Observations on the ligature of arteries, secondary hemorrhage, and amputation at the hip-joint / by James Veitch.

OBSERVATIONS

ON THE

LIGATURE OF ARTERIES,

SECONDARY HEMORRHAGE,

AND

AMPUTATION AT THE HIP-JOINT.

BY JAMES VEITCH, M. D.

MEMBER OF THE ROYAL COLLEGE OF PHYSICIANS, LONDON; AND FORMERLY ONE OF THE PRINCIPAL SURGEONS OF THE ROYAL NAVAL HOSPITAL, PLYMOUTH; ALSO, FORMERLY PRINCIPAL SURGEON OF THE ROYAL NAVAL HOSPITAL, ANTIGUA; LIKEWISE, SURGEON TO THE FRENCH PRISONERS OF WAR, NORMAN CROSS; FELLOW OF THE ROYAL LITERARY SOCIETY; AND MEMBER OF THE MEDICO-CHIRURGICAL SOCIETY OF LONDON; LATELY MEDICAL SUPERINTENDENT OF THE ROYAL NAVAL LUNATIC ASYLUM, HOXTON; MEMBER OF THE ROYAL MEDICAL, AND FORMERLY ONE OF THE ANNUAL PRESIDENTS OF THE ROYAL PHYSICAL SOCIETY OF EDINBURGH: AND ALSO FORMERLY ACTING PHYSICIAN TO THE FLEET UNDER THE COMMAND OF THE LATE ADMIRAL TOTTY, COMMANDER IN CHIEF ON THE LEEWARD ISLAND STATION.

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1824.

TO

HIS ROYAL HIGHNESS

THE DUKE OF YORK,

K. G. G. C. B.

COMMANDER IN CHIEF OF ALL HIS MAJESTY'S FORCES,

&c. &c. &c.

SIR,

FROM the interest your Royal Highness takes in every thing that contributes to the health, the comfort, and recovery of those who suffer in the service of their country; and as nothing is considered trivial, or regarded with indifference by your Royal Highness, which tends to such an issue; I am induced, under this impression, as well as of feelings of profound respect, to place the following Essays before your Royal Highness;

because every advancement in the science of Surgery, not only alleviates the sufferings of the wounded warrior, but it animates and adds confidence to his exertions in the hour of danger.

Your Royal Highness's comprehensive views in military affairs, your consideration, your refined and delicate manners to all who are subject to your orders, must hand your illustrious name down to the latest posterity, as a perfect model for imitation in conducting the warlike achievements of this great Empire.

I am, with profound respect,

Your Royal Highness's,

Most devoted humble Servant,

JAMES VEITCH, M. D.

Regent Street,
April, 1824.

PRELIMINARY REMARKS.

In accidents accompanied with wounds, as well as in the varied operations of surgery, there is no mode of suppressing hemorrhage equal to that of the ligature; since its introduction it is therefore not surprising, that its form and manner of application should at all times have become an object of deep interest, with those surgeons, who were enthusiastically devoted to the interests of humanity and of their profession, because the results of their exertions often yield to minds thus constituted the highest gratifications that can spring from the powers of surgery, and success in this department of the healing art is greatly dependent on the form and due application of the ligature. In the operations of the surgeon

cause and effects admit of no doubt; the advantages conferred on the patient alone originate in the skill and intrepidity of the surgeon, in the discharge of the sacred and important duties that are due to the unfortunate, and to the heroes suffering in the cause of their King and country. The operator here enjoys, in full force, the triumph of his art, combined with the gratitude of his patients, in acknowledging his humanity and his skill. Such pleasures are pure and not to be surpassed, and such I have often enjoyed in the field, on board of ship, and in hospital practice; and in making this observation I hope I shall not be deemed vain.—Vide Appendix.*

* The object of the two services, the army and the navy, is the same, that of upholding this great empire in an exalted attitude among surrounding nations; and with these sentiments deeply impressed on my mind, it has always been a matter of indifference to me whether a man wore a red coat or a blue, I invariably considered both equally claiming my exertions when they were likely to be useful, and in such circumstances no danger nor difficulty retarded my efforts—efforts which yield me (humble as they are considered by me) great consolation, although by making them I sustained severe bodily injury, the effects of which are still felt.

While I was engaged during the years 1803, 1804, 1805, in conducting the important duties of one of the first hospitals of this country, I seriously felt the dangers arising to my patients from the existing practice of surgeons using large flat ligatures; not only were they dangerous from their size and form, thereby exciting great irritation, but from their most unwise and improper distribution in the wound, inflicted by the knife of the operator. Still surgeons spoke of healing by the first intention, but no such thing took place, because their arrangements completely interrupted the powers of the animal economy in so closing the wounds they inflicted. The use of the large ligature was adopted, in order to guard against the division of the artery under the pressure of securing it.

The risk of secondary hemorrhage was supposed to be much increased by the application of the small ligature; and this opinion influenced me to a certain extent, and led me to make repeated experiments on the dead

body, in 1804, 1805, with the small ligature, previously to applying my reasoning to practice on the living body. That reasoning was founded on the advantages likely to result from diminishing irritation, and these reflections rendered me anxious to attempt, with safety, the reduction of the volume of foreign matter in the form of ligature, in securing the blood vessels, divided in the numerous and important operations I had to perform; and this improvement, which extends itself to all the operations in surgery, I carried to an extent that no one has usefully exceeded, not only by the diminution of foreign matter in securing the divided arteries, but by the distribution of these ligatures, in the wounds inflicted by the operations of surgery, and which distribution of these ligatures, combined with their form, brought this part of surgery as near perfection as it is capable of attaining. The sufferance of foreign matter in the wound, by cutting off the dependent ligatures, and allowing the knots only to remain on the arteries, and attempting to heal the wounds over

them, has not been found to answer. The mode of arresting hemorrhage, which I adopted, was carried into effect before the book of Dr. Jones was published, and without any knowledge of his experiments. I was not aware at the time I so successfully applied the round ligatures to surgery, of the change that the artery undergoes by their action, and which knowledge led Dr. Jones very properly to recommend a round ligature; but I may here remark, that such recommendation was not sufficiently explicit, for it left the surgeon at liberty to introduce as much foreign matter in a round, as had previously been done in a flat form in securing arteries, and by consequent irritation, defeating the good effects of the round form of ligature in aiding the process of nature in healing by the first intention. My experience and reasoning led me to recommend a small ligature, and its nature and form were not left to conjecture, but clearly laid down; and the introduction of this practice to surgery, by which its limits have been extended, is, I think, unquestionably due to me.

Dr. Jones did not apply his round ligature to operations on the human body; and the practice of using the small single ligature was not adopted at the Edinburgh infirmary, in which city his experiments were made, until the appearance of the following Essay on the ligature of arteries, which was sent to the Editor of the Edinburgh Medical and Surgical Journal, in 1805, and in sufficient time to have appeared in the last number of the said Journal of that year, but was not published until the first of April, 1806. It is far from my wish to detract from the memory of Dr. Jones; no man is more sensible of his claims to the respect of his profession;—no man more alive to his ingenuity, his ability and patience in conducting his experiments than I am; no man ever read his work with more satisfaction than I did, because his experiments tended to assist the cause of humanity, by aiding the removal of prejudices, which were arrayed against the single ligature, although its advantages have been most satisfactorily established by repeated and successful experiments conducted by

me, in varied operations, on the living body—advantages which Dr. Jones did not possess when he published his book.* The second Essay was published in the same Journal, in the month of April of the year 1807, and had the effect of calling the attention of British surgeons to an operation actually discarded from among them by the authority of Mr. Pott; and at the time that Essay was written, I am inclined to believe the authority noticed, held some influence not only over the reasoning, but over the undaunted and enthusiastic feelings of Sir A. Cooper, in every thing that relates to surgery and its operations.

When conversing with this able and distinguished surgeon, shortly after the appearance

* Dr. Monro, the late illustrious professor of anatomy and surgery in the University of Edinburgh, gave his unequivocal testimony to the merits of this improvement in the application of the single small round ligature, by Dr. Veitch. Mr. Wardrop, who is inferior to no one as a surgeon, was among the first to see the advantages, and consequently to adopt the single ligature in his operations.

of the Essay, on the operation of amputation at the hip-joint, Mr. Cooper, now Sir A., related some cicumstances attending this important operation, as performed by Mr. Bromfield, who, it would appear, had in the course of his attendance, mentioned the circumstance to one of his patients.

At the future visits of Mr. Bromfield, the patient became inquisitive as to the results of the operation, and naturally applied to Mr. Bromfield for information, who replied that the person he had operated on was dead, but that he had lived twenty-four hours after the operation.* No operation should be declined, however difficult and dangerous, provided the concurrence of the patient can be obtained, and that it tends, by its effects, to alleviate pain, and increase the chances of recovery, otherwise become absolutely hopeless. The

* The operation of amputation at the hip-joint has recently been performed with complete success by Sir Astley Cooper.

single dressing of a fractured and lacerated limb, will often give more real pain, than any operation for its removal will inflict.

The mode of operating at the hip-joint, laid down in the following Essay, will be found singularly applicable, where diseased bone renders this most important operation necessary.

OBSERVATIONS,

&c. &c.

Observations on Secondary Hemorrhage, and on the Ligature of Arteries after Amputation, and other Operations.

I HAVE always been of opinion, that the quicker we produce adhesive inflammation, by which we look forward in amputation to the union of divided parts, the more are we likely to obviate secondary hemorrhage. As I consider this position undeniable, even where there may be an existing disposition in the vessels to disease, it may be productive of some good to inquire how far the methods usually taken in this important operation coincide with the views of the surgeon, who has in contemplation healing by the first intention.

The general practice in amputation is to secure the blood-vessels by very broad ligatures, not inferior in their dimensions to some kinds of tape; and it is not unusual to see the femoral artery taken up by such a ligature, including in the course of the needle a considerable quantity of the contiguous muscular and other parts.

The security of blood-vessels of any importance we are still under the necessity of trusting to ligatures, which is an introduction of foreign matter into a wound intended to be healed by the adhesive process, the effects of which are undoubtedly at variance with the intentions of the surgeon; and on their number, size, and distribution in the wound, depends, in a great degree, his success or failure.

Independent of the obstacles which ligatures must ever place against healing by the first intention, particularly when of such immense dimensions, and where they are numerous, which often happens, the mode of arranging them invariably adopted by the profession has also a tendency to counteract the adhesive efforts of nature, and performs an important part in establishing the

suppurative process in almost every part of the wound. The surgeon, when the blood-vessels are secured, always draws the ligatures out at the superior and inferior parts of the wound, so that the whole living and recently divided part of the stump becomes covered by a foreign body; in fact, he establishes a seton where he has in view healing by the first intention,—a measure which must constitute a decided obstacle to the accomplishment of his designs; and, besides the disadvantages to the healing of the wound, their removal, when it can be attempted with safety, becomes more difficult from the point acted on, and the extremity of the vessels secured necessarily forming an angle, which forces the ligature where there is resistance, into the contiguous parts, giving rise at times to pretty considerable discharges of blood.

The above is a short, but, I believe, a correct view of the imperfections in the present mode of performing amputation, to which it is the object of this essay to call the attention of surgeons, by pointing out the impossibility of healing by the first intention under such arrangements, and to endeavour to remove the difficulties which ob-

struct the adhesive efforts of nature, by a simple, safe, and, I believe, easily practicable deviation from the established method.

Where the habits and condition of the patient have been favourable to operation, I have most unexpectedly seen the suppurative process interfere with the exertions of men of the highest eminence; matter forms, the stump in some instances opens; a disposition to exfoliation follows, the periosteum quits its adhesion to the bone; the muscles retract: the condition of the wound changes, and hectic fever succeeds, from renewed irritation and discharge, terminating in the death of the patient; and to these unfavourable changes the improper size of ligatures, joined to their equally improper distribution, contributed a most important and conspicuous part.

Let any one, to feel the force of the preceding observation, recollect how suddenly the discharge of pus ceases on the removal of the ligatures, and how great it is where even the smallest of them remains. The irritation and sloughing, also, arising from the natural removal of a piece of carious bone, offers a strong lesson in favour of

the propriety of diminishing every source of irritation as far as possible, and decidedly points out large ligatures as the probable cause of secondary hemorrhage in some instances, where, under an opposite treatment, it would not have taken place.

Although I have, in my operations, been as successful as many, still the strong impression made on my mind by my failures, has never been effaced by that success, and has excited in me a desire to obviate their recurrence. To this feeling of regard for my fellow-creatures am I to trace the deviations which I am about to notice. As the subject is of importance, and thus early produced for the purpose of exciting attention and gaining information, it will, I hope, be treated with the spirit of candid inquiry: I shall therefore proceed to detail my late practice and ideas of this important part of surgery.

In place of securing the blood-vessels and distributing the ligatures in the manner always followed in amputation, I have, in one case, above the knee, tied every vessel from the femoral artery downwards, including nothing, but the artery, with a single silk thread, and, when this

was done, I afterwards, as near to the knot as possible, took off one half of each ligature, so that the foreign matter, introduced was a mere trifle, compared with what I had been accustomed to see. There is considerable disadvantage attending the including in the ligature on the artery much of the contiguous parts, as it may interfere with the contractile powers of the arteries exerting themselves to their immediate and full extent. On closing the wound by adhesive straps, instead of the usual arrangements of the ligatures from the superior and inferior parts, I drew each ligature out as nearly as possible on a line with the vessels secured; and, provided the edge of the adhesive strap, when applied to bring the opposite sides of the wound into contact, urged the ligature from its direct course, it was opened carefully with a pair of scissars in the direction of the wound, so that the ligature might be allowed to pass out on a line with the vessel it secured, by drawing it gently into this division of the strap. The next strap was applied so as more than to cover and support the extent of division in the preceding one, and, provided it interfered with the direct course of the ligatures from their source (the vessels secured), the same steps were taken.

In this manner the wound was closed, and every ligature drawn out, as nearly as possible, on a line with the point to which it was tied; and, although a man of 60, and much weakened by previous disease, the wound healed with the rapidity of hare-lip. The parts were united in the course of six days, and with the exception of the points of ligature, there was no purulent discharge. What can prove a greater security against secondary hemorrhage than such a union of parts? The great objections that have been stated to this mode of securing the blood-vessels have been founded on the idea of cutting or injuring them so much as to give rise to secondary hemorrhage. This mode of thinking and reasoning, although plausible, does not appear to me to be well-founded. A large ligature excites the process of inflammation and ulceration throughout its whole course, and much beyond itself, in the direction of the artery towards the body. The parts, in place of coalescing and approaching each other, which is of material consequence in favouring the support of the divided arteries, recede very considerably on all sides, so that the extremities of the arteries remain unsupported, and, as it were, floating in a sinus, with ligatures, most un-

necessarily large, attached to them, and capable of exciting, by undue irritation, excessive inflammation in the very substance of the artery itself; a change of action from that of the adhesive disposition, highly dangerous, in my opinion, as being favourable to secondary hemorrhage, by its tendency to excite the sloughing process. The mode of ligature which I have lately tried will obviate such inconvenience, as the parts will be found much more disposed to general union from the cause of irritation and inflammation being so much diminished, and will prove one great means of obviating, where practicable, in place of promoting secondary hemorrhage. Indeed, I really think we are justified in ascribing hemorrhage after amputations, as well as some other operations, to the great volume of ligature, the very means adopted to obviate such an occurrence exciting suppuration and sloughing; for it is but fair to conclude, where undue action does follow, that the vessels secured by such ligatures will be more likely to assume the ulcerative and sloughing form of action than others. In the dead body, where the key-stone of the fabric is gone, (if I may so express myself), and resistance consequently become less than in the living, you can-

not, by a single thread, or any ligature composed of silk threads, fairly exerted, divide the external coat of the artery, even if you introduce a hard and round substance into its cavity capable of occupying its diameter. Here certainly, as observed, there is less resistance than in the living body, where the powers of reparation are coeval with the injury inflicted: and the nature of the ligature, when the change it produces is duly considered, will certainly have its influence in retarding or accelerating these powers. A broad ligature bruises more extensively than the small, and will consequently be more likely to produce the disposition to sloughing. The single thread offers something like the delicate incised wound, with its disposition to unite; the broad ligature presents something like the wound, attended with contusion and iritation, which seldom fails to present difficulties to the exertion of the surgeon.

The changes which ligatures induce, joined to the natural powers of the artery in repressing hemorrhage, have been ingeniously and ably treated by Dr. Jones, and are worthy of the attention of every medical man. The operation which I have described was performed before

seeing or knowing any thing of that valuable tract.

The removal of one half of the ligature requires perfect steadiness, and a little time; but the time occupied by this part of the operation, as far as my observation yet goes, is not to be admitted for a moment into calculation, when contrasted with its advantages. But, if even both parts of the ligature are allowed to remain, this mode of securing the arteries would still have a decided superiority over the general practice.

J. D.

ESSAY II.

Observations on Amputation at the Hip-joint.

From the nature of the duties which the surgeon has to perform, it often happens, that the most formidable and alarming accidents are suddenly and unexpectedly presented to him; and which require immediate aid, otherwise the unfortunate patient sinks a victim to the accident which has befallen him. Strongly impressed with the necessity of being able to afford the most prompt assistance, when called on to attend those suffering under wounds and accidents, and actuated with the desire of doing this as effectually as possible, I have been in the habit of particularly revolving the more important operations of surgery in my mind: and, in proportion to the difficulties which attend them, have they commanded my attention, with the double view of being able to meet them with composure when presented to me, and of devising means for averting, as far as practicable, the occurrence of such difficulties. In naval, as well as military life, the duties of the surgeon

present a grand and animating picture, by the ravages which they enable the constitution to repair, and consequent disasters which they avert. The mind of the surgeon, on whom this feeling strongly operates, will often be rewarded, with the most delightful of all satisfactions, in restoring a fellow creature to health, to his children and his friends, who must certainly have perished without his interference: and this exalted and refined sentiment will be excited, in proportion to the dangers which the patient laboured under, and which consequently roused, in proportion to their magnitude, the genius, self command, and intrepidity of the surgeon.

Amongst the many operations to which my mind has carried me, previously to performing them on the living body, that of amputation at the hip-joint has been repeatedly the subject of my attention; and the result of my reflection is, that the present aversion to this operation is not well founded, as it appears to me to be practicable, and often likely to be followed by recovery, where, without it, the patient must be consigned to his grave. The necessity of amputation at the shoulder often presents itself, and the operation is

often performed with success. The same causes which give rise to amputation at the shoulder-joint, will be found to require the same resources from surgery at the hip-joint; but here, the operation is less frequently performed, from its being more formidable in its nature; and certainly, when we weigh this operation on its own base, and compare its probable effects upon the constitution, with any other single operation, we must admit the hazard to be very great, under the present mode of performing it. Amputation performed at the hip-joint, as a last resource, is certainly fraught with more danger than the same operation at the shoulder-joint, or any other part of the body; still it ought not, on this account, to be declined, where it can remove a disease, or remedy the effects of an accident, that must certainly prove fatal to the patient. It is a misfortune, that Mr. Pott imbibed opinions injurious to the useful tendency of this great and necessary operation, as his authority was calculated to have much weight on the minds of professional men; and probably has, in many cases, reconciled them to the idea of relinquishing it. I will venture to affirm, that had he adopted a different line of conduct in delivering

his opinions on this subject, and not acted towards this operation, in a manner somewhat inconsistent with the principles which he has clearly and ably laid down, under those circumstances where a patient is placed between the necessity of submitting to an operation or the grave, that amputation at the hip-joint, would long before now, have rewarded the surgeon with as great a proportion of success, as other operations of this nature.

Mr. Pott says, " to remove, or even to relieve any of the miseries to which mankind are liable, is a very satisfactory employment; but to attend on a distemper from its beginning, through a long and painful course, to its last fatal period, without even the hope of being able to do any thing which shall be really serviceable, is, of all tasks, the most unpleasant. In such cases, any attempts, however hazardous, provided they were rational, would be justifiable; certainly, then, whatever is not in itself dangerous, and affords the smallest ray of hope, ought to be embraced."

Here I coincide most perfectly with Mr. Pott; but it is truly singular, that a great surgeon,

influenced by such feelings as reflect credit on his heart, should abandon this useful principle, and be found to say, that " amputation in the hip-joint, is not an impracticable operation (although it be a dreadful one), I very well know, I cannot say, that I have ever done it, but I have seen it done, and I am now very sure I shall never do it, unless it be on the dead body."

The opinions of Mr. Pott, on this important operation, do not seem in unison with his great talents as a surgeon; they appear to me the result of some hasty prejudice, and do not run like that stream of useful information, genius, and elegance generally pervading his works. I contend, in conformity to the opinion first quoted from Mr. Pott, that no necessary operation ought to be discarded, because it is formidable; but on the contrary, this character of the operation ought to constitute a strong reason, why it should be minutely cultivated, and made familiar, in all its parts, to our judgments, and our feelings, which appears to me to be the true mode, of rendering service to our fellow creatures, and of overcoming difficulties. The great objection to this operation is, the difficulty of commanding the hemorrhage,

by any method hitherto adopted with which I am acquainted; and, in consequence, the great chance of the patient dying under the hands of the surgeon.

Taking up the artery, after passing from beneath the ligament of Fallopius, does not avert this danger; and it is further objectionable, as adding the operation of aneurism to that of amputation. If the danger from hemorrhage can be overcome, certainly the depth and extent of incision will prove no serious objection to this operation being performed; and by the mode of operating which I am about to describe, this difficulty will, I hope be completely surmounted. The man who suffers double amputation of the legs or thighs, or of one leg and one thigh, has certainly a greater extent of wound and irritation inflicted on his constitution, than in the operation now to be described.

The patient is to be placed on a table, of the height usually employed in amputation, when the tourniquet is to be applied in the groin, so as to act on the superior part of the femoral artery. The assistants will now secure the patient, sup-

port the limb, and retract the integuments, as in cases of ordinary amputation. This being done, and the surgeon placed on the outside of the thigh, he will commence his first circular incision on the same principles as in the ordinary amputation of the thigh, and carry it through the integuments and fascia, freely into the substance of the subjacent muscles, which the assistant will immediately retract, to enable the surgeon to commence, without delay, a second circular incision, at a point somewhat higher, to be carried directly to the bone. When the muscles are completely divided, the next object is to cut the bone an inch or two below the circular incision, with this view, a longitudinal incision is to be made on the inside, and another on the outside of the thigh, commencing each incision at the top of the inferior section of the muscles, and carrying it towards the knee, somewhat more than two inches from the place of its commencement. This being done, the muscles are to be dissected from the bone, in the direction of the knee, to the extent of an inch and a half, near which point the bone must be divided. This part of the operation, it is evident, can give no pain, and will not occupy half a minute. The next step is to

secure all the blood vessels, as in ordinary amputation, to which the removal of the leg, in the manner directed, gives the most perfect access. The blood vessels being all properly secured, the tourniquet must be removed, and the patient is now to be placed on the sound side, when an incision is to be made, commencing about two inches above the trochanter, and continued in a direct line with that projection, to the extremity of the stump. We are now to consider the bone as a tumour or foreign body, to be removed by expert and steady dissection, commencing from below upwards, and detaching, in the direction of the acetabulum, the adhering muscles on each side. The muscles attached to the trochanter being freely cut, the capsular ligament must be divided circularly, from within outwards, or *vice versa*, according to the thigh operated on, (following the margin of the socket); and during this process, an assistant must press the bone towards the opposite thigh, which will force it from its socket, and enable the surgeon to lay hold of the head of it, and easily separate the attachments of the muscles from the inside of the bone, a step, in this operation, which ought always to be deferred until the head of the bone

is thoroughly dislodged, by the division of the ligamentum rotundum.*

It must now be evident, that the reason of my leaving a part of the thigh bone projecting beyond the muscles is, to enable my assistant, or the surgeon, to use it in some degree as a lever, to accomplish its own removal. From the nature and extent of the parts divided, in the second stage of the operation, there would be some reason for apprehension, did the surgeon not possess the most perfect access to, as well as command over, every vessel which he divides. Time is no object; the safety and recovery of the patient is the only consideration; the surgeon is, therefore, when he divides a vessel of any consequence, to make his assistant cover it with his finger, or a sponge, and deliberately to take it up. In removing large tumours, this mode of securing the vessels is attended with considerable advantage; and here it cannot fail to strike with peculiar force. I some time ago removed a tumour of twenty years standing, from the back of a sailor, that measured three feet three inches in circumfer-

* The crucial division of the capsular ligament may be adopted, and is probably preferable to the circular.

ence, and weighed seven pounds four ounces. I also, a little time back, in the Royal Infirmary of this place, saw Mr. Law dissect out, with much precision, a tumour seated on the side and back, that weighed twenty pounds. This operation, as well as my own, was attended with the most perfect success.

When the bone is removed, every vessel is to be secured by a single thread, one half of which is to be taken off, as recommended by me, in a little essay on the ligature of arteries, and secondary hemorrhage, published in the sixth number of The Edinburgh Medical and Surgical Journal, under the head Inquirer, and signed J. D. I may here observe, that I extend the mode there recommended, of tying the blood-vessels, and arranging the ligatures, to all operations where it is necessary to secure the vessels by ligature, and particularly to extirpation of the testicles, and aneurism, operations where it has been almost the constant practice, not only to use one very broad ligature, but to apply a second equally broad, by way of greater security. Broad ligatures stretch, insulate, and derange the relative communications of the extremity of the vessel thus taken up, and

excite excessive irritation, so that the sources of vitality, of the part treated in this manner, are in many instances cut off, and secondary hemorrhage is the consequence. The single ligatures (which I consider a great advantage), come sooner away, than under the usual mode of taking up the blood-vessels; and their safety has been established in sixteen different cases of amputation above the knee, five below, two of the fore-arm, one of the arm, performed by myself; and in none of these cases did any thing in the form of secondary hemorrhage occur.

The ligatures in the course of the longitudinal wound, are to be gently and easily drawn out, laterally, and as nearly as possible on a line with the mouths of the vessels secured, and the wound is to be closed with adhesive slips. The circular wound is next to be closed, when the same principle, as to the distribution of the ligatures, is to be attended to, as recommended in the paper just noticed. The ligatures are to lie easily, attached to the extremities of the divided vessels; and particular care is to be taken in the application of the adhesive slips, to avoid extending them like vibrating cords. This wound is likely to

heal with great rapidity, as the removal of the bone takes away the resistance it would give to the union of the soft parts, and which, to a certain degree it does in every case of ordinary amputation; and, independent of resistance, its hard, sharp edge, and rough extremity, may act on parts so acutely sensible from recent division, to a certain degree, as a foreign body, until the economy of the system adapts itself to the loss which the constitution has sustained. It is almost unnecessary to recommend, in the removal of the thigh bone by dissection, keeping the knife as close to the bone as possible, in the circular dissection, as well as in separating from above downwards, or *vice versa*. The distance at which the incision is to be begun from the superior part of the thigh, must be ascertained by the circumference of the thigh to be operated on, and then measuring the half of its diameter from the pubic side of the thigh. The mode of operating which I have just described, may be, in many cases, usefully extended to amputation at the shoulder-joint.

It was my intention to have closed this paper, by adverting to a note attached to a valuable and

interesting case of aneurism, communicated by Mr. Abernethy, in the last number of the Edinburgh Journal; but this I decline at present, as I may at a future period command sufficient leisure, to enable me to resume the subject of the ligature of arteries, as well as amputation at the hip and shoulder joint.*

Edinburgh, November, 1806.

* Mr. Thomson, the ingenious, and able professor of Military Surgery at this place, did me the honour of perusing this paper in manuscript; and has recommended the operation, as well as the mode of ligature which I have introduced, and practised with so much advantage, to the particular attention of his pupils. This mode of operating, at the hip-joint, was performed on the dead body, by Dr. Veitch, before the pupils of Dr. Munro, the present distinguished professor of anatomy, in the University of Edinburgh, as well as those of Dr. Barclay.

Amputation at the hip-joint was sometime ago performed with success by Mr. Brownrig, and also by Mr. Guthrie, both distinguished surgeons of the army, the former the inventor of an ingenious instrument for retracting the soft parts in amputations.

APPENDIX

APPENDIX.

APPENDIX.

(Copy.)

No. 1.

Bury Street, April 14, 1809.

My Lord,

At the request of Dr. Veitch I take the liberty of trespassing on your Lordship's time, in stating the important services that officer rendered a division of the army, under my command, in a critical situation at St. Domingo last war.

I am therefore anxious to acquaint your Lordship, that at the time the district in St. Domingo was attacked by the enemy, in almost all directions, and the troops exposed to much distress from the want of medical assistance, Doctor Veitch, in the most handsome manner, by his professional abilities, and zeal for the public service, afforded the sick and wounded the most benevolent relief, which always impressed me with a high opinion of him; and I trust that your Lordship will be pleased to receive this favourable testimony of Doctor Veitch's merits with your usual consideration.

I have the honour to be, my Lord,

With great respect,

Your most obedient,

And very humble Servant,

(Signed) B. SPENCER.

(G. C. B.)

To the Right Hon. Lord Mulgrave.

(Copy.)

No. 2.

May 15, 1798.

This is to certify, that Dr. James Veitch, Surgeon of his Majesty's ship Regulus, serving under my command, during the siege of Irois, by his unremitting attention to the wounded and professional skill, rendered very essential service to the troops and seamen composing the garrison. And I feel particular satisfaction in giving him this testimony of my high approbation.

Given under my hand on board the Magicienne,
Mole St. Nicholas,

W. H. RICKETS,*

(Late nephew to the deceased Earl St. Vincent.)

(Copy.)

No. 3.

Doris, off Brest, July 3, 1801.

SIR,

I beg to acknowledge the receipt of your letter, of the 2d instant, offering your services to attend an expedition in agitation—an offer, in my opinion, very much to your honour and credit. And I can assure you it would give me great pleasure to have you personally engaged in the

* Captain Rickets, who took the name of Jervis, was alike distinguished for his talents, his zeal and vigour as an officer, and to those feelings he fell a victim in conveying intelligence on board the Sanjosef, of the movements of the enemy of much importance to his country. His death was a great loss to his country, as all his conceptions on points of service were at once liberal and splendid, and displayed a superior mind.

service, were I not certain that your professional abilities will be much wanted on board the Doris; for upon such dangerous enterprises it is but natural to expect some loss of limbs, in which case I should be sorry to be deprived by any unforeseen accident of the abilities that I am convinced you possess.

Your gallant offer shall be shown to the Commissioners of the Sick and Hurt, as the proper channel for you to meet with that reward your merit deserves.

I am, Sir,

Your most obedient Servant,

(Signed) CHARLES BRISBANE.

(G. C. B. and now Sir C. Brisbane, Governor of St. Vincent.)

Dr. James Veitch, Surgeon of H. M. S. Doris.

(Copy.)

No. 4.

56, *Montague Square, May* 6, 1814.

Dear Sir,

I have the favour of your letter of the 5th, and am very sorry I had not the pleasure of seeing you when you called, and shall be happy to have that honour when I return to town. I perfectly remember your zeal, skill, and humanity, in the care you took of the wounded men, under your charge, from the squadron which I commanded in the action of the 4th of November, 1805. I am also fully aware of your medical skill and successful practice upon other occa-

sions; and I have every wish to render your merits every testimony and assistance in my power.

I have, &c.

(Signed) RICHARD J. STRAHAN.
(Bart. and G. C. B.)

To Dr. Veitch.

(Copy.)

No. 5.

London, May 12, 1814.

Dear Sir,

In compliance with your request, I beg leave to state, that I perfectly remember the very great care you took of the wounded men, belonging to the Hero, then under my command, after the action of the 4th of November, 1805, to which I can bear the fullest testimony.

I have, &c.

GARDENER.
(The late Lord Gardener.)

To Dr. Veitch.

(Copy.)

No. 6.

Admiralty, May 12, 1814.

My Lord,

Doctor Veitch, the late surgeon of the Naval Hospital, at English harbour, Antigua, has requested me to bear testimony to your Lordship of the rectitude of his conduct in that station so far as it came under my observation; and it is with great pleasure that I feel myself particularly

enabled to do so; for having passed near three months in English harbour, in the year 1809, in fitting the Abercrombie, then recently captured, for sea, and being at the time the senior officer in the station, in consequence of the departure of the Commander in Chief for Halifax, I had frequent, indeed almost daily communication with Doctor Veitch, on subjects immediately connected with the duties of his department, and I ever found him actuated by the greatest anxiety about the seamen placed under his care, and the most laudable desire to procure to them all the comforts and allowances intended them by his Majesty's Government under the contracts entered into for that purpose. On frequent inspection into the general state of the hospital, and made either by myself, or by officers under my orders, on those occasions the attention of Doctor Veitch was invariably apparent in the good order and cleanliness of the wards, and the satisfaction expressed by the men with the care they experienced.

I cannot offer this tribute of justice to Doctor Veitch, without adding, that as an individual I entertain the highest esteem for his character.

I have, &c.

(Signed) WILLIAM CHARLES FAHIE.

(Now Commander in Chief on the Leeward Islands Station.)

Right Hon. Vis. Melville, &c.

(Copy.)

No. 7.

London, August 17, 1814.

Sir,

In ready compliance with your request, that I would certify my opinion of your conduct, in the situation of surgeon of the Royal Naval Hospital at Plymouth, I have no hesitation in saying, that it appeared to me, that during the whole time in which you was employed in that station you acted with attention and fidelity; and as far as I might be supposed competent to judge, with judgment and skill, and unremitted attention to the comfort of the patients under your care.

(Signed) R. CREYKE.

(Governor Royal Naval Hospital, Plymouth.)

To Doctor Veitch.

(Copy.)

No. 8.

Sir,

I have to acknowledge the receipt of your letter of yesterday's date. It is but justice to you that I should bear testimony to the skill, attention, and integrity, with which you discharged your professional duty, as surgeon of the Naval Hospital, at English harbour, during the time you filled that situation, whilst I held the command of the squadron employed upon the Leeward Island station.

I am, Sir, &c.

(Signed) FRANCIS LAFOREY.

(Bart. and K. C. B.)

To Dr. Veitch, M. D.

(Copy.)

No. 9.

Wimpole Street, October, 17, 1816.

Sir,

In compliance with your request, that I would state my opinion of your conduct, as one of the principal surgeons of the Naval Hospital, at Stonehouse, I have the pleasure in stating, from the reports of all the officers who visited the hospital, and from my own observation, the attention shewn to the sick and wounded seamen was such as did great credit to you. Of your professional skill I was incapable of forming any judgment; but I have great satisfaction in saying, that when spoken of by those who were competent to form an opinion, it was spoken of with commendation.

I am, Sir,

Your most obedient Servant,

(Signed) WILLIAM YOUNG.

(G. C. B. and Late Vice-Admiral of Great Britain.)

To Dr. Veitch.

(Copy.)

No. 10.

London, June 7, 1815.

My Lord,

At the request of Dr. Veitch, I beg leave to state to your Lordship, that in 1798, detachments of officers, seamen, and marines, were landed, under my command, from a squadron under the orders of Admiral Richard Rodney Bligh, to support the garrison of Fort Irois, St. Domingo, then closely besieged by a powerful black force.

The operations which devolved on our military and naval forces were conducted with vigour, in order to repel the enemy, and many officers, soldiers, seamen, and marines were wounded.

The exertions of Dr. Veitch, who served as a volunteer, and performed many important operations, exposed to great hazard from shot and shell, impressed the officers of the army and navy present, on that arduous occasion, which lasted for weeks, with the highest opinion of Doctor Veitch's zeal, humanity, and skill, which imposes upon me the pleasing duty of offering to your Lordship this just tribute of public approbation of an individual, for whose public and private character I entertain the highest esteem.

I have, &c.

(Signed) HUGH COOKE,
(Captain Royal Navy.)

Right Hon Vis. Melville.

(Copy.)

No. 11.

August 9, 1808.

My Lords,

The exertions of the Spaniards, at the present period, are particularly pleasing, and it is to be hoped that their efforts will be crowned with success. From the general state of science throughout Spain, it is probable that their armies are not well supplied with medical and surgical aid, a character of assistance of much importance at this moment. Should this opinion be found correct, and should it become an object to be remedied by this country, I shall feel great

pleasure in engaging in such service, as I know no manner in which I could more effectually contribute to the service of my country than by directing my exertions to the aid of the gallant Spaniards.

Provided it is determined to afford the Spaniards assistance of this nature, I take the liberty of suggesting, that a small body of surgeons, with a proper number of assistants, to be placed under the orders of a surgeon of experience, would be probably the best mode of embodying this kind of aid.

My Lords,

I am, with great respect,

(Signed) JAMES VEITCH.

Right Hon.

The Lords Commissioners of the Admiralty.

(Copy.)

No. 12.

Governor's House, Guadalope,
August 2, 1812.

My Dear Sir,

As it will ever afford me particular pleasure in bearing testimony to the merits of officers, with whom it may be my fate to serve, I must in justice to you state, that during the time I held the command on this station, your conduct as chief of the Royal Hospital, at Antigua, gave me the fullest satisfaction. Your zeal and ability cannot fail to recommend you to the notice of the Admiralty, in whose province it lays to reward the service of those who so eminently distinguish themselves in the line of their profession

as you invariably have done. It will be gratifying to me to hear that you are removed to a situation in England.

I am, with much truth,

most sincerely yours,

ALEXANDER COCHRANE.
(G. C. B.)

To Dr. Veitch, M. D.

(Copy.)

No. 13.

Admiralty, 13*th January*, 1824.

Sir,

I am desired by Lord Melville to acknowledge the receipt of your letter of the 26th ultimo, and to state that your name will be placed on the List of Candidates for the appointment which you solicit, for consideration with others at a proper opportunity.

I have the honour to be, Sir,

your most obedient,

humble servant,

GEORGE B. HAMILTON.

Dr. Veitch.

(Copy.)

No. 14.

By THOMAS TOTTY, *Esq. Rear Admiral of the Blue, and Commander in Chief of His Majesty's ships and vessels, employed, and to be employed, at Barbadoes, the Leeward Islands, &c. &c.*

Whereas, soon after my arrival, upon the Leeward Islands station, I found it expedient to order and direct you, in addition to your duty, as surgeon of His Majesty's ship Saturn, to visit His Majesty's ships and vessels under my command, whenever they might join my flag, for the purpose of inspecting into the health of their crews, &c. And, whereas, from past experience of the utility of my having so done, I now deem it of essential importance to the good of His Majesty's service, that a person duly qualified should have a proper authority from me, to repair on board any of His Majesty's ships and vessels under my command, for the purpose of inspecting into the health of their crews, and surveying all such persons as may be deemed fit objects to be sent to the Naval Hospital; and particularly, to inspect into the state of the health of officers, whom it may be thought advisable to send to sick quarters, and to report their case to me before the tickets are sent for my approval.

I do therefore, in consideration of your acknowledged medical skill, and long services in the climate, whereby you have obtained a knowledge of the diseases incident thereto authorise and direct you, as occasions may offer, to repair on board all, or any of, His Majesty's ships and vessels under my command, for the purposes aforesaid. And also, to offer your advice and recommendations to the respective surgeons

of the said ships and vessels, touching all matters relating to the sick; whether in regard to the method adapted for their cure, or any other matter tending to promote their comfort and recovery. And particularly to suggest whatever, in your judgment, may best tend to preserve the health of those who may be free from disease. And, upon your going on board any of His Majesty's ships or vessels as aforesaid, you are respectfully to present this your order, to the captain or commander of the said ship or vessel, in order that he may be duly apprized of the nature of your employment, and afford you such protection and assistance as the case may require. And, you are to make a weekly report to me, from under your hand, of the state of the sick on board each of the ships and vessels aforesaid, as far as you may have had opportunities to inform yourself thereof; noting the particular diseases prevalent at that time, with such further observations as may occur to you upon that subject. And particularly pointing out, for my consideration, every circumstance that you can suggest, tending either to preserve the health of the crews of His Majesty's ships and vessels, or to add to the comfort, and promote the cure, of those afflicted with disease.

And, in consideration of your due performance of the aforesaid service, in addition to your immediate duty as surgeon of His Majesty's ship Saturn; you will receive such compensation in pay, as the Lords Commissioners of the Admiralty shall be pleased to direct. To whom you are to transmit, occasionally, a report of your proceedings, with such further observations as you may deem worthy of their knowledge.

And you are to continue to perform the aforesaid service,

until further orders; unless it may be thought proper to appoint a physician to the squadron under my command: in which case, from the day of the arrival of such physician at the Leeward Islands, you are to consider this order as no longer in force.

Given on board the Saturn, in Port Royal Bay, Martinique, the 8th April, 1802.

(Signed) THOMAS TOTTY.

To Dr. James Veitch,
Surgeon of His Majesty's Ship Saturn,

By Command of the Rear Admiral,

(Signed.) THOMAS CRISPE.

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