittr. Antim. Tartar.
℞ Pulv. Serpentariæ ℈i. ter die.

March 1st.—Is now apprehensive respecting her own health, and has absurd notions about the state of her abdominal viscera.

The above is a case of Demonomania. This deplorable variety is fortunately uncommon, women appear to be the subjects of it more than men are. Very lately there was a miserable instance of it in one of the country asylums;—a woman, who had committed sacrilege and adultery in church became fully possessed with the idea that the devil was actually within her. Another instance fell under my notice some years ago in the person of a clergyman, who was subject to periodical attacks of Demonomania, during

which he conceived that the devil entered into his brain; in his attempts to dislodge him, he contrived, by beating his head, to destroy both his eyes, and to raise a tumour on his forehead as large as his fist; and Dr Esquirol has met with several cases, in one of which a woman conceived that the devil had run away with her former body, of which her present one was only a shadow. She endured the most dreadful uneasiness, was in fear of eternal damnation night and day, conceived herself surrounded by flames of brimstone, and heard devils within her disputing who should possess her: these horrible ideas, as might be expected, deprived her of sleep and appetite; she was likewise in the habit of beating herself severely,—the sensibility of her skin, however, was so much blunted, that pins could be thrust through it, without her seeming to feel them.

PARTIAL INSANITY, WITH FEAR,

(OR PANAPHOBIA.)

Those who labour under this variety have dread of one, or more, or of all objects; they are more subject to hallucinations than any other, for they continually see objects, or hear noise which terrifies them; they are ready to interpret every thing to their disadvantage, to exaggerate their failings, or to ascribe imaginary crimes to themselves.

(WITH REFUSAL OF FOOD).

CASE XXIII.

B. O. G. a male, ætat. 41.

June 22d.—This man is married, and has a family, but became connected with another woman some time ago. The immorality of his conduct in this particular appears to have preyed on his mind, and to have produced insanity, which manifests itself by the continual fear of

being shot. Besides this fear, he has likewise great aversion to take food, and unless urged to do so, would fast for days together. He has endeavoured to injure himself, but at present does not shew a disposition to do so.

His general health is good.

℞ Ext. Papav. gr. iv. form. pil. h. s. quotidie.

29th.—Is rather more composed.

℞ Ext. Papav. gr. vi. h. s. quotidie.

July 16th.—Is possessed with the same fear of being shot, though somewhat better in spirits, but shews so much unwillingness to take food, as to render constraint necessary. He frequently says that his food turns to dirt, and does not nourish him. He is become thinner.

℞ Haust. Aperient. ex Infus. Sennæ ℥iss.
Magnes. sulph. ℥iij. M. om. m.
Repr. Pil. Ext. Papav. h. s.

Aug. 24th.—His unwillingness to take food has abated. He appears in better health, and is more ready to reply to questions; his constant theme still is that of having been condemned to be shot, and he now expresses willingness to undergo the sentence.

℞ Camphoræ gr. x. omni nocte.

Sept. 27th.—Still labours under the delusion that he is to undergo the sentence of being shot. He takes his food more willingly, and is generally quiet and orderly.

To use the shower-bath.

Oct. 12th.—He exhibited unusual violence whilst under the operation of shaving, and he attempted to injure himself with the razor. He now refuses, with great obstinacy, to take any food, alleging as a reason, that God has commanded him not to eat.

℞ Infus. Sennæ ℥ii.
Magnes. Sulphatis ℥i. M. p. r. n.

Oct. 23d.—Having continued to refuse his food with great obstinacy, it has been administered by means of the hollow bougie.

℞ Tinct. Opii. ℥ss. semel quotidie
(in his food.)

26th.—℞ Tinct. Opii. m. xl. semel in die.

Nov. 1st.—The œsophagus having become accustomed to the introduction of the bougie, his meals are now given him regularly, and with tolerable facility.

28th.—His delusions seem to exist nearly in full force, but he has abandoned his stubborn resolution to starve himself, and takes his food willingly.

It is not often that we are obliged to force a patient to take his food; sometimes, however, it is, as in this case. The French generally use a hollow bougie, introduced by the nose, for the purpose. Dr SUTHERLAND employs a piece of wood, of a conical shape, and slightly curved, to press down the tongue, and introduces the food into the mouth: this he has found it necessary to do in some cases for months together, and in one case for seven years. Mr NEWINGTON has contrived a bent tube, which he introduces into the mouth behind the last tooth of the upper jaw; and this, adapted to Mr READ's syringe, answers the purpose very well.

When food is refused, we must keep in mind that a disordered state of the alimentary canal may be the cause, the removal of which may obviate the necessity of forcing.

CASE XXIV.

B. E. A. unmarried female, ætat. 25.

Nov. 1st.—Has been three months insane; in the commencement of her disorder she was in a state of depression, to which has succeeded the fear that she is to be burnt or tortured. She is still much dejected, frequently weeps, and begs to be changed into a quadruped. She has likewise other extravagant fancies. She has not shewn any disposition to commit suicide, although her father and her aunt were insane, and both put an end to their own existence; her mother has also been insane. Her disease is supposed to have been excited by misfortune.

℞ Pulv. purg. e Jalap. gr. xv. et Calomel. gr. iii. M. Statim et alternis diebus.

Mitt. sanguin. cucurb. ope nucha ℥xii.

Dec. 1st.—Remains in the same state. One of her morbid ideas is said to have been fear that she had given herself the venereal disease (digitis vaginæ admotis), but she has not lately spoken on this subject.

℞ Mist. Camphor. ℥iss.
Tinct. Hyoscyam. ℥ss. M. ter in die.

15th.—℞ Ext. Hyoscyami gr. v.
Ext. Opii. gr. i. M. form. pil. o. n.
Balneum tepidum ter in hebdomade.

Jan. 16th.—No amendment,—considerable appearance of mental imbecility.

Desistat ex usu Balnei.
Admov. Capiti Empl. Lyttæ.
℞ Pulv. purg. p. r. n.

Feb. 19th.—Continues nearly the same.

℞ Ammoniæ Carbon. gr. x. ter in die.

13th.—No change.

℞ Antimon. Tartar. gr. ii. statim.

Feb. 21st.—She was allowed to attend divine service yesterday, but was evidently rendered worse by the excitement thereby occasioned. Her present delusive fear is, that her mother is dead, and she wishes to mourn for her.

March 1st.—Sometimes she appears to be better for a day or two, and then reverts to her former state.

℞. Pulv. Cinchonæ, ℥ss. ter in die.

April 17th.—No improvement in the state of

her mind, but she has gradually gained flesh, and is in excellent bodily health.

Desistat. ex usu Cinchonæ.

Cont. pulv. purg. p. r. n.

July 24th.—Her insanity has assumed the character of smiling imbecility, with great lasciviousness.

Omitt. Pulv. purg.

℞ Ol. Terebinth.

Mucilag. Acaciæ *aa.* ℥ii.

Aq. M. Sativ. ℥xii. M.

Cap. Coch. 3 ter in die.

Admov. hirudo pone aurem alt. diebus.

Sept. 1st.—Is sufficiently purged by the turpentine mixture.

Oct. 5th.—No change or mitigation of her mental disorder.

There is little expectation of cure in this lady, the disposition to the disease being so strongly hereditary. The injurious effect of exciting ideas connected with religion in this patient, points out the necessity of caution and discrimination in administering this most powerful of all the means of consolation, and that it is not to be

attempted in every case. Where the delusions partake of a religious character, or are strongly marked by the passion of fear, whether connected with religion or not; or where the delusions, although not now connected with religion, have been connected in their origin with doubts respecting the most acceptable mode of cultivating it, injurious excitement may be produced; where neither of these powerful emotions prevail, there is more probability of good effects. In every large establishment for the reception of the insane, therefore, the means of religious instruction and worship ought to be provided, that such as are capable of deriving advantage therefrom may have it in their power.

CASE XXV.

A. J. G. female.

Aug. 21st.—Has been several years in a state of insanity, the prominent feature of which is unfounded fear and alarm, with melancholy. She likewise says that she has lost all the feelings of

a human being, and resembles a brute, and that she cannot feel towards her children as she should do. She is weak in body, and has rheumatic pains in her back.

℞ Sp. Camphor. ℥i.
Liquor. Ammon. Carbon. ℥iii. M. Fiat P. linimentum dorso applicandum.
℞ Camphoræ gr. x. bis quotidie.

Oct. 9th.—The use of camphor has materially added to her comfort. She says that she has much less anxiety than she used to have, and expresses her gratitude.

℞ Camphoræ gr. x. 4ter in die.

Dec. 14th.—Is materially improved,—feels herself comfortable, and is more able to work than she has been for years.

℞ Camphoræ gr. x. 6ties in die.
℞ Infus. Cascarillæ ℥iss. Acid. Sulph. Dilut. m. xx. M. bis quotidie.

It is conceived that decided advantage has been derived from the use of camphor, which was continued to the extent of nearly ℈iv. daily; the serenity of her mind, after so much perturbation, was remarkable. Under the use of it she continued

to improve, became very orderly and comfortable. After some months the dose was gradually decreased, without change of symptoms, and it was left off entirely by substituting bread-pills, that her mind might be satisfied during the weaning her from it. In July medicines were discontinued, and a year afterwards she continued well.

The mode of operation of camphor is not yet well understood: it generally increases the heat of the skin, and in large doses appears to be powerfully sedative. The late Dr ALEXANDER, when making experiments, nearly killed himself, by taking ℈ii. at once, which he fortunately was made to reject, by vomiting produced by warm water:—it has been much used in mental diseases; AENBRUGGER recommends it particularly when the pulse is slow, the countenance pale, the hand cold, contracted, and trembling, and in men, when the genital organs are cold, the penis retracted, and the testicles drawn up towards the pubis!

Dr PERFECT made great use of it in large doses, such as ℈ii. for a dose; but, it must be confessed, that though we now and then find a cure apparently produced by camphor, it is but sel-

dom. In the above case, it is true, camphor was exhibited successfully, and in very large doses, and still larger are upon record. Dopson says, he gave a furious maniac ʒiii. of camphor in the course of twenty-four hours, ʒi. at a time; and during the following day the same quantity, and that a perfect cure was accomplished. Hufeland is said even to have injected camphor into the veins of an insane female, and to have cured her.

We must not, however, forget the violent effects occasionally produced by large doses, as in the experiment of Dr Alexander, and, indeed, that death itself has actually been produced by them.

CASE XXVI.

C. A. O. female.

July 13th.—Is subject to violent apprehensions, inciting her to self-destruction. She is also frequently troubled with pains at the top of the head, with sensations of creeping, unusual feelings at the pit of her stomach, which, she says,

seem to fly to her head, impelling her to destroy herself. She never feels in security, but is in continual alarm lest she should make away with herself; she has fits of alternate chilliness and flushing.

℞ Extract. Col. co. gr. x. p. r. n.

℞ Mist. Camphoræ ℥jss.

Sp. Æther. Comp. ʒj. M. bis quotidie.

Sept. 7th —Her nights are very restless.

Omittr. mist.

℞ Pulv. Ipecac. Comp. gr. x. omni nocte.

℞ Camphor. gr. x. omni mane.

Dec. 4th.—No effect from the camphor; her apprehensions continue; bodily health tolerably good.

℞ Mist. Camphor. ℥jss.

Sp. Æther. Co. ʒj. M.; hora somni.

April 16th.—Her anxiety and fear of self-destruction continue unabated, with great and constant despondence. The mixture affords some comfort in her more anxious moments, but no permanent advantage.

℞ Tinct. Hyoscyam. ʒss.

Tinct. Opii ʒss. M. p. r. n. h. s.

Sept. 1st.—Continues in a miserably dejected

state, rarely enjoying any comfort. Occasional relief by the anodyne.

March 25th.—Continues subject to incessant anxiety and fear; nothing can exceed the dejection and misery which she displays, although she has been many years thus affected.

PARTIAL INSANITY, WITH LOVE,

OR

EROTOMANIA.

In this variety there is violent sexual passion for an object, real or imaginary, with delirium, in consequence of which the patient says and does things which the simply melancholy lover refrains from. Excessive lust, which occurs in Nymphomania and Satyriasis, is not a necessary feature of Erotomania, in which love of a sentimental character prevails; jealousy and depression are apt to occur, and the character is timid and reserved.

CASE XXVII.

C. B. G. male, æt. 29.

Dec. 31st.—Had a strong attachment for a young woman, whom he asked in marriage, but was refused. This refusal is conceived to be the cause of his insanity, which has existed about six weeks; it is said to be the first attack, and that

he has no hereditary disposition to the disorder; but that he has had from his infancy a weakness in the whole of one side of his body, so as to make him appear slightly affected with hemiplegia, and he has some appearance of mental imbecility. For the space of a month after being refused by the young woman, he constantly talked of her; after which his disorder assumed a new character, and he began to dance and sing, and to talk incoherently on a variety of subjects, venting abuse against the girl. Bleeding, blistering, and purging have been employed. His appetite is voracious, and his nights are sleepless.

℞. Pulv. purg. e Jal. gr. xv. et Calomel. gr. iij. M. alt. diebus.

Mittr. sang. nucha cucurb. ope ℥xiv.

Feb. 1st.—No change.

℞ Antimon. Tartar. gr. ij. statim.

℞ Carbon. Potassæ ℈ ij.

Aqua destill. ℥jss. ter die.

9th.—Omittr. medicamenta.

Sumat Ext. Elaterii gr. j. alt. diebus.

March 1st.—The same condition exists. There is reason to believe that he has suffered from epilepsy.

Omittr. Elaterium.

Mittr. sanguis cucurb. ope nucha ad ℥xiv.

℞ Mist. Terebinth. ut pro No. 23. prescript.

May 25th.—His disorder is unabated. Since last report, has been sometimes more correct in his conduct than at others, but there is no appearance of permanent recovery.

Desistat ex usu Mist. Terebinth.

Sumat pulv. purg. u. a. p. r. nata.

July 29th.—His disorder has suffered no abatement.

℞ Tinct. Hyoscyami ℥ss.

Tinct. Opii m. xx. M. o. n.

July 31st.—His disorder rather increases; he now answers more irrationally and wildly, and he tears his clothes.

Repr. Mist. Terebinth.

Sept. 7th.—Has had an epileptic fit.

As already observed, the doctrines of Dr GALL have led to the topical application of remedies to those parts of the head corresponding with the supposed cerebral organ within in a state of disease, and detraction of blood, in particular, is said to be very useful in this variety of partial insanity. Detraction of blood from the back part of

the head is, no doubt, of service in cases where amatory excitement prevails. At the same time, I believe we shall find this to be the case in all the varieties of mental disease in which bloodletting is beneficial, for in the lower and back part of the head there is more free communication of the external and internal vessels than in any other part of it.

(Nymphomania).

CASE XXVIII.

B. O. A. female, æt. 46.

July 1st.—Has been in a state of mental derangement for nearly twelve months. Her insanity is chiefly marked by great propensity to sexual connection, for she seizes every person within her reach, and wantonly clings to them with her utmost strength, which is very great. She is much inclined to make her escape, and frequently requires to be confined by a leg-lock. She is silent, and very obstinate. Her disorder is supposed to have originated in false notions of reli-

gion. This is the first attack under which she has laboured.

℞ Infus. Sennæ ℥jss.
Magnes. Sulph. ʒij. M. quotidie.
℞ Pulv. Jalapæ ʒss.

5th.—Appr. Vesicat. nuchæ.

℞ Camphor. gr. vj.
Confect. aromat. gr. x. M. bis quotidie.

13th.—Is rather turbulent.

℞ Ext. Cicutæ gr. iij.
Mist. Camphoræ ℥jss. bis quotidie.

Aug. 14th.—Her indecency, which amounts to Nymphomania, continues. It is with great difficulty that she can be made to take her medicines.

℞ Opii gr. ss.
Castorei gr. x. omn. nocte.

Oct.—The same indecency has continually prevailed, with the same difficulty to apply remedies.

PARTIAL INSANITY, WITH ERRONEOUS IDEAS RESPECTING CORPOREAL SENSATIONS.

The terms Hypochondriacal, Hysterical, and Chimerical Monomania, have been applied to this variety, in which the patient's attention is concentrated on corporeal sensations, with regard to the nature of which his ideas are erroneous;—sometimes he labours under delusion as to his own form, sex, or organization. In the hysterical variety, these sensations are felt or complained of as being in the abdomen and region of the uterus, are attended with symptoms of hysteria, and the delirium generally refers to the functions of the uterine system.

With regard to hypochondriacal affections in general, I think we may trace three well-marked gradations.

In the first, exaggerated fears only prevail in the mind of the patient respecting his health: this is the disease to which the term Hypochondriasis is generally applied.

In the second, these exaggerated fears are accompanied with erroneous ideas respecting the

nature of his sensations, as when a person, from tinnitus aurium, conceives that he hears voices, &c. and no argument will convince him of the contrary: which delusion, however, does not prevent his acting rationally, for he does not yield to the impulses suggested by his delusion.

And, in the third, there is firm belief in delusions respecting form, sex, or organization, influencing the general conduct, and producing true Monomania.

In these different varieties of hypochondriacal affection, the mental organ seems, in general, to be affected in a secondary way; the original source of the disordered ideas appears to be nervous disease of the digestive organs, communicated to the brain by sympathy.

(MONOMANIA HYSTERICA.)

CASE XXIX.

H. G. a female, æt. 24.

Jan. 27th.—Complains of strange sensations in different parts of the body, with pain in one part of the head: she likewise complains of the sensa-

tion of being completely empty; that she has no strength to resist the common enemy, and has therefore fallen into the state in which she now is; that many fancies come into her mind, which agitate and oppress her. There is little change in her general health, except that she has the manners of an hysterical person, and that her digestion is impaired. She has no hereditary disposition to insanity, and this is the first attack under which she has suffered; it is supposed to have been excited by excessive study of and attention to religious subjects.

℞ Pulv. Rhei gr. xv.
Calomel. gr. ij. M. pro re nata.
Mitt. sang. cucurb. ope nuchæ adm. ℥xij.

Feb. 3d.—Little change.

℞ Camphor. gr. vj.
Ferri Carbon. gr. vj.
Conserv. Rosar. q. s. Ft. elect. ter in die sumend.
Corpori in Aq. 96° Fahr. demisso infund. super caput aqua frigida.

17th.—The distressing sensations of which she had previously complained were augmented by the douche; the stream of cold water was therefore omitted, and the warm bath alone being found

to produce great throbbing in her head, and agitation during the night, it also has been left off.

Repr. pulv. purg. statim.

℞ Ext. Hyoscyami gr. x.

Pil. Aloes cum Myrrha, gr. v. M. Fiant pil. 3. Sumat 1 ter in die.

March 3d.—No change. She complains of a constant pain in her head, which has not been relieved by the means hitherto tried: her pulse is rather frequent.

℞ Tinct. Digitalis m. xx. ter in die.

℞ Ext. Stramonii gr. j.

Micæ panis gr. vij. M. Fiant pil. 8; sumat 1 omni nocte.

17th.—The pain in her head and uneasy sensations have been moderated; the pulse, too, is reduced.

Omittr. medicamenta.

Repr. Rheum et Calomel. p. r. nata.

April 4th.—She has had a return of the pain in her head, and the digitalis and stramonium were employed for a week; after which she said that her bodily sensations were more comfortable, and did not disturb her. Her mind continues

much agitated; she has just now been lying on the floor at prayers.

Rep. pulv. purg. statim et postea

Sumat Magnes. Sulph. ʒj. in Infus. Rosæ ℥jss.

4tis horis donec purg. alvus.

18th.—Remains in the same agitated state, fancying herself a great criminal; that all her friends are dead, and that she is under the especial chastisement of heaven.

℞ Mist. Camphor. ℥jss.

Tinct. Valerian. Ammon. ʒss. M.; bis die.

May 1st.—Little change.

℞ Antim. Tart. gr. ij. pro emetico.

16th.—Continues the same.

Repr. Emetic. et

Sumat Antim. Tart. gr. ¼ quotidie.

June 1st.—No manifest change.

July 1st.—Her catamenia have not been regular; is nearly the same in other respects.

℞ Mist. Ferri ℥jss. bis die.

Aug. 1st.—Is occasionally better for a day or two, then relapses, and complains of her former uneasy corporeal sensations, and mental agitation.

Sept. 1st.—Perstet in usu Mist. Ferri.

℞ Potass. Carbon. ℈j. ter in die.

22d.—The change in the mental condition of this patient is not very manifest.

Mittr. sang. cucurb. ope nucha ℥xij.
Descendat in baln. tepid. ter in hebdomade.
℞ Tinct. Valerian. Ammon. ℥ss.
Mist. Camphor. ℥jss. M.; ter in die.

Oct. 1st.—She begins to shew signs of improvement.

Nov. 1st.—The improvement has been rapid; her delusions have ceased, her spirits have revived, and she now very successfully exerts self-controul in suppressing those feelings and imaginations which were wont to intrude themselves into her mind, and give her so much distress.

Dec. 1st.—Is now in perfect health.

In this case, the warm bath, after cupping, appears to have assisted the recovery, although it had been prejudicial before.

General and partial warm bathing are useful, when there is great nervous susceptibility, with want of sleep; when there is a dry skin; when the disorder is connected with suppressed eruption or discharge; and, likewise, when the patient is dull, silent, and disposed to refuse his food. The addition of salt, mustard, or soap, is some-

times made with advantage. But if the debility be great, we must be cautious in the use of the warm bath.

This variety is sometimes epidemic. In three cases of this kind, which occurred simultaneously under the care of a friend, the application of cloths soaked in cold water to the lower part of the abdomen, diminished the irritation in the uterus, presumed by sympathy to have excited the maniacal delirium, and, with other appropriate treatment, speedily removed the disease.

CASE XXX.

C. H. E. female, æt. 17.

Aug. 13th.—Has been deranged about six weeks; she is very noisy, and incoherent. Suppression of the catamenia appears to have preceded her insanity, which was ushered in by a fit of hysteria. She has not been insane before.

℞ Infus. Sennæ ℥jss.
Sulphat. Magnes. ℥iv. M. statim, et
Repr. bis in septimana.
Admov. cucurb. cruent. nuchæ ad ℥x.

℞ Mist. Camphor. ℥jss.
Liquor. Ammon. Acetat. ℥ss. M.; bis quotidie.

20th.—No change in her disorder.

Repr. Infus. Sennæ et Magnes. Sulph.

Adde Tinct. Jalap. ℥j.

℞ Pulv. Ipecac. gr. iv.

Liquor. Antim. Tartar. ℥ss.

Mist. Camphor. ℥jss. M. bis quotidie.

Sept. 6th.—Same state of noisy incoherence occurs. She is generally calmer after the operation of a brisk purgative, after cupping, and after nausea.

Repr. Infus. Sennæ, &c. bis in septimana.

Admov. cucurb. cruent. ad ℥x. statim.

27th.—No change.

Mittr. iterum sanguis ad ℥x. cucurb. ope.

Repr. Infus. Sennæ, &c.

Nov. 15th.—Her mental disorder has now assumed an opposite character; instead of being noisy and flighty, she has lost her liveliness, become obstinately silent, and sits dull and stupid in one place.

℞ Camphor. gr. v. bis quotidie.

29th.—Mittr. sanguinis ℥xij. cucurb. ope nucha.

Dec. 13th.—℞ Castorei gr. x. bis quotidie.

24th.—Setaceum nucha.

27th.—No change; is very dull and heavy.

Mittr. iterum sanguinis ℥x. capite cuc. ope.

Repr. Infus. Sennæ ℥ij.

Magnes. Sulph. ℥ss.

Tinct. Jalap. ℥j. M. pro re nata.

Jan. 17th.—No change. No appearance of catamenia.

℞ Pil. Aloes cum Myrrha, gr. x. quotidie.

Utatur baln. tepid. bis in septimana.

Feb. 7th.—There has lately appeared some improvement; she has shewn more activity in her movements, an inclination to speak more frequently.

March 28th.—The signs of amendment have disappeared; she is again absorbed in gloomy silence; occasionally she displays an unmeaning hysterical laugh.

April 29th.—A great degree of torpor and dejection still prevails. No mode of treatment hitherto tried, however varied or permanently adhered to, seems to have done good. Her bodily strength is considerably reduced, and therefore tonic medicines are prescribed.

℞. Infus. Cascarillæ ℥jss.

Acid. Sulph. dilut. m. xv. M. bis die.

May 27th.—No change.

Admov. cucurb. cruent. ad ℥xij. cap. raso.

R. Infus. Quassiæ ℥jss.
Liquor. Ammon. Acetat. ℥ss.
Tinct. Cinchonæ ℥j. M. ter quotidie.

R. Ext. Colocynth. Co.
Pil. Cambogiæ Comp. ā. ā. gr. iij. M. omni mane.

July 14th.—Has been twice cupped to ℥xij. since last report, but without any beneficial effect.

Instances of Hypochondriacal Monomania are not uncommon. One person, at present under my inspection, conceives that a Caffre got into his body when he was at the Cape of Good Hope, and that he is still there, the author of all his troubles. Another is led by his uneasy sensations to believe his body to be divided, and that the separate portions are at a distance from each other. Both of these persons are unable to conduct themselves with propriety, and are in a state of seclusion. Cases of this kind are difficult of cure, but abdominal disorder being prevalent, a course of laxatives, with attention to diet, and exercise, are, in most cases, of some service. Similar corporeal treatment is applicable to the other variety, Hypo-

chondriasis, or exaggerated fears respecting the patient's health, as well as that in which these fears are combined with delusions not impelling to corresponding conduct. Of this last, the following may be taken as an example:

CASE XXXI.

A. S. æt. 50.

Jan. 3d.—After a severe indisposition, accompanied with disorder of the digestive organs, he was suddenly impressed with the idea that a cloud had fallen upon his head, and he believes that this cloud still remains upon it, obscuring his mind, and altering his feelings towards his wife and family, and towards all objects whatever. Of this he talks to almost every one he knows, and no argument can eradicate the erroneous idea; he still persists that the cloud is there; at the same time he continues to discharge the duties of his situation with attention and propriety. His countenance expresses anxiety; but his general health is good. Attention to the digestive organs, to

regimen, and to exercise, were recommended, with change of scene.

Sept. 28th.—He now speaks less frequently of the cloud on his mind, and says that a change has been effected on his feelings, which are not yet what they ought to be: he has gained flesh, and has less anxiety in his countenance.

He continued to make progress towards recovery, until about a year after the last report; he was then affected with a slight erysipelas in one of his legs, of which he was nearly cured, when he was suddenly taken ill, made an exclamation, and was quite dead within five minutes. On inspecting the body after death, no diseased appearance could be detected in any of the cavities, except an unusual quantity of blood in the cerebral vessels, and about the head generally, constituting what has been termed simple Apoplexy. The heart and liver in particular were quite sound.

PARTIAL INSANITY,

WITH DEPRESSION.

(MELANCHOLIA, OR LYPEMANIA.)

IN this variety of partial insanity, the physiognomy assumes a more fixed appearance than in any other, and the muscles of the face are more contracted; the regard is timid, and expressive of suspicion and sadness; the complexion is sallow; solitude is preferred, and suicide is frequently attempted by refusing food, or by more direct means. The affections for friends and relatives are in general remarkably estranged. Panophobia frequently accompanies this variety.

CASE XXXII.

A. B. G. a married female, æt. 39.

July 1st.—She lost an only child about a year and a half ago, which threw her into a state of great grief, the indulgence of which is believed to have brought on, about a month ago, the present attack of insanity, the first she has laboured under, she having no hereditary disposition to it.

It first manifested itself by incoherent discourse, extreme melancholy, and dejection; then followed considerable excitement and violence, so as to require restraint, for she attempted to go out at the window.

Her appetite is impaired, but she sleeps tolerably well.

Her present state is that of despondency.

℞ Pulv. Rhei, gr. xv.
Calomel. gr. ii. M.; statim et p. r. n.

21st.—No change.

V. S. ad ℥xii.
Mittr. Sang. nucha cucurb. ope ad ℥xiv.

Aug. 1st.—There is a little more animation since she was cupped.

22d.—Mittr. iterum sanguis cucurb. ope ad ℥x.

Sept. 1st.—Was again relieved by the cupping, although she still continues in a dull and torpid state of mind.

Cont. Pulv. purg. p. r. n.

Oct. 1st.—Little amendment.

℞ Ammoniæ Carbon. gr. x. ter in die.

Nov. 1st.—No decided amendment has appeared, although she appears occasionally more

animated for a short time, but soon relapses into the previous state of torpor.

Dec. 1st.—Still no material improvement.

Admov. capiti caust. ut fiat fontic.

Feb. 1st.—Has hitherto received no benefit from the issue; the discharge has been slight.

March 1st.—There is some slight diminution of her melancholy. Her countenance is more healthy.

April 1st.—She is now more cheerful, seeks for occupation, and improves rapidly.

The discharge from the issue, although scanty, appears to have assisted the other means in leading to a fortunate termination.

(WITH DEAFNESS).

CASE XXXIII.

A. E. a male, æt. 30.

July 8th.—Is generally silent, indolent, and torpid; but is neither violent nor dangerous. He has been insane for nearly six months, but is so

deaf that it is impossible to get any information from himself. His state, therefore, has been inferred more from the inconsistency of his actions than from that of his discourse.

His appetite, digestion, and sleep appear to be natural.

℞ Pulv. Rhei gr. xv. Submur. Hydrarg. gr. ii. alt. diebus.

App. Empl. Lyttæ capiti.

Aug. 12th.—He has had a blister applied to his head twice, and has taken a purging powder every second night. There now appears some amendment, marked by more cheerfulness in his countenance—a greater inclination to converse, and less indolence in his manner—his deafness continues the same—his general health is good.

13th.—His mouth is affected by the mercury.

Desistat.

Sept. 1st.—Since his mouth became affected by the mercury, there has been a gradual improvement: he is now willing to oblige, is much less indolent, and seems fully aware of his amendment himself, which is less evident probably on account of his extreme deafness.

Oct. 1st.—Improvement progressive. He is now

perfectly rational, but his deafness prevents his improvement appearing so complete as it would do, were he capable of hearing with more facility.

31st.—May be considered quite well.

CASE XXXIV.

B. A. a male, æt. 46.

June 15th.—He has been insane for about nine months. He appears to be extremely dejected, refusing consolation and seeking solitude. The mental disorder first shewed itself by a disposition to wander from home, and by using his wife with unkindness. He then suspected that some one wished to poison him, and he was persuaded he should be sent to hell. He has never been insane before, and the immediate cause of his disease is believed to have been want of employment, and consequent misery.

℞ Pulv. Rhei, gr. xv.
Calomel. gr. iii. M. Ft. Pulvis alt. man. sumend.
Descendat in baln. tepid. bis in hebdom.

July 1st.—There is no mitigation of his mental disorder: he shuns society, wandering about

by himself apparently very miserable, and has an unhealthy appearance.

℞ Camphor. gr. v.
Ext. Hyoscyami gr. v.
Syrup. Papav. q. s. Ft. Pil. 2, ter die sumend.

Aug. 1st.—Disorder retains the same character.

Sept. 30th.—Within a short period he has been more easily roused from his melancholy state, but there is no very decided change.

Oct. 31.—About a week after last report he suddenly ceased to court solitude, began to converse with animation, and appeared to be interested in ordinary topics; his countenance assumed a cheerful appearance, and he expressed a wish to exert himself for the benefit of his family. Since that time no sign of mental disorder has appeared.

——— WITH ATTEMPT AT SUICIDE.

CASE XXXV.

A. C. I. a widow, æt. 60.

Oct. 31.—About six months ago laboured under inflammation of the bowels. After the in-

flammatory symptoms subsided, she continued in a state of debility, during which, about two months ago, she became insane, and made an attempt to cut her throat, irresistibly impelled thereto, she said, by remorse for having refused relief to a poor woman at the door. This refusal she conceived could never be pardoned; and on this idea her mind seems to dwell.

Her general health is still very weak, and her sleep is disturbed.

This is the first attack of insanity she has laboured under.

℞ Pulv. Rhei, gr. xii. Calomel. g. ii. M.

Nov. 3d.—℞ Decoct. Cinchonæ, ℥iss. cum
Acid. Sulph. dil. m. xv. M. ter in die.

7th.—Complains of great pain in the head.
Mitt. sang. cucurb. ope cap. adm. ℥viii.
Desistat ex usu Decoct. Cinchonæ.

10th.—℞ Pil. Galban. Co. gr. x. ter in die.

14th.—℞ Infus. Cascarillæ, ℥ii. ter in die.
℞ Camphor. gr. iii.
Ext. Opii, gr. ss. M. Ft. Pil. omni nocte sumend.

21st.—Omitt. pil. Opii et Camph.
℞ Mist. Camphor. ℥iss.
Tinct. Opii. m. xx. M. omni nocte.

Dec. 1st.—The great irritability prevailing prevented sleep, and her weak state seemed to indicate the employment of permanent stimuli; but as she complained of headach when taking the bark and acid, cupping was employed, and relieved this. The camphor and opium have succeeded in allaying her irritation, and have rendered her nights quiet, and her strength increases.

Omitt. Pil. Galban. Co. et Infus. Cascarillæ.

℞ Infus. Quassiæ, ℥iss. ter die.

℞ Pulv. Rhei, u. a. p. r. n.

Jan. 1st.—Her mental improvement is progressive, but is not very rapid, and her general health continues to improve.

9th.—℞ Infus. Sennæ ℥iss.

Magnes. Sulph. ʒiii. M. p. r. n.

Feb. 1st.—Conducts herself with propriety.

19th.—Well.

The use of opium in insanity is not so well understood as we could wish. It is not easy to discriminate the cases in which it ought to be employed.

Vascular excitement is what chiefly deters us

from its use; for if there be inflammatory action or congestion of blood in the brain, opium may be productive of serious mischief by increasing these states, thereby exciting increased violence and fury.

We must likewise attend to its effects of costiveness and diminution of the secretions, on which account the hyoscyamus is in many cases to be preferred.

All these considerations, however, are not to deter us from the proper use of this valuable remedy.

When want of sleep occurs, which it so frequently does in insanity, after the necessary sanguine and alvine evacuations have been made, opium may be tried in most cases, especially if the disease has lasted some time.

When the disease begins to subside, and the patient, beginning to convalesce, is kept awake by fear, jealousy, or suspicion, opium, if the above circumstances do not forbid, will be found of much service.

Where grief and disposition to shed tears prevail, opium will frequently be of use; as well as in those cases connected with intemperance, par-

ticularly in Delirium tremens, when the pulse is small and frequent.

The quantity that may be given is greater than what those in a state of mental health in general can bear, but it is not safe to give a large dose at first; it is better to begin by a grain or two, and gradually to increase it. The largest quantity I have heard of being given was in a case treated by Dr GALLONI of Rheggio. This was a male patient whose complaint, in the commencement, was treated as phrenitis by copious evacuations of blood, and who remained in a state of furious mania upwards of three years, during which time various sedatives, among others digitalis and hyoscyamus, were given. At last a trial was made of opium. He began by giving 1 grain four times in the twenty-four hours, which he gradually increased to 10 grains four times a-day. Some abatement of the fury was produced, but symptoms of dropsy appearing the opium was discontinued. Some time after the opium was again resorted to, beginning with the same dose of 4 grains in twenty-four hours, and gradually increased to 170 grains in the day! The result was, that his fury abated—his ideas became more coherent—he was induced to oc-

cupy himself in drawing, and a complete cure followed. The opium was left off in the same gradual manner.

CASE XXXVI.

A. B. unmarried female, æt. 30.

Aug. 14.—Has had several attacks of insanity, the first when the catamenia commenced about eighteen years ago. The society of a sister then in a state of mental aberration, was supposed to have had a share in exciting this attack, which subsided without removal from home. Another attack was threatened some time after, when her mind was in a state of doubt regarding religion, but prevented by diverting her from that subject. Two years after the cessation of her first illness, the death of a brother gave rise to a decided attack of insanity with depression; and a third occurred a year after, during which seclusion was found necessary. Since that time she has not regained her former liveliness of spirits, nor affectionate confidence with her family; but she continued in other respects well, until three years

after, when an accidental excitement, and being overheated, renewed her disease, and required a confinement of eight months.

The present attack commenced rather suddenly nine months ago, after an interval of six years of tolerable freedom from disorder, one or two slight threatenings only having occurred, which soon subsided.

Dislike of those about her, extravagant fancies, and particularly ideas of her own unworthiness, first appeared, then an attempt to run away nearly naked, with violent and occasionally mischievous conduct. Headach and heaviness, flushed face, fever, and great costiveness, accompanied these mental symptoms, for which cupping—purging—emetics—blisters to the head—and the tartar emetic ointment, were employed. She is now in general quiet, but occasionally inclined to mischief, and always low and silent.

Pulse about 80, rather weak—bodily strength sometimes powerfully manifested—bowels costive—abdomen rather full—catamenia formerly suppressed are now regular.

Aug. 14th.—℞ Pil. Gambog. comp. gr. xv. Statim et alternis noctibus, vel p. r. n.

℞ Spirit. Ammoniæ Aromat. ʒss.
Mist. Camphor. ʒiss. M. bis quotidie.
Descendat in balneum tepidum ter hebdom.

Aug. 20th.—Seems less depressed since she began the ammonia and warm baths, with exercise and occupation.

31st.—The dose of the sp. ammoniæ increased a little, was found to accelerate the pulse, and was not continued; an emetic was given. Catamenia fluunt.

Omitt. balneum tepidum per aliquot dies.
℞ Ammoniæ Carbonat. gr. x. bis die.

Oct. 5th.—After listening some time to music, she made an attempt at suicide. Pulse a little quicker, 84. Pulsation in the carotid arteries thought to be stronger than before. Requires restraint.

Rep. Pil. purg.
Omitt. Ammoniæ Carbon.
Fiat setaceum in collo.
Rep. balneum tepidum.

15th.—Is now more tranquil, and requires less restraint.

Cont. Pil. purg. alt. diebus.
℞ Pulv. Jalap. gr. xv.
Calomel. gr. iv. M. semel in septim.

Nov. 12th.—Little change—appears depressed in mind, and quite silent.

Dec. 10th.—Remains in the same state. Her pulse is rather quicker, being 90, of natural strength. Bowels very sluggish, and distended.

℞ Submur. Hydrarg. gr. i. nocte maneque.

Diet to be rather reduced.

24th.—Her mouth and bowels being considerably affected by the mercury on the 21st, it was discontinued. Abdomen less distended. Tongue rather loaded. She gives rational replies by signs, but does not speak, except occasionally in a whisper, scarcely intelligible.

Jan. 8th.—Mouth nearly well. Tongue clean. She appears to be more animated and intelligent since the mercury affected her mouth—now and then gives a rational answer by monosyllables, as well as by pencil—sheds tears occasionally.

℞ Pil. Hydrarg. gr. iii. om. noct.

12th.—Contin. Pil. Hydrarg. gr. iii. alt. noct.

23d.—Despondency rather increased, although she appears to understand every thing.

Feb. 7th.—The mouth was kept slightly affected until now, but without farther improvement. Her written answers lately have been

less collected. She appears to understand the question, however, but soon after the attempt is made to answer it by pencil she stops short, and appears to be lost in a state of abstraction. Shews her tongue, and gives her hand when desired. Sheds tears occasionally, and sometimes smiles without apparent cause. Pulse natural, under 80. Catamenia fluunt.

Omitt. Pil. Hydrargyri.

℞ Sulph. Quininæ, gr. iii. bis die.

Frictions with the tartrate of antimony ointment have been much employed in cases of mental disorder, especially by Dr MULLER of Wurzburg; but the experience of other physicians does not appear to confirm his favourable reports. Where the suppression of a cutaneous disease has accompanied the mental disease, the frictions have appeared to assist the recovery. In this case (in which they were tried without benefit) the prognosis must be unfavourable, considering the hereditary tendency—the repeated attacks—and some signs of imbecility making their appearance.

CASE XXXVII.

J. G. unmarried female, ætat. 19.

May 16th.—Is at present in a state of melancholy and torpor, and has twice attempted suicide. About three months ago, after a fever of some weeks' duration, she first shewed symptoms of mental alienation. She had been frightened by a young man, and had likewise been harshly used by her stepmother.

There is no reason to believe that she has any hereditary disposition to insanity.

℞ Pulv. Rhei, gr. xii.
Calomel. gr. ii. M. Fiat pulvis, alternis diebus sumendus.
Mitt. Sanguinis cucurb. ope nuchæ adm. ℥xii.
Appr. Emp. Lyttæ capiti.

23d.—There appears to be great torpor and inactivity of both mind and body; her menses are suppressed.

Repr. Empl. Lyttæ capiti.
℞ Pil. Ferri cum Myrrha.
— Alöes cum Myrrha *a a* gr. vijss.
Syrup. q. s. Fiant pil. iii. Sumat 1 ter indie.

July 1st.—Little, if any, improvement in her mental disorder.

App. Emp. Lyttæ pone aures.

Aug. 1st.—She is a little more cheerful and active. Her menses have made their appearance.

Sept. 1st.—Has considerably improved in appearance, is fuller, and her mental disorder has progressively decreased.

30th.—Her conduct and conversation have been perfectly correct for some weeks.

CASE XXXVIII.

H. C. married female, ætat. 41.

Jan. 10th.—Has been in a state of melancholy insanity for nearly half a year, brought on, it is believed, by the imprisonment of her husband.

About three months ago she first shewed a propensity to commit suicide, which she has attempted in several ways, by running a needle into her throat, by cutting her throat, and by drowning.

She likewise endeavoured to kill her only child, and still avows that it was her design to destroy her child first, and then herself.

She has a hereditary disposition to insanity, and this is the first attack under which she has laboured. She is now in a state of great depression, but her general health does not seem to be affected.

℞ Calomel. gr. ii.
Pulv. Jalap. gr. xv. M. alt. diebus.
App. Emp. Lyttæ capiti.

Feb. 1st.—She appeared to be rapidly improving, but the visit of a friend renewed her despondency:—she still seems to seek an opportunity to destroy herself.

March 1st.—Remains nearly the same as at last report, with the additional delusion that her child has been starved to death.

℞ Pil. Hydrarg. gr. v. om. nocte.

31st.—No amendment.

Desistat.—℞ Pulv. Rhei gr. xv. Calomel. gr. ii. M. p. r. n.

Is still more dejected and apt to shed tears. She dwells much on the subject of her child,—is thinner than she was.

℞ Decoct. Cinchon. ℥iss. bis die sum.

℞ Ammoniæ subcarb. gr. x. ter die.

May 1st.—Continues in the same depressed state, conceiving herself abandoned by all her friends, is apprehensive of evil, and has aversion for life.

℞ Mist. Ferri ℥iss bis die.

25th.—No change.

Omitt. Mist. Ferri.

June 16th.—Little change.

℞ Opii. gr. i.

Ext. Cicutæ gr. v. M. h. s.

July 1st.—While under the influence of the pills, her mind appears quiet, and she is less gloomy. She answers, when questioned, that she is very well.

Sept. 1st.—Has continued nearly in the same state, perhaps a little less depressed.

Omittr. Cicuta.

℞ Opii gr. i.

Ext. Hyoscyam. gr. iii. fiat pil. h. s. s.

Descendat in baln. tepid. ter in hebdom.

Oct. 31st.—Bath seems to be of service. She is rather more tranquil, and has more quiet sleep.

Dec. 1st.—The good effects of the bath were transient; her dejection has lately increased, and another attempt at suicide, by hanging, has been made.

Rep. Pulv. purg. p. r. n.

Mitt. Sang. cucurb. ope cap. adm. ℥xii.

8th.—Is again more tranquil, and willing to occupy herself.

Admov. capiti caustic. ut ft. font.

Jan. 8th.—No farther amendment.

Exsiccr. font.

CASE XXXIX.

A. J. H. male, ætat. 30.

April 30th.—In consequence of failure in business, about two months ago, he fell into a state of despondency, and attempted to drown himself.

At present he scarcely ever speaks, moves about very slowly, and appears to be in a state of great depression. His general health seems to be good.

He was deranged before.

Utatur baln. tepid. cum aqua frigida capiti.

℞ Extract. Colocynth. Co. gr. x. alt. diebus.

May 24th.—℞ Pil. Hydrarg. gr. v. omn. nocte.

June 1st.—Repr. Pil. Hydrarg. gr. v. alt. noctibus.

June 18th.—Appears to have improved a little,—is less silent, and is able to give an answer to a short plain question. Still a considerable degree of depression and dulness remains.

Aug. 17th.—Answers questions more fluently, and expresses a desire to depart, saying that he is perfectly well.

℞ Pil. Hydrarg. gr. v. om. nocte, et
Infus. Sennæ, ℥iss. mane sequent.

23d.—Repr. Pil. alt. noctibus.

Sept. 4th.—Convalescent.

Omitt. Med.

Oct. 2d.—Well.

——— WITH PREGNANCY.

CASE XL.

B. H. C. married female, ætat. 33.

July 28th.—Has been deranged about three months. She is occasionally violent, but, in general, sits in a pensive musing indolent position,

from which she is unwilling to be roused. Her thoughts appear to be constantly fixed on her home and her children. She often complains of headach, which is generally relieved by purgatives. Her appetite is variable.

This is the first attack of insanity she has had, but it appears that her mother was deranged for a short time, and recovered. She has not made any attempt to injure herself.

Mitt. sanguin. cuc. ope cap. raso admot. ℥viii.

29th.—℞ Calomel. gr. iii.

Pulv. Rhei, gr. xv. M. alternis diebus.

Sept. 1st.—About a fortnight ago she was more easily managed than she had previously been; but, for two days, she has shewn tendency to violence.

She cannot be induced to employ herself in any way whatever.

Cont. pulv. purg.

Oct. 1st.—The transient state of comparative violence mentioned in the last report has occasionally recurred, and continued for a day or two, but without being succeeded by any signs of convalescence.

14th.—Spontaneous diarrhœa occurred about a week ago, and continued some days, but left her in her former state.

℞ Pulv. Valerian. gr. viii.

—— Cinchonæ ʒss. M. Fiat pulv. ter die sumendus.

Nov. 8th.—A little improvement has taken place in her mental disorder, but it is too slight, and has been of too short duration to afford a prospect of speedy recovery.

She has lately increased so much in bulk, as to lead to a suspicion of her pregnancy; but the nurse who has examined her with a view to ascertain this point, thinks that she is not.

Immerg. in balneo tepido ad grad. 96.

dum cadat super caput aqua frigida.

Jan. 1st.—Complains, that after the warm bath, she feels pain in her head, preventing her rest.

Feb. 10th.—The bathing was continued twice a week, but without producing any sensible advantage. She complains of her head being very painful during the whole of the night, immediately succeeding the bath, and that she cannot sleep till the morning is far advanced.

Desistat.

℞ Camphor. gr. x.

Castorei, gr. vi. M. Fiat bolus ter indie sumend.

March 14th.—Continued until now nearly in the state she had been in for the last two or three months. The suspicions entertained of her pregnancy were well founded, although not ascertained by the female attendant. She was last night delivered of a female child, after a very quick and easy labour. The mother and child are doing well, and she is kept very quiet.

℞ Ol. Ricini ʒvi. p. r. n.

27th.—The birth of the child produced no amendment in the mental faculties of the mother. After the first day there was an abundant secretion of milk.

(—— WITH PARALYSIS.)

CASE XLI.

A. J. C. widow, ætat. 50.

Sept. 29th.—On being sent to market, about three months ago, she returned, saying, that nothing could be purchased; that she had attempt-

ed to buy, but that it was impossible, that the price of every article had changed, &c. She then became exceedingly dejected, and so averse to motion, that she has remained in bed ever since. She shuns all conversation, rarely looks up, and engages in no occupation.

Her general health is apparently little affected. Her appetite is not deficient, but her nights are restless. This is the first attack of insanity she has laboured under, and there is no reason to think that she has a hereditary disposition to it. No cause is known.

℞ Pulv. Jalap. gr. xv.
Calomel. gr. ii. M. sumat statim et rep. alternis diebus.
Mitt. sanguin. cucurb. ope cap. raso admot. ℥xiv.

Nov. 1st.—Continues nearly in the same state, —if there be any change, it is favourable.

Dec. 1st.—Her state of dejection continues without manifest improvement.

Mitt. sang. cucurb. ope cap. admot.

15th.—No change.

Iterum mitt. sanguis ad ℥xii.

19th.—Admov. cap. Caustic. ut fiat Font.

Jan. 30th.—The same torpor and depression continue.

Mitt. sang. V. S. ad ℥xii.

Admov. Empl. Lyttæ nuchæ.

℞ Sulph. Magnes. ℥vi.

Infus. Ros. ℥iii. M. statim et alt. dieb.

Feb. 23d. About the beginning of this month the torpor increased, so as to indicate an approaching attack of apoplexy or paralysis, to ward off which the remedies have been directed.

℞ Ol. Terebinth. rect.

Mucilag. Acaciæ *a a* ℥ii.

Aquæ M. Sativæ, ℥xvi. M.

Sumat ℥iss. ter indie.

March 19th. The turpentine mixture purged her freely; the same appearance of impending paralysis or apoplexy continued; and a slight attack of hemiplegia took place, after which the mental disorder was undiminished.

DEMENTIA OR FATUITY.

In Dementia there is a general failure or abolition of the mental faculties; it is characterised by incoherence of discourse and of actions,—forgetfulness of the past, and indifference about the present and the future. There is an almost total deprivation of perception, of the power of attention, and of active memory, consequently of the elements of intellectual operation. Hence the fatuous are incapable of forming comparisons, or of reasoning; the social affections, too, are abolished; there are neither desires nor aversions; they are incapable of forming resolutions; therefore their actions are vague, uncertain, and performed without energy.

They are obstinate, but easily restrained, occasionally mischievous, and are often dirty.

Their features are relaxed,—eyes without expression, and dull, regard unsteady, and general character vacant or astonished; they sleep in general well, and are sometimes disposed to automatic movements.

CASE XLII.

D. O. C. male, ætat. 33.

Aug. 16th.—Is wild and agitated in his manner, incoherent in his ideas, and very loquacious. He never associates with those about him, but shews no disposition to injure himself or others.

His disorder is of one month's duration, but he is said to have had a fit some time before, for which he was bled largely. The first notice taken of his mental disorder, was upon seeing his native land, a fortnight ago, on his return from a warm climate: a quarrel with his employer, to whom he was much attached, and the unsettled state of his own affairs, are believed to have co-operated in producing insanity.

He has considerable tremor in his speech, and mutters to himself, but this he is unconscious of, and will not allow.

℞ Pulv. Rhei, gr. xv.
Calomel. gr. iii. M. statim.
℞ Extract. Conii, gr. iii.
Calomel. gr. i. M. alt. noctibus.
℞ Infus. Sennæ, ℥iss. mane sequente.
Mitt. sang. nucha cucurb. ope, ℥viii.

Sept. 4th.—App. Emplast. Lyttæ nuchæ. Cont. Med.

15th.—Has progressively become worse, and has the appearance of threatening paralysis.

Mitt. iterum sanguis nucha ope cucurb. ad ℥xii.

20th.—Repr. Infus. Sennæ omni mane.

Oct. 2d.—His ideas continue very incoherent, he has much agitation in his manner, is slothful and slovenly, has scarcely any appetite, and is not at all conscious of his increased disorder.

Mitt. sanguis cucurb. ope, ad ℥xii.

30th.—Is on the whole less agitated, but there is no improvement in his mental condition. The same sluggish disposition continues.

Fiat Setaceum in collo.

Cont. Haust. Sennæ alternis noctibus.

Dec. 1st.—Great loss of memory and confusion of ideas,—does not know the month or season of the year.

His appetite is in general good, occasionally indeed voracious.

He makes no complaint of his head, nor does he say that he has giddiness.

Jan. 1st.—Memory nearly abolished. Has an idiotic appearance, is slow in his movements, and has hesitation in his speech. Appetite good.

Feb. 1st.—No material change,—the same

sluggishness is observed. Hesitation of speech is rather increasing; he has occasionally taken purgatives of calomel and rhubarb, which are continued.

April 10th.—About noon was seized with convulsions, immediately followed by apoplexy.

The temporal artery was opened, and he was cupped in the neck, by which means ℥xx. of blood were speedily abstracted, but he expired in about an hour after he was first attacked.

The attention has been directed in this case chiefly to prevent increase of symptoms threatening paralysis, by occasional blood-letting, blister, seton, and purgatives.

On examining the head forty-eight hours after death, the vessels of the membranes of the brain were found full of blood. Minute drops of blood were likewise observed in considerable numbers, upon making slices of the cerebral substance.

Serum was effused into the cellular texture of the pia mater, over the whole of both hemispheres of the cerebrum, and a considerable quantity of fluid was found in each lateral ventricle, the latter supposed to amount to about 2 ounces.

The viscera of the abdomen were healthy.

The variety of appearances observed in the encephalon of the insane is so great, that we are not yet able with certainty to draw many useful inferences from them. Thus, the most violent mania, lasting for some time, and terminating in death, shall not leave any morbid appearance that we can detect, as was the case in No. 5. of this collection, and in a person of note, whose insane conduct attracted considerable attention some years ago, and whose body was examined after death with the most scrupulous minuteness, by some of the best anatomists of the island. While, on the other hand, the most extensive disease shall exist in the brain, with symptoms so moderate as to give no reason to expect it.

In general, we find in cases of some standing, the effects of previous increased vascular action, especially in the membranes of the brain.

A peculiar state of the cineritious substance has lately attracted the attention of some French pathologists, in particular, Dr FOVILLE of Rouen. A mottled appearance, somewhat like

that of marbled paper,—spots from the size of a pin-head to that of a pea, of a violet or purple colour, staining the cineritious substance. I have observed this both in the convolutions and in the corpora striata, and hitherto only after mental disorder. Dr ABERCROMBIE informs me that he has seen it in other diseases. Alterations of the brain or its membranes, apparently connected with long existing mental disorder, are occasionally found along with recent changes, the cause of death, for instance, where a sudden attack of apoplexy has terminated the life of an insane person; in most cases of this description, the mental disorder has continued until death, but this is not always the case.

I was lately favoured by Mr WARDROP with the account of a dissection, in which the morbid appearances seemed to have been produced at different periods, distinctly marked. A gentleman, about thirteen years ago, laboured under mental disorder, and recovered. About ten years after, he was seized with paralytic symptoms without mental disorder, and died after a short illness.

Upon examination, the membranes of both hemispheres exhibited marks of having suffered

from inflammatory action at a former period; and in the tuber annulare *ramollissement*, apparently of a recent date, was detected.

On the Continent, attention has lately been directed to the state of the great sympathetic nerve and its ganglions, and morbid alterations, such as inflammation and induration of the latter, and increase of size, with induration of the former, have been found in cases of mania and imbecility, by PINEL, TIEDEMANN, and AUTENRIETH, sufficient to encourage a more minute examination of this nerve than has hitherto been made.

CASE XLIII.

C. F. E. a sailor.

July 1st.—Has been deranged eight months. His language is incoherent, and relates principally to his former occupations. He conceives that persons molest and beat him during the night.

He is always more stupid, and at the same time more irritable, in the evening than in the morning, but is never violent or dangerous, rather melan-

choly. His sleep is in general disturbed, his appetite is variable, and his bowels regular, but he often complains of pains in the lower part of the abdomen, and he has a hernia. Whenever these pains or hernia are spoken of, he immediately undresses himself; he is said to have hereditary disposition to insanity. The present attack is stated to have been produced by intemperance.

℞ Pil. Rhei Co. gr. xv. omni nocte.
℞ Pil. Hydrarg. gr. v. omni nocte.
℞ Infus. Rosar. ℥iss.
Magnes. Sulph. ʒiii. alter. man.

Aug. 1st. — Mental imbecility seems to increase. His language is more incoherent, and he is less cheerful.

Omitt. Pil. Hydrarg.
℞ Mist. Cinchonæ, ℥iss. bis die.

Sept. 1st.—More evident marks of increased mental imbecility. To prevent him tearing his clothes, which he is sometimes inclined to do, he occasionally requires restraint by handcuffs.

Oct. 20th.—Is feeble in body as well as mind. To have ℥iii. port wine and a bottle of porter daily.

℞ Mist. Camphor. ℥viii.
Sp. Æth. Sulph. ʒii.
Confect. Arom. ʒss. M. partitis vicibus.

30th.—No amendment, — nor expectation of any.

CASE XLIV.

B. A. J. male, ætat. 44.

June 15th.—From infancy has had a natural deficiency of intellect, but still not so great as to prevent his being considered fit to be a soldier. After being enlisted, he was sent to a warm climate, where this weakness of mind increased, and about five months ago, on his voyage homewards, he became rather mischievous. He appears to be dull and stupid, and talks much nonsense; he is lazy, quitting his bed with reluctance, and is filthy in his person.

His pulse is quick and feeble.

App. Vesicatoria pone aures.

27th.—Is more lively than he was, and his pulse is become stronger.

℞ Camphor. gr. vi.
Confect. Arom. gr. x. M. bis quotidie.

July 13th.—His employment is parading about like a sentinel, to keep off the enemy, threaten-

ing to give them a good beating, and saying that he is in a castle or ship, but this is all the mental activity he seems to possess. In every other respect he is sluggish and confused, but is quiet and inoffensive.

Affusio aquæ frigidæ super caput bis in septimana.

℞ Carbon. Ammoniæ ℈i. bis quotidie.

Sept. 1st.—No favourable change,—same confusion of intellect, but his general health, appetite, and digestion, are unimpaired.

26th.—Appears to have derived little benefit, except that he is more lively than he was. He sometimes fancies himself the King, Duke of York, &c., and walks about and sings like an idiot.

℞ Fer. Sulphat. gr. ii.
Pulv. Cinchonæ ℈i. M. quotidie.
℞ Ext. Papav. alb. gr. v. omni nocte.

April 15th.—He is now in a state of imbecility, probably his condition from infancy.

CASE XLV.

A. J. A. female, ætat. 23.

July 2d.—Has been disordered in her mind about two months. She is very silly in her manner,—scarcely ever speaks, even when addressed, for the purpose of ascertaining and relieving her symptoms. When spoken to, a silly laugh is frequently her only reply. She is rather mischievous, but not dangerous. Her habits are dirty.

She has laboured under amenorrhœa for some time; the exciting cause of her disorder is said to have been perverted ideas of religion. This is the first attack of mental disorder she has had, and there is no reason to believe that hereditary disposition exists.

℞ Infus. Sennæ ℥iss.
Tinct. ejusdem ʒii.
Magnes. Sulph. ℥ss. M. sumat statim.

℞ Decoct. Commun. lbi.
Ol. Ricini ℥i.
Magnes. Sulph. ʒvi. M. ft. enema.
Mitt. sanguin. ℥x. cucurb. ope inter scapulas admot.

6th.—Continues devoid of reason and ideas of comfort.

Abrad. capill. et utatur lotio Aceti diluti capiti.

℞ Liquor. Antim. Tartar. ʒss.
Mist. Camphor. ℥jss.
Syrup. Papav. ʒij. M. Sumat bis die.

Aug. 3d.—Remains very silly in her manner, and has not improved in any respect. Amenorrhœa still continues.

℞ Pil. Ferri cum Myrrha gr. x. bis quotidie.

14th.—Utatur Balneo tepido.

28th.—Affusio Aquæ frigidæ subita bis in hebdomada.

Sept. 4th.—Her reason seems to be abolished; she has a very idiotic appearance.

℞ Infus. Sennæ, ℥ij. pro re nata.

Sept. 7th.—℞ Pil. Aloes cum Myrrha gr. x. omni mane.

Utatur balneo tepido.

28th.—No improvement; she can scarcely answer the most simple question, and is prone to destroy her clothes, which renders a slight degree of restraint necessary.

Nov. 2d.—During part of last month some improvement took place, so that no restraint was required, and she had less of the idiotic appearance; but the same imbecility of mind remained. She is now apparently unconscious of her situation, and has always a silly laugh. The catamenia are still suppressed.

℞ Pil. Galbani Comp.

Aloës Socot. aa gr. v. M. quotidie.

Jan. 2d.—Great imbecility approaching to idiotism still prevails; the silly smile above no- is her constant attendant.

A slight amendment was again observable in December; a glimmering of reason, as it were, occasionally breaking through the gloom of fatuity.

Repr. Pil. Ferri cum Myrrha gr. x. omni nocte.

Feb. 3d.—No catamenia.

Utatur Pediluv. alt. diebus, cum
Affus. Aquæ frigidæ super caput.

22d.—℞ Pil. Hydrarg. gr. v. alt. noctibus, et
Infus. Sennæ ℥jss; Infus. Gent. ℥ss. M. mane sequente.

March.—Continues the same.

Adhib. Electricitatis impetus per pelvem.

26th.—Has been affected with a considerable degree of tremor and nervous agitation.

℞ Pulv. Ipecac. ℈j.
Antim. Tart. gr. i. M. statim.
℞ Pulv. Ipecac. Comp. gr. x. omni nocte.

29th.—℞ Opii gr. ½.
Pulv. Castorei gr. x. M. h. s.
℞ Calomel. gr. iv.
Pulv. Rhei gr. xvj. M. p. r. nata.

April 1st.—Tremor removed, but no amendment in her mind.

July.—No improvement.

Electricity was tried in this case, but without effect. This agent has been recommended in Chronic Dementia by ESQUIROL, and cures are said to have been performed by it, as well as by galvanism. Both have been frequently employed in mental alienation combined with palsy, but, as may be supposed, with little success.

CASE XLVI.

C. F. C. male, æt. 36.

June 24th.—Has been several years in a state of insanity, brought on by terror. He is incoherent in his discourse, but in general is silent, unless when spoken to: he appears at times melancholy, at other times he has an unmeaning laugh: he is never violent. At a former period he attempted suicide, but has not again exhibited any disposition to injure himself or others. He avoids society. His bodily health is good, and bowels regular; but he sleeps little.

℞ Pil. Hydrarg. gr. v. quotidie.

July 5th. — Slight improvement appears to have been produced by the mercury.

29th.—℞ Mitt. sang. cucurb. ope cap. ras. adm. ℥xij.
App. Emp. Lyttæ capiti.
Omitt. Hydrargyrus.

Aug. 31st.—There still appears some amendment in his mental disorder, for he gives more ready and more correct answers to questions put to him, although he continues silent, unless when spoken to; is more willing to do what he is desired; appears less imbecile, and walks about more, although he avoids society.

Sept. 23d.—Improvement noticed in last report continued two or three weeks; since which time he has become less attentive to the propriety of his appearance than he was; his dress is perpetually disordered, and he is more dull, and less intelligent.

℞ Mist. Cinchonæ ℥jss. bis in die.

Nov. 18th.—State of fatuity or imbecility increases; his answers are less correct; his laugh is more idiotic, and oftener indulged in.

Immerg. in aqua tepida ad gr. 96, dum
Cadat in caput aqua frigida.

Jan. 6th.—Remains in the same imbecile state.

He has been bathed only twice, for the greatest alarm was produced; he seemed to pass from a state of torpor to one of extreme irritability and violence, followed by depression and refusal of food.

CASE XLVII.

D. O. A. male, æt. 24.

June 6th.—The faculties of his mind have become gradually impaired during the last six or seven months; in particular his memory, which led to some errors in his accounts. Insanity, however, was not suspected, until about two months ago, when he ran suddenly to a window, calling out that his mother was driven over by a carriage, or bit by mad dogs. He has since that time been decidedly insane, usually not violent, although once he attempted to strike his wife with a poker. This is the first attack of insanity, but during his life he has had four or five fits, supposed to have been epileptic.

℞ Pulv. Jalap. gr. xv.
Calomel. gr. iij. M. statim, et alternis diebus.

July 4th.—Remains nearly in the same state of mental imbecility.

Mittr. sang. cucurb. ope nucha ad ℥xiv.

25th.—Admov. cap. raso Emp. Lyttæ.

Sept. 1st.—Mental faculties still more torpid.

Oct. 4th.—Was seized with an apoplectic fit this morning; ℥xx. of blood were taken from the temporal artery, and the bowels were freely purged. He died about midnight.

On Dissection,

The vessels of the brain and of its membranes were found loaded with blood.

The arachnoid membrane was considerably thickened and opake.

The cellular substance of the pia mater was full of serous fluid.

The lateral ventricles of the brain were very large and distended, about ℥iij. of limpid fluid in each.

In other respects the structure of the brain appeared to be natural.

CASE XLVIII.

B. A. F. a soldier, æt. 28.

June 15th.—Has been nearly a year in a state of insanity: at present he appears silly, is indifferent about every thing, and is silent, except when he talks to himself, or to the wall, upon which he sometimes makes an attack, by striking at it. His bodily health appears good.

℞ Mist. Camph. ℥jss.

Æth. Sulphuric. ℥j. M. bis quotidie.

July 2d.—℞ Camphoræ gr. v. bis quotidie.

20th.—Is more inclined to speak, and more especially on indecent subjects.

31st.—Still much sluggishness and sullenness remain; he is, however, a little more ready in his answers, and shows a little more activity of manner.

℞ Ammoniæ Carb. gr. x. semel quotidie.

Aug. 15th.—Is more cleanly, and disposed to work; occasionally breaks out violently, and swears a great deal. He now readily enters into conversation, and may be considered as materially improved.

CASE XLIX.

E. F. female, unmarried, æt. 18.

Aug. 14th.—She has a stupid look, and when questioned about her complaints, cannot give a distinct answer; makes silly speeches when alone, and appears to have lost her memory in a remarkable degree. From what can be gathered from her, it would appear that she feels general lassitude and debility, and has a sense of weight on her head, with vertigo: has been affected in this way for five weeks; the cause is thought to have been a frightful dream. Pulse 88, rather sharp; skin cool; appetite good, although she never asks for food; bowels act regularly; has been very drowsy for some days, but denies that she ever gets sleep. Catamenia have appeared twice; last year once, and again about three months ago.

App. cucurb. cruent. capiti ad ℥viij.

Utatur pediluvio vespere per quadrantem horæ.

15th.—Symptoms continue unchanged.

Abrad. capill. et App. Empl. Lyttæ toti capiti.

17th.—Sense of weight and vertigo said to be relieved, although the discharge from the blister

has been scanty; she appears to have some little recollection, and gives more pertinent answers. Pulse 80, soft. Bowels costive.

℞ Infus. Sennæ ℥jss.

Magnes. Sulph. ʒiij. solve, sumat statim, et pro nata.

18th.—Physic operated gently.

To have animal food, and a pint of porter daily.

Seems to be convalescent.

25th.—℞ Pulv. Cinchonæ ʒss. bis vel ter die sumend.

31st.—Cured.

CASE L.

A. A. C. male, æt. 24.

April 21st.—Is in a state of great mental depression, and likewise appears weak in body. About a fortnight ago he cut his throat, but is now recovered from the effects of this attempt at suicide. Pecuniary difficulties are believed to have brought on this attack of insanity, to which he has a strong hereditary disposition, three of his father's family having been insane.

℞ Pulv. Jalap. gr. xv.

Calomel. gr. iv. M. Sumat statim, et repr. alternis diebus mane.

℞ Decoct. Aloes co. ℥ij. pro re nata.
℞ Decoct. Cinchonæ ℥jss.
Confect. aromat. gr. x. M. ter die.

May 16th.—Torpor has increased considerably, appears to be inattentive to the calls of nature, and is very dirty.

℞ Pil. Hydrarg. gr. v. omni nocte.

June 16th.—No amendment.

Omitt. Hydrargyrus.
℞ Infus. Quassiæ ℥ij.
Carb. Potassæ gr. x. M. ter die.

July 30th.—Is in a very unpromising state; he destroys his clothes very much, for which restraint is sometimes required. A great degree of mental torpor and bodily weakness continues.

Sept. 1st.—His muscular power has not lately decreased, and his appetite is tolerably good; but he appears to be almost devoid of intelligence.

Dec. 1st.—Bodily health improves; mind equally weak.

Admov. Caust. capiti ut fiat font.
℞ Mist. Camph. ℥jss.
Sp. Æther. co. ℥ss. M. ter die.

Jan. 1st.—His bodily health continues to im-

prove, and there is some appearance of slight mental improvement.

Feb. 1st.—He has improved considerably; has become cleanly in his person, and no longer requires restraint.

March 1st.—His countenance has resumed its natural expression, and he now conducts himself with great propriety.

CASE LI.

A. B. C. a male, æt. 30.

March 31st.—This man, who lately lost an affectionate relative, appears to be in a state of acute dementia; he attempted to throw himself out of the window, and is very restless and mischievous. His insanity is of a month's duration.

℞ Pil. Hydrarg. gr. v. omni nocte.

℞ Extr. Colocynth. co. gr. vj.
Calomel. gr. iii. M. Fiant Pil. 2. pro re nata.

April 5th.—No change.

Utantur Thermæ cum aqua frigida in caput affusa.

℞ Pulv. Ipecac. ℈j.
Antim. Tartar. gr. j. M. alt. man.
Repr. Pil. Hygrarg. gr. v. alt. noct.

30th.—Little effect has been obtained from the emetics, or from the douche, in rousing this patient from his mental stupor.

Omitt. Hydrarg.

May 31st.—Remains in a state of stupor and silence; his appetite is voracious, and his bowels inclined to be costive.

℞ Calomel. gr. ij.

Pulv. Rhei gr. xv. M. alt. man.

Omitt. Extract. Colocynth. comp. et Calomel.

Fiat setaceum nucha.

June 30th.—Continues in a condition of torpor, as if he could not be roused to any mental exertion; his appetite continues good.

App. Vesicatoria cruribus.

July 7th.—Scarcely any effect in arousing him from his lethargic condition, produced by the blisters, which were discontinued after a few days' trial.

Aug. 1st.—Mitt. sang. nucha cucurb. ope ℥xij.

Rep. pulv. cum Rheo et Calomel.

Sept. 1st.—Adeat Machin. Elect.

The cupping and electrical shock were also ineffectual to rouse him. Continues costive.

Repr. Cathartic.

Nov. — The frequent use of purgatives at length began to effect his amendment, the first signs of which were his answering questions, and his shaking hands, on being asked.

Dec.—Recovery of mental energy progressive.

TABLE

OF THE

NUMBERS OF THE DIFFERENT VARIETIES IN 274 CASES OF MENTAL DISEASE.

MANIA, or		
General Insanity, ...	78	
Puerperal, ...	15	
Remittent, ...	3	
Intermittent, ...	3	
with Paralysis, ...	3	
— Apoplexy, ...	1	
— Catalepsy, ...	1	
— Epilepsy, ...	3	
— Hysteria, ...	1	
	—	108
MONOMANIA, or		
Partial Insanity.		
Melancholy, ...	51	
Puerperal, ...	2	
Intermittent, ...	1	
with tendency to suicide, .	15	
— Fear, ...	6	
— Paralysis, ...	3	
— Pregnancy, ...	2	
— Dementia, ...	1	
	— 81	
Over, . . .	81	108

	Over, . . .	81	108
MONOMANIA,			
Religious, ...		15	
with Paralysis, ...		1	
— Epilepsy, ...		1	
— Hypochondriasis, . .		1	
— Nymphomania, . .		1	
		— 19	
Timid, ...		8	
Elated, ...		16	
with Paralysis, ...		2	
— Epilepsy, ...		1	
— Dementia, ...		1	
		— 20	
Amorous, ...		1	
with Jealousy, ...		1	
— Epilepsy, ...		1	
— Nymphomania, . .		1	
		— 4	
Chimerical, { var. Hypochondriacal,		3	
Hysterical, .		3	
		— 6	
		—	138
DEMENTIA, ...		21	
Puerperal, ...		1	
Senile, ...		2	
with Paralysis, ...		4	
— Catalepsy, ...		1	
		—	28
			274

Of the above	Cured.	Relieved.
108 Cases of MANIA, there were	58	6
81 Cases of MONOMANIA, with Depression, . .	38	8
20 Elated, ...	8	
19 Religious, . . .	11	1
8 with Fear, . .	4	
4 —— Love, . .	1	
3 Hypochondriacal,		1
3 Hysterical, . .	2	
28 Cases of DEMENTIA, . . .	1	4
274	133	20

EXPLAN

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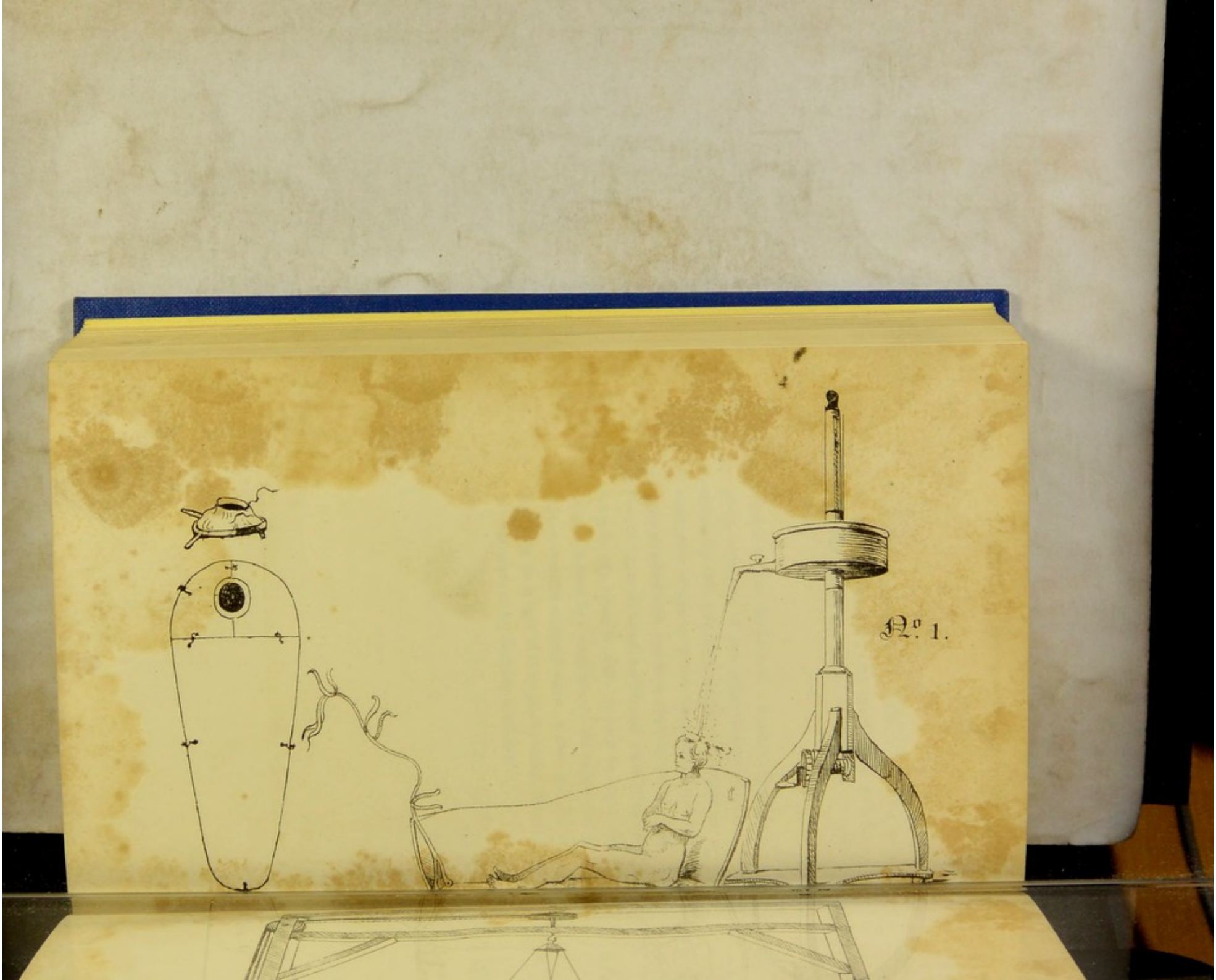
EXPLANATION OF THE PLATES.

In visiting private asylums for the insane, I have had frequent occasion to observe, that the difficulty of procuring proper machines for administering the Douche and Rotatory Motion, has prevented medical men, having patients under their care, to whom these remedies might have been beneficial, from making a trial of them. I have therefore thought it may be useful to give drawings of Machines for each of the above purposes, which may be erected at little expence, and by any intelligent carpenter.

The first Plate gives a view of the different parts of an apparatus for giving the Douche, consisting of a bucket, from which a stream of water is made to fall on the head of the patient from different heights, regulated by a rope and pully,—by the cock inserted into the lower part of the bucket, the size of the stream is regulated; in this Plate is likewise exhibited a perpendicular section of a warm bath, with the position of the patient in it,—the

form of spring-straps to fasten him, if necessary,—the cover of the bath, with space for the patient's neck, and a wax-cloth tippet to carry off the cold water.

In the second Plate, the form of a Rotatory Machine is given, consisting of two perpendicular posts, connected by two transverse beams,—a strong arm-chair, with straps to secure the patient, and four ropes attached to it, and kept apart above by a perforated piece of wood, to prevent their being entangled; the chair is made to turn by ropes and pulleys, moved by a small wheel; the position of the patient may be rendered more or less upright, by adjusting the length of the ropes by which the chair is suspended, or by cushions fixed in it.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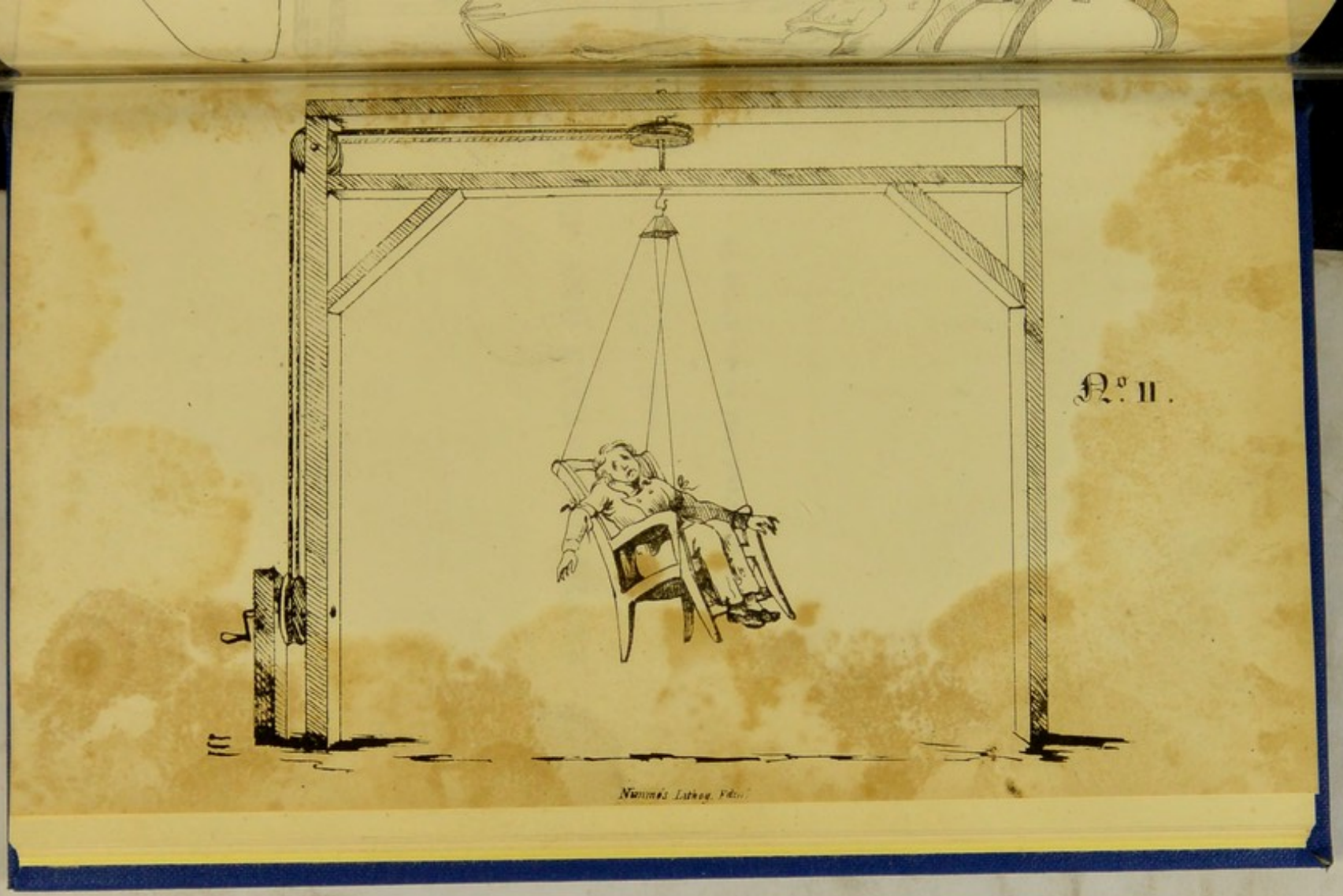

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AN

DEEP AN

AN ESSAY UPON THE TREATMENT

OF THE

DEEP AND EXCAVATED ULCER.

W. WILSON, PRINTER, 57, SKINNER-STREET, LONDON.

AN

ESSAY

UPON THE TREATMENT

OF THE

DEEP AND EXCAVATED ULCER:

With Cases.

BY

RICHARD ANTHONY STAFFORD,

MEMBER OF THE ROYAL COLLEGE OF SURGEONS, AND LATELY HOUSE-SURGEON TO ST. BARTHOLOMEW'S HOSPITAL.

LONDON:

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PATERNOSTER-ROW.

1829.

Price Five Shillings.

Dedication.

TO

JOHN PHILLIPS, ESQ.

SURGEON EXTRAORDINARY TO THE KING—TO HIS MAJESTY'S HOUSEHOLD—TO THE ST. MARY-LE-BONE INFIRMARY, &c. &c. &c.

My Dear Sir,

As most of the cases I have now laid before the public occurred in the St. Mary-le-bone Infirmary, and as it was through the kindness of yourself, and your son, Mr. Charles Phillips, that I was enabled to employ the remedy for Ulcers which I have recommended in the following pages, I beg to dedicate this little treatise to you, and to assure you, that I not only feel grateful for the favours I have received at your hands, but honoured by your friendship, remaining, with much esteem,

Your obliged and obedient Servant,

R. A. STAFFORD.

12, Sackville-Street,
May 30, 1829.

CONTENTS.

	Page
Remarks and Cases illustrative of a new principle of treatment of the Deep and Excavated Ulcer	1
Ulcerated Legs	21
Excavated Buboes of the Groin	45
Sloughing Phagedena	59
Cancerous Ulceration	63
Scrofulous Ulcers	69

AN ESSAY

UPON THE TREATMENT

OF THE

DEEP AND EXCAVATED ULCER.

Ulcers have been classed, by systematic writers, under several specific varieties; and for each of these has been recommended a particular mode of treatment. On the present occasion, it is my purpose to confine my observations to those in which the ulcerative process has been carried on to so great an extent, that it has eaten deeply into the substance of the flesh, and thus a cavity has been formed.

Among these may be enumerated the open Bubo, which has burrowed deeply ; and excavations which have been formed by the rapid destruction of the part by sloughing phagedena, or from any other cause ; old indolent ulcers of the legs ; indolent and deep ulcers arising from scrofula,—in short, such as are situated in any part of the body where considerable substance has been lost. Sores of this description are usually extremely slow in healing ; their edges are ragged ; their surfaces irregular, being made up of little cavities, or terminating in sinuses ; they are also exceedingly foul, and commonly covered by a dirty brown, or yellowish matter, the consistence of which is more or less thickened, and which becomes lodged in the cavity. Under these circumstances, it is extremely difficult to make them granulate ; and whatever remedy may be applied, the ulceration gradually extends, or the sore

remains stationary, without either increasing or diminishing.

To account exactly for this deficiency in the restorative power of the part, would not be an easy task. It may depend upon a variety of causes, and is probably owing either to a peculiar state of the health of the individual; to a more than ordinary languor of the capilliary vessels of the ulcer; or, perhaps, to an irritation being kept up by a lodgment of acrid matter in the cavity. Such a character of sore may likewise arise from exposure to the air, or possibly from that want of support which we are enabled to give to those which are more accessible to external application. Be it, however, what it may, of this we are certain, that no ulcer occurs over which the science of surgery has less controul, or where we are

more at a loss to find a remedy for its cure, than the one I have just described.

The treatment which I am about to recommend is extremely simple; and we shall find, upon inquiry, that its action is founded on just principles, and according to the laws which nature herself pursues. It consists in pouring into the excavation melted wax, of an extremely adhesive quality, and just at that temperature when it is on the point of cooling, and will immediately become solid in the wound. In this manner the under surface of the wax, when cold, comes into close contact with the general surface of the ulcer, and the whole excavation is filled by it. Before employing it, however, it is necessary that one or two precautions should be taken: first, in order to clean the sore, as much of the pus as possible which rests upon it

should be absorbed by dry lint; and secondly, in order to avoid burning the patient, the wax should be at that point of heat which is called by chandlers *setting;* that is, a portion of it should cling to the sides of the vessel in which it was melted, and the rest should begin to thicken, and have somewhat of an opaque appearance. In this state it will not be at much more than blood heat, and it can be used with perfect safety. It is advisable, however, even when so far cooled, that a brush be dipped in it, and that the wax be allowed to drop from that into the sore. After the wax becomes perfectly solid in the ulcer, a strip or two of adhesive plaister may be applied over it, to keep it in its situation; when it may be left until it requires to be dressed again, which will be on the third day after its application. By pursuing this method of treatment, it will be found that healthy granulations will be produced, and

appear upon the whole surface of the sore; that it will contract; and that the healing process will proceed very rapidly.

It is probable that the explanation which would commonly be given of this method of treatment would be, that the air is completely excluded by these means from the part affected, and that there is an uniform pressure kept up upon the ulcer. This explanation is, to a certain degree, satisfactory; but still I am inclined to think, that the effect produced does not entirely depend upon such cause. There are certain laws in the animal economy by which extraneous matter is expelled from the body; and it appears to me that the wax, being a foreign substance lodged in the excavation of the ulcer, becomes subjected to these laws. The received opinion, in the present day, of the mode by which an extraneous body is expelled from the mass

of the flesh is, that the part situated above it, and nearest the surface, is progressively absorbed. Mr Hunter remarks*, "It is by progressive absorption that matter or pus, and extraneous bodies of all kinds, whether in consequence of, or producing inflammation and suppuration, are brought to the external surface; it is by the means of this that bones exfoliate; it is this operation which separates sloughs." So far as this explanation goes it is good; but it only describes half the process. Nature does more: she not only makes way for the removal of the dead part by the agency of ulceration, but forces it, as it were, away from her. According to the idea I myself have formed of this process, the part immediately above the foreign body ulcerates, and from beneath it a new growth is established, which pushes it on until it arrives

* Hunter on the Blood, vol. ii. p. 287.

at the surface. If this were not the case, how could we account for adventitious substances being discharged from the body? They themselves can have no power of motion, and the part ulcerating immediately above them could not alone admit of their escape; for, allowing that the ulceration completely extended to the superficies, the unnaturally introduced matter would still remain in the same situation. It is a well-known fact, that pins which have been swallowed will traverse every portion of the body, and will at length be discharged in various parts of it. By what means can this be effected, for the pins, being passive, cannot move of themselves? They must be acted upon by something; and the only explanation I can offer of this phenomenon is, that ulceration takes place at one end of the pin, while at the other, namely, that part of it which is situated deepest, is impelled forward by a new

growth till it finally arrives at the surface. It is true, that the pin passes out by a circuitous route; for as Mr. Hunter very justly observes, when speaking of foreign bodies making their way to the surface*: "Some parts, from their structure, are more susceptible of this irritation than others; and we find that those parts, composed of such structure, are often absorbed, though they are not in the shortest road to the skin." In this manner may the circuitous route of the pin be explained; for it would, of course, follow the road that was made for it. But, to express my meaning in more simple language, let us suppose, for example, that a piece of dead bone, or foreign matter, is lodged in the fleshy part of the thigh—How will nature throw it off? First, the part above it will ulcerate; and secondly, a new growth will take

* Hunter on the Blood, vol. ii. p. 296.

place from beneath it; whereby, not only will the bone be forced on, and thus, by the pressure it makes above, the ulceration will be continued, but the cavity which must necessarily be made by it will in this manner be filled up.

When an extraneous body is buried in the substance of the flesh, the process by which it is expelled cannot be seen; but when the death of a part (which consequently becomes a foreign body) takes place on the surface, we may see the progress of nature in the operation. The mortified part is first separated from the living by ulceration, which forms a kind of *cordon sanitaire* all around it, gradually extending beneath it, from the edges to the centre; and as fast as the separation takes place, granulations spring up from the interior of the excavation, and by the time the whole process is completed, the

cavity is nearly filled by them. In this manner the mortified part is protruded by the granulations, and expelled from the situation it previously occupied. This fact, although but slightly alluded to, and spoken of only in contra-distinction to the mode in which an extraneous body is discharged through a fistulous passage, does not appear to have escaped the observant eye of Mr. Hunter, for he says*, "This effect in such sores does not arise from *granulations* forming at the *bottom*, and gradually *raising* the *extraneous body* as *they form* (which is commonly the case with *exfoliations* and *sloughs*); but we find extraneous bodies come to the skin when the bottom of the wound is not granulating." This passage at once illustrates the view I have taken of the process; for it may be observed, when a slough is removed, that

* Hunter on the Blood, &c. vol. ii. p. 361.

the sore is usually covered by healthy granulations, and that it would be difficult to make it correspond with the cavity from whence it was discharged. Thus nature not only effects the separation, but at the same time, by this double process, throws off the extraneous body.

It is to this second process, viz. the springing up of granulations upon the surface of the ulcer, to throw off the extraneous matter resting upon it, that I am more particularly alluding, as connected with the effect of the wax, and upon which I ground the basis of my treatment. The wax may be considered to be the foreign body, or mortified part, separated from, but in close contact with the ulcer; and, as it is one of nature's laws to throw off extraneous matter, granulations are engendered upon its whole surface to effect this purpose; and thus a natural process is

imitated. That this is the case, may be inferred from the solid wax, after a time, being found partly thrust out of the cavity; and if removed, it cannot be made to adapt itself as before. What I have just observed is beautifully illustrated by the exfoliation of bone from the cranium: large portions of the external table die, and exfoliate from the inner table. On removing the dead portion, it is usually found that it rests upon florid healthy granulations, which have not only pushed it away from that which was sound, but have imprinted their figure upon its surface. Here, then, is the exemplification in question: the dead bone is the foreign body; granulations are formed upon the living portion of the skull, and thrust it away from it; and the phosphate of lime becomes partly absorbed, and hence arises that imprintation of their form upon its surface.

Having endeavoured to explain what I conceive to be the process of the healing of an ulcer, when filled with the wax, I shall now point out, first, the progress by which it heals; secondly, the superiority of this plan of treatment; and thirdly, the cases where its adoption might be advantageous.

With regard to the progress by which a sore heals, according to this or any other method of treatment, it is impossible to lay down any precise rule or time, as this must in some measure depend upon its character, its size, the health of the patient, &c.; but the stages by which the reparative process is usually carried on, when treated with the wax, is as follows:—On the removal of the first dressing, the sore generally presents a cleaner surface, being more reddened; and sometimes even in the early stages granulations are distinguish-

able. After the second dressing they are commonly spread over the whole surface of the sore; on the third they partly fill up the cavity, which is much contracted; on the fourth it appears still less; and so on until it is completely closed, and then the skinning process commences. During the course of healing, likewise, it may be observed, that the granulations are smaller, more compact, and more florid. The cicatrix also presents a more even surface; it is of a firmer texture, less tender, and does not appear so likely to break out again as the scars of those ulcers which have not been treated according to this plan.

The superiority of this plan of treatment is, that the sore is healed much more quickly, being, in fact, so rapid, that it is accomplished in one-third of the time usually occupied, and with much

greater certainty than where the common methods are employed. It succeeds also where no other remedy will, as may be seen by the cases. It excludes the air from the wound, shielding it at the same time from external objects; it makes equal pressure upon its surface, and thus supports its tender vessels; and it imitates the process which nature herself pursues, the healing of a sore by scabbing. All these are of great use; for, in the first place, by the exclusion of the air, much irritation and pain is avoided; in the second, by the support it gives to the tender vessels of the ulcer, the cicatrix is of a more firm and solid texture; and in the third, by the scabbing process, it is healed in a more regular manner. In addition to these advantages, the pain, when the wax is upon the sore, is so little, that many of the patients have informed me that they have

been almost unconscious, not only of its presence, but even of the existence of the sore itself.

The cases where the plan of treatment I have recommended might be advantageous are, the open and excavated Bubo; ulcers of the legs; indolent scrofulous sores; excavations in the flesh, in consequence of sloughing phagedena; ulcers situated over large arteries; sinuses, and fistulous passages, that have been laid open; the sores left by extensive burns, broken chilblains, and, in short, those of any depth, from whatever cause they may arise. In most of the cases I have just enumerated, the wax has been employed; but more particularly in ulcerated legs, open Buboes, and scrofulous sores. In these, of whatever character or description they may have been, the treatment has succeeded, and the healing process has been forwarded with

greater rapidity than where the ordinary applications have been used. Its utility does not appear to be confined to any one particular state of the ulcer. When it is extremely foul, and even covered by a sloughy matter, as in Butler's case, on the removal of the wax it has presented a clean surface. Where the ulceration has been extending, its progress has been immediately arrested, and it has shewn a disposition to heal. When the sore has been connected with varicose veins on the leg, it has been attended with equal advantage; and when its character has been of so languid and indolent a nature, that no remedy could excite a healthy action, the stimulus and support of the foreign body, that is, the wax, has, as it were, like a charm, produced strong and florid granulations.

Although there are very few species of

ulcers where this method of treatment might not be successful, yet it offers peculiar benefit in many cases which before defied all other remedies: for instance, in sores situated over large arteries, where there is a danger of the ulcerative process being continued into the vessel. Such cases are not uncommon; and, to my own knowledge, several patients have died in consequence of every application having proved ineffectual to stop its progress. In these instances it is customary to apply stimulating remedies; but every practitioner must have observed, that such dressings have too often accelerated the catastrophe they have intended to ward off. Here, then, the use of the wax might be of singular advantage, by producing healthy granulations, and, at the same time, protecting the artery. The same plan of treatment might likewise be resorted to in all extensive sores, such as burns; and thus

not only might they be made to heal more quickly, but they would likewise be shielded from objects around them. There are some species of ulcers, also, whose peculiar character it is to spread; for instance, herpetic sores, noli me tangere, and cancerous ulceration; and if the principle which I have pointed out as to the action, which this plan of treatment induces in the ulcer, be correct, it might possibly be of infinite service in these cases, in putting an end to, or at least stopping the progress of, the ravages of the disease; and more particularly when it is extending itself into parts so full of blood vessels, that there is reason to apprehend the death of the patient from hæmorrhage. I have not had an opportunity of employing it in any of these cases, excepting in cancerous ulceration, where its effects in producing granulations (which will be seen by the cases) was extraordinary; consequently, I

am unable to bring forward any facts to establish its utility, and therefore I merely offer these remarks as a suggestion.

In conclusion, it is almost needless to say, that whatever local treatment may be applied to an ulcer, it is necessary to attend to the health of the patient; and although in most of the cases where the wax was used, only purgatives were occasionally given, yet, if the health be deranged, constitutional treatment must likewise be resorted to. I shall now relate only a few of the cases, to illustrate the principle I have been advocating, taking them in the rotation in which they occurred; but would first observe, that the plan has been so successful, and in such a variety of instances, that my friend, Mr. C. Phillips, almost always resorts to it in the cases that occur in the St. Mary-le-bone Infirmary.

ULCERATED LEGS.

CASE I.

JOHN COVILL, ætat. 49.—Feb. 1828.—This man has had an extensive ulcer of the leg for 25 years. About ten years ago it healed for a short time; but it broke out again almost immediately, and has remained open ever since. The sore, as it now exists, occupies nearly the whole space between the calf and the ankle, and extends nearly all round the circumference of the leg. It is about one-third of an inch in depth, of an excessively foul character; and the discharge issuing from it is extremely offensive. Applications of every description have been employed, without its shewing the least disposition to

heal, or to change its character. Under these circumstances, and as the man had been crippled by it for many years, it was proposed that the limb should be amputated. The patient, however, would not consent to the operation.

From observation, I had always found, that when mortified parts had been separated from the living, that the surface beneath was usually covered by healthy granulations, and that the excavation was nearly filled by them; and thus the wound quickly healed. It occurred to me from this circumstance, that the process which I have endeavoured to describe in the foregoing pages might be imitated. I therefore procured some wax, of as adhesive a quality as possible, melted it, and as it cooled, poured it into the ulcer. The patient immediately expressed relief from its application, and it was left on the sore three

days. On the fourth, when it was about to be removed, it was found to be slightly raised; and on taking it away, the surface of the ulcer was seen, to the astonishment of every one, covered by granulations, and its depth was considerably diminished. These granulations were much smaller than those on healthy sores in general, being about the size of small shot; they were much more regularly disposed, and they were of a beautiful florid red colour.

Feb. 17.—The sore was again dressed with the melted wax, and on the fourth day was removed. The wound still presented the same appearances as when last seen, excepting that about two-thirds of the excavation was filled up. The application of the wax was continued.

Feb. 21.—The granulations were equal with the surface of the leg; they still re-

tained their diminished character, and their florid hue.

Feb. 25.—The sore had healed one-fourth of an inch all around its circumference, the granulations still having the same appearance.

28.—The sore still less.

March 2.—The sore is only half the size it was at first, and the healing process is proceeding very rapidly.

About a fortnight from this time the man was discharged perfectly cured. The cicatrix was much firmer, and more regular than that of ulcers in general. The medical treatment was simply keeping the bowels regular.

CASE II.

MARY BUTLER, æt. 68.--March, 1828.—Has extensive ulcers, of considerable depth, on both legs, which broke out about thirty years ago, and have been open for these last six years. They are four in number, two on each limb. On the right leg they are situated immediately above the external and internal ankle. That on the external side measures four inches in length, and two in breadth; and that on the internal is rather smaller. On the left leg the ulcers are, singularly enough, situated exactly in the same place; but they are in size about one-third less. All these sores are deep, painful, and of a most irritable character; and those on the right leg are covered by a sloughy matter, which is adherent to them; while on the left they

are only foul. The surface of the lower part of the legs is also of a highly-reddened colour, shining, and smooth to the touch.

March 24.—The ulcers were dressed with the melted wax: on March 27, it was removed. The sores on the right leg were quite clean, and the sloughy matter upon them came away with the wax. On the left leg granulations were distinguishable. All the ulcers had been much easier since the application of the wax.

March 30.—The surface of each sore was covered by healthy granulations, and the cavity was partly filled by them. They were of a diminutive character, and extremely florid.

April 2.—The excavations of the ulcers on the left leg were nearly obliterated by the granulations. Those on the right were

also much in the same state, but not so far advanced.

April 5.—Granulations were even with the surface on the left leg. On the right the cavities were not quite filled up.

8.—The healing process had began at the edges of the ulcer on the left leg. On the right, granulations were even with the surface. All the ulcers were much contracted.

11.—The ulcers on the right leg were now beginning to heal, and those on the left still diminishing in size.

14.—The skinning process of all the ulcers proceeding very rapidly.

17.—A continuance of the healing process.

20.—The ulcers on the left leg half-healed; those on the right about one-fourth.

On the 16th of May this patient was discharged cured; and she has remained well ever since, being under treatment seven weeks. The cicatrices were firm and even. The only medical treatment of this case was, occasional purgatives.

CASE III.

Elizabeth Smith, ætat. 25.—Feb. 20, 1828.—The whole of this girl's leg, from immediately below the knee to the ankle, is covered with small foul ulcers, which discharge a nasty acrid matter, that clings to the surface of the skin in scabs. The skin itself, likewise, is diseased, being red, cracked, and rough.

The upper part of the leg (that situated over the tibia) was covered with the melted wax, and the ulcers filled with it; and that on the under surface was dressed as usual. On taking off the second dressing of the wax, on the 5th day, it was found that not a vestige of an ulcer, or disease of skin, remained; while those underneath, and which were not dressed with the wax, remained open. These were treated in the same manner as the others, and in a week the patient was discharged perfectly cured.

CASE IV.

Mary Tucker, æt. 59.—April, 1828.—In this case an extremely painful ulcer, of about the size of a five shilling piece (having been open about eight years, accompanied by varicose veins), was situated immediately above the external ankle. It was very deep and foul, and its edge of a wiry character. Around it, also, for a considerable distance, the skin was of a deep dusky red colour.

April 3.—The melted wax was applied; and when it became cool, the patient expressed great relief. On the 6th it was removed, and the sore was much cleaner, having a reddish appearance on its surface; but no distinct granulations were perceptible. On the 9th the sore presented a healthy appearance, and the cavity was

partly filled by granulations. On the 12th granulations were equal with the surface; and in three weeks the patient was discharged from the hospital cured.

CASE V.

MARY THOMAS, ætat. 52.—About four years ago this woman was admitted into St. Mary-le-bone Infirmary, with extensive ulcerations on both legs. At that time they were of a phagedenic character, and spreading very rapidly. The nitric acid was used, and the phagedenic character ceased; but the ulcers left behind, after various applications and constitutional treatment, would not heal. It was therefore advised that the patient should go into the country, with the hope of improving her health. This she did, and got admitted into the Bristol Infirmary: here the ulcers on her left leg healed, but that on the right still remained open. When she had been in the Bristol Infirmary about nine months, it was proposed that the leg

should be amputated, as the ulcer would yield to no treatment that had been employed, and the patient was suffering much pain, and was greatly reduced in bodily strength. She would not, however, consent to the operation, but came to London immediately, and was admitted again into the St. Mary-le-bone Infirmary, where she remained for several months, and every remedy that could be thought of was tried. A consultation was held upon her case, and it was proposed to remove the limb. About this time, however, the treatment of ulcers by the melted wax was introduced, and it was considered advisable by the surgeon, Mr. C. Phillips, to make a trial of this plan first. The sore at this time was rather larger than the palm of the hand—was extremely foul; and the stench from it was so disgusting that the patient was hardly approachable. The leg had a shrivelled appearance, in consequence of the scars

left where the ulcer had formerly spread. Her leg was now dressed every second day with the melted wax. The sore immediately began to assume a healthy character, and to heal; and in a month she was discharged cured.

N.B.—I have seen this patient within a few weeks of this time, and the wound continues healed.

February, 1829.

CASE VI.

Elizabeth Fenton, ætat. 44.—April, 1828.—In this case there are two ulcers; one about the size of the palm of the hand, and the other of a penny-piece, both situated on the outside of the right leg. They have been open about ten years; and they are at present extremely painful, foul—being covered by a dirty greenish matter—and of considerable depth.

April 12.—The wax dressing was used; on 15th, the sores were cleaner, and less painful; 18th, both were covered by small florid granulations; 21st, the cavities of the ulcers were partly filled up; 24th, the sores were much contracted; 27th, granulations were equal with the surface; 30th, the skinning process had commenced; and on May 16th the patient was discharged, both ulcers being soundly healed.

CASE VII.

George Connel, ætat. 47.—April 2, 1829.—Was admitted into St. Mary-le-bone Infirmary, with a large sore on the outside of the left leg. It measures seven inches in length, and about four in breadth, and is extremely foul and deep. On April 5th it was dressed with the melted wax; on the 7th the sore was much cleaner; on 9th it was covered by healthy granulations; on the 11th it had began to heal at the edges; on 13th it was still more healed; and by the end of the month it had completely cicatrized, and the man was discharged cured.

CASE VIII.

April, 1828.—John Riley, æt. 40, has a deep ulcer on the right leg, about the size of a five-shilling-piece. The wax dressing was began on April 2; and so rapidly did this sore heal, that the man was discharged cured on the 14th of the same month.

CASE IX.

April, 1828.—Thomas Groves has two large ulcers on the right leg, similar in character to the last; these were dressed with the wax, and in less than a month they were firmly healed.

CASE X.

JAMES CORMOODY, ætat. 59.—April, 1828.—This man has a deep, foul, painful ulcer, about the size of a five-shilling-piece, on the left leg, situated just above the internal ankle, and accompanied by varicose veins. After the first application of the wax the sore was much easier; and on its removal it was cleaner. On the 2d its surface was slightly reddened; on the 3d small pointed granulations were just distinguishable; on the 4th they were more perceptible; on the 5th the sore was somewhat contracted; on 6th the cavity was partly filled up; on 8th the ulcer was nearly level with the surface; and in six weeks it was completely healed.

CASE XI.

April, 1828.—Richard Stackman, ætat. 49, has an ulcer just above the internal ankle, about the size of the palm of the hand. It is exceedingly painful and deep, and is accompanied with varicose veins. Its surface also is covered by a dirty brown discharge; and it has been open for several years.

So rapidly did the healing process of this ulcer proceed, that on the removal of the first dressing its surface was covered by healthy granulations; and after six applications of the wax, it was firmly cicatrized.

CASE XII.

David Williams, æt. 70, was admitted into the St. Mary-le-bone Infirmary on April 16, 1829, with a large ulcer on the inside of the leg, near the ankle. It was three inches in breadth, and five in length; and had been open six months, discharging a very offensive sanious matter. Poultices were ordered for three or four days, with a solution of chloride of soda as a wash; these succeeded in diminishing the offensive fœtor, without exciting the healing process. April 20, the wax was applied, and removed on the 22d; still the wound exhibited a smooth shining surface. The wax was again applied; and on its second removal the polish on the surface began to disappear. On April 30, small pointed

granulations could be distinctly discerned on every part of the sore; and at this present time, May 11, they are equal with the surrounding surface, and the skinning process is commencing.

CASE XIII.

MARGARET SMYTH, ætat. 54.—April, 1829.—Has a sore about the size of the palm of the hand, on the calf of the left leg, mid-distant between the knee and the ankle, and just below the tibia. It is about an inch in depth, the ulceration having extended itself quite through the cellular substance and fascia, to the muscles beneath; and is covered by a greenish sloughy matter. It is extremely painful; and the veins also of the legs are varicose. Poultices were first ordered, but with little benefit; since this the Tinct. Benzoini Comp., the Ung. Resinæ Flavæ, and other stimulant applications, have, without effect, been employed. May 4, Sore was filled with the melted wax; the patient expressed great relief, as she had not slept for several nights before. On the removal of the wax on the second day, the sloughy matter was separated from the sore, and it presented

a clean surface. The ulcer was again filled with the wax, and on May 9th it was taken away. Granulations had now half-filled up the cavity, and they were extremely small, and of a bright florid hue. On May 15, the granulations were equal with the surface; and on the 18th the ulcer was nearly healed.

From one hundred and fifty to two hundred cases of ulcerated legs have now been treated with success, according to this method. It is unnecessary, however, to give any account of them, as it would only be repetition of the same facts. The cases here related are sufficient to establish the principle upon which the healing of a deep ulcer is accomplished, when filled with the wax in the manner I have recommended.

EXCAVATED

BUBOES OF THE GROIN.

CASE I.

PHILIP QUINLAN, ætat. 25.—Feb. 20, 1828.—Has an indolent excavated sore in the right groin, in consequence of Bubo. It is in length about one inch and a half; in breadth rather more than half an inch; and in depth two-thirds of an inch. Its edges are ragged, and it is of an extremely foul character, being covered by a dirty yellow discharge. It has been in this state for more than six weeks, and no application hitherto used has changed its character, or disposed it to heal.

The melted adhesive wax was applied, and the whole excavation filled with it. No pain was experienced; and during the whole time it remained on, the sore was easier.

23.—The wax was removed, and the sore was much improved. Granulations had sprung up from the bottom, and one-third of the sore was filled by them. It was again used as before.

Feb. 25.—The cavity was filled about two-thirds, and the ulcer was much contracted. The edges were less ragged, and the whole surface was covered with healthy florid granulations.

28.—The excavation was entirely obliterated.

March 2.—The size of the wound was

much contracted, and the skinning process beginning to take place at the edges.

5.—It is half-healed, much contracted, and its surface very regular.

8.—All but healed.

11.—Quite healed. The cicatrix is much firmer than common; it is smooth, and there are no ragged edges.

CASE II.

William M'Cartney, ætat. 20.—Feb. 1828.—Having had the venereal disease, two Buboes arose in consequence; these first formed in December, 1827, and broke in the beginning of January, 1828. Since this period (two months), on both sides of the groin very considerable excavations have taken place; in addition to which, also, there is another in the inguinal glands of the left thigh. Both the sores in the groins are very deep and extensive; that on the left being about five or six inches in circumference, and that on the right three or four. They are all extremely foul, having a dirty yellowish discharge upon them; their edges are ragged, and their surfaces very irregular. The ulceration is on all sides gradually extending, and the

skin surrounding it is for some distance of a deep red colour. The sores are extremely painful, and the patient is in a miserable condition. Poultices, opiates, and all the remedies hitherto known, were employed without the least benefit.

Feb. 25.—The wounds were filled with the melted wax ; and when it had become quite cool, the patient expressed that he felt great relief, and was much easier than he had been for many weeks.

March 2.—The dressing was removed, and the surfaces of every one of the sores were covered by granulations, secreting healthy pus; their edges were beginning to assume a more regular appearance, and the redness around them was much diminished. The wax was re-applied.

March 5.—All the excavations were

much diminished and contracted ; and the wound in the inguinal glands, which was not so large as the others, was nearly healed. The healing process was proceeding very rapidly.

March 8.—The cavity of the right groin quite filled up, and level with the other surface, and that of the left nearly so ; they are both very much contracted. Treatment continued.

12.—The wounds are still improving, and the skinning process is commencing at the edges.

15.—The sore at the inguinal glands quite healed ; the others going on well.

22.—Both the sores half-healed. In about a week from this time the man was discharged perfectly well ; and all the ulcers had healed in the most regular manner.

CASE III.

JOHN SMITH, ætat. 23.—May, 1828.—This man has had, for nearly three months, an excavated sore in the right groin, in consequence of the formation of a Bubo. It is about two inches in length, two-thirds of an inch in breadth, and varying from one-fourth to one-third of an inch in depth. It is extremely painful and foul, and the edges are very irregular.

A great variety of remedies have been applied to the sore, but without its showing the least disposition to heal. The excavation was therefore filled with the melted wax, which was allowed to remain in it for two days. On the third it was removed, and the sore was much cleaner; and there was a reddish appearance on its

surface, but no granulations. The wax was again used, and removed at the same interval of time. Granulations had now sprung up on the surface of the sore, and it was much contracted. The dressing was repeated, and when removed, the sore was half filled up. On the third day from this time the excavation was entirely obliterated, and the circumference of the sore much diminished. In less than three weeks from the period in which this treatment was first employed, the wound was quite healed; the cicatrix was firm and regular.

CASE IV.

R. B. ætat. 27.—June 2, 1828.—In this case there is an open Bubo in the left groin, of the same description as the last. It is about one inch and a half in length, half an inch in breadth, and one-third of an inch in depth; it is very foul, has ragged edges, and an uneven surface. The wax was employed, as in the former cases, at regular intervals; the sore progressively healed; and in a month the patient was quite well.

CASE V.

SARAH M., ætat. 20.—This girl has an excavated sore in the right groin, which has been under treatment for about four or five months. At first there was a considerable sinus under the skin; this was laid open, and dressed with poultices, black wash, a solution of caustic, &c. The sore, however, made no progress. The wax was employed, and in eight dressings the excavation was gone, and the sore perfectly healed.

CASE VI.

MARY W., ætat. 19.—This female had a sore of a similar character to the last, which would yield to none of the ordinary remedies. It was treated with the wax, and in thirteen days it was quite healed.

CASE VII.

PATRICK WELSH was admitted into the St. Mary-le-bone Infirmary, Feb. 3, 1829, with a large Bubo in the right groin, which was opened two days after. Poultices were then applied during the following week, without the slightest advantage. The sinus, which extended three inches in length, was now laid open throughout, and then dressed with Ung. Resinæ Flavæ, Lotio Nigra, and Lotio Argenti Nitratis successively, without the slightest approach to a cure. The wax was then applied, and after three applications the sore altered in appearance, and in seventeen days was quite healed.

CASE VIII.

Joseph Banks came into the St. Mary-le-bone Infirmary Jan. 8, 1829, with a gonorrhœa, and a large swelling in the groin. The gonorrhœa was cured by the ordinary remedies, and the swelling suppurated. After the Bubo was laid completely open, it was poulticed for three or four days, and then dressed with the wax. On Feb. 20 he was discharged quite cured.

For the two preceding cases I am indebted to Mr. Valentine, the House-surgeon of St. Mary-le-bone Infirmary; and he informs me that twenty-three cases, under the care of Mr. C. Phillips, have been successfully treated by this method.

SLOUGHING PHAGEDENA.

CASE I.

October, 1828.—A female was admitted into St. Mary-le-bone Infirmary, with sloughing phagedena on the left thigh, immediately adjoining the vagina. The sore was about two inches in length, an inch and a half in breadth, and nearly an inch in depth; it was covered by a pulpy slough, approaching in colour to black, and was extending very rapidly, being at the same time extremely painful. The pulse was from 120 to 130; the skin hot; the tongue foul; and the patient very restless. A strong aqueous solution of opium

was constantly applied to the sore, and opium (from gr. i. to gr. iii.), combined with sudorifics, were administered internally every six hours. In four or five days the pain of the sore abated, and most of the slough was removed. There was still a little of it, however, remaining on its surface. The cavity, which was now in size about half the diameter of a hen's egg, was filled with the melted wax; and on its removal the surface of the sore was quite clean, the remaining slough having come away with the wax. The dressing was repeated at regular intervals, and in three weeks the wound was firmly healed.

CASE II.

SARAH A., ætat. 28. Nov. 1, 1828.—A patient in the St. Mary-le-bone Infirmary was the subject of the venereal disease about a twelvemonth ago, since which the secondary symptoms have made their appearance. She now has upon the left nates, between the verge of the anus and vagina, a deep phagedenic ulcer, which is large enough to admit of the introduction of a hen's egg. From her own account the sore first broke out about six weeks ago, and within this last ten days it has assumed its present character. It is covered by a dark brown sloughy matter, is extremely painful, and rapidly increasing in size. An aqueous solution of opium was constantly applied to the sore, and an opiate exhibited every six hours internally,

until the pain abated. In three days it was in such a state as to admit of the wax being used. With this plan of dressing it rapidly improved; and on the day week the cavity would not have admitted a pigeon's egg. In three days more, from this time, the excavation was nearly filled up, and the sore was much contracted. The patient, however, became obstinate, and would not allow the wax to be used again, as, she said, it prevented the expulsion of the alvine excretions. The ulceration now receded, and the cavity became nearly as large as before. The treatment preceding the use of the wax was again resorted to; and after the phagedenic character had ceased, the remedies commonly in use were employed; but the sore was not healed by these means for nearly three months.

CANCEROUS ULCERATION.

ALTHOUGH the two following cases were ultimately unsuccessful, being of a cancerous nature, yet, as granulations were rapidly produced in both, and thus the ulceration was, for a time, prevented from extending itself into large arteries, I shall relate them, conceiving that there may possibly be some cases where the ravages of this dreadful disease may be, if not wholly, in a degree arrested by pursuing this plan.

CASE I.

CHARLES DREWET, ætat. 35.—July, 1828.—This man (a chimney sweeper) has had what is termed a chimney sweeper's

cancer, on the scrotum, for this last three or four years, which he has neglected. Consequently, the inguinal glands of both thighs have partaken of the disease, and are greatly enlarged and indurated. The glands of the left are the most affected; and after having inflamed, ulceration of a cancerous nature has commenced, which, in the space of three or four weeks, has spread so rapidly, that the femoral artery and vein are now exposed, and the ulceration has extended beneath Poupart's ligament, so that the finger can be passed into the cavity of the pelvis, and the inguinal artery be felt pulsating beneath it. The extent and depth of the sore is at present so great, that it would with ease admit a pigeon's egg; and its cavity is constantly filled with a thin, dirty, fœtid matter, which is usually mixed with more or less of venous blood; and so copious is this discharge, that, if the man stands up, it

will run down the thigh in a continued stream.

Every means have been employed to arrest the progress of the ulceration, without effect. The cavity, therefore, was filled with the melted wax, in the following manner: First, a piece of lint, as broad as the sore, was introduced beneath Poupart's ligament, to prevent the melted wax running into the cavity of the pelvis, and one end of it was left out, and turned back on the abdomen. The wax was then poured into the cavity of the sore, when at a proper heat, and allowed to cool. On the second day from its application the solid mass was removed, and it was found that the artery and vein were covered by granulations, and the cavity was less. These granulations, however, were of a cancerous nature. The discharge, also, was less, and there was no venous blood. The wound was again

dressed in the same manner, with the same result—granulations had considerably lessened the cavity. On taking away the third dressing the cavity was half filled up, and the discharge much diminished; on the fourth it was still lessened; and on the fifth the granulations were nearly equal with the surface. It was now necessary to leave off the wax, on account of a great deal of inflammation being present around the sore. The inguinal glands of the right thigh also began to ulcerate; the ulceration again receded in the left: at length the artery was exposed, and the man died from hæmorrhage.

CASE II.

Wm. Wheeler, ætat. 59.—July, 1828.—Immediately under the angle of the jaw, on the left side, there is, in this case, a tumor nearly as large as a swan's egg, and which consists of enlarged indurated glands. It first began to make its appearance about two or three years ago; and within this last eight months ulceration of a cancerous nature has taken place in it. At present the cavity is large enough to admit of a small orange, and the ulceration is increasing in depth; so that there is a danger of the carotid artery, or its branches, being exposed. For this reason, and as granulations were produced in Drewet's case by the application of the wax, it was also tried in this. The cavity of the sore, therefore, was filled with it, and, as it was prognosti-

cated, on its removal the ulceration had ceased; granulations, also, were on the surface of the sore. In four or five dressings the cavity was half filled up. At this time I was obliged to leave London on account of ill health; and on inquiry two months afterwards, I learnt that the patient had died from an attack of fever.

SCROFULOUS ULCERS.

CASE I.

April, 1828.—R. Macheal, ætat. 10, a boy of a strumous habit, has enlarged inguinal glands, which have suppurated, and an ulcer has arisen in consequence; this is about the size of a shilling, is of some depth, and has been open for about five months, without shewing the least disposition to heal. It discharges a sort of cheesy matter; and the sore is of a languid indolent character. The melted wax was used on April 3, and on its removal on the third day, the surface of the ulcer was much reddened; on taking away the second dressing it was covered by healthy granulations; and in a fortnight from the first application it was perfectly healed, with but little scar.

CASE II.

May, 1828.—A girl in St. Mary-le-bone Infirmary had enlarged scrofulous glands on the right side of the neck, which had suppurated and left an indolent sore. This ulcer had been open for several months, and no remedy employed, either administered internally or used externally, had disposed it to heal. It was covered with the melted wax, which was applied at regular intervals; and in three weeks it was perfectly well.

CASE III.

February 2, 1829.—Miss P., æt. 15.—This young lady has a scrofulous sore immediately under the jaw on the right side, between the symphysis and the angle. This sore arose in consequence of an enlarged gland which had suppurated, and which had been in this state for more than two years. The present state of the sore is as follows: there is a small orifice which discharges an albuminous matter, mingled with a thin glary secretion; a probe can be introduced through this opening; and for about an inch around it the skin is of a deep red colour, and beneath it the part is hollow. No remedy as yet has in any way improved this sore, or disposed it to heal. I therefore laid open the hollow cavity with a bistoury, and filled it with

the melted wax. On the third day the sore presented a healthy surface, and the dressing was repeated. On its removal the wound was much contracted, and it was covered by healthy granulations. In a month the sore was healed, and with so little scar, that it was hardly perceptible.

CASE IV.

FEBRUARY 14, 1829.—A boy, ætat. 15, of a strumous habit, has a scrofulous abscess in the left axilla, which has been discharging an albuminous matter through a small orifice in its centre for the last six months. For about an inch and a half around this opening the part beneath the skin is hollow, and from which run three sinuses. All these sinuses, and the excavation, were laid open with a bistoury; and after the pus upon the exposed surface had been absorbed, it was filled with the melted wax. On taking this away on the third day, the sore was covered by florid granulations; and even the flap which formed the roof of the cavity also presented the same appearance. The same dressing was repeated at regular inter-

vals ; and so rapidly did the healing process proceed, that, on the 29th of the same month, the sore was firmly cicatrized over. This patient is still in St. Mary-le-bone Infirmary, with enlarged scrofulous glands in the neck.

THE END.

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47
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