digestion, the generally lowered tone of the system, all favour the development of zymotic agents.

During the cholera-visitation of 1832, the nurses in the Manchester Cholera Hospital were at first allowed to go home each day at certain intervals. This arrangement gave them the benefit of a certain amount of out-door exercise and change of atmosphere, as well as relieved the tedium of their duties; the mortality, however, amongst them was so great that it was feared that the supply would fail. It was discovered that, with the idea of protecting themselves against the disease, they indulged freely in liquors; they were therefore confined to the hospital, and debarred from obtaining more than a small allowance of alcoholic drink, after which not a single fresh case occurred amongst them. Here we see that, notwithstanding far less favourable hygienic conditions, there was an immunity from cholera attacks when there was a greatly diminished consumption of alcohol.

Cheerfulness is undoubtedly one of the best defences against cholera, as depression is one of its most effective allies. Nevertheless, joyousness associated with the free use of liquors, as is so frequently the case in this country, may be productive of very adverse results. When the cholera-visitation of Glasgow (1832) was dying out, the jubilee was held to celebrate the passing of the Reform Bill. This gave rise to a considerable increase of drinking and drunkenness; the result was that cholera, which was nearly extinct, burst forth afresh, causing considerably increased mortality.

During the second epidemic, a great increase in the number of deaths from cholera took place during and after the New Year's festivities. At Gateshead, the week after Christmas-day was signalled by a most terrible fatality, which was obviously attributable to the drunkenness which prevailed in the town; one of the worst streets of which was said to be swept of confirmed drunkards from one end to the other, with very few exceptions.

At the close of the cholera-visitation, as experienced in Liverpool in 1866, Dr. Shearer, in his Report to the Toxteth Park Board of Guardians, thus wrote:—

"Of all the physical causes predisposing to cholera, indulgence in intoxicating liquors is the most powerful. This was proved on a large scale by the number of applications on the Sundays, Mondays, and Tuesdays, being from seventy to a hundred daily in excess of the number of applications on other days of the week. I have no hesitation whatever in tracing this terribly significant fact to the drunken orgies of Saturday night, Sunday, and Monday, which follow the weekly receipt of wages on the part of the labouring community."

The cholera-attack on the metropolis told, in 1866, with terrible effect on the East of London, more especially over the Limehouse and Ratcliffe districts. Mr. Orton, the Medical Officer of Health, in his report, states: "Those who have been water-drinkers, teetotallers more especially, have been pre-eminently exempt." Again, in his report for the year ending Lady-day 1867, after an enumeration of the facts connected with the outbreak, he declares: "That the drinkers of stimulating liquors, both fermented and spirituous, all other conditions being equal, were pre-eminently the sufferers and victims during and arising from the epidemic."

One of the most terrible examples of the effects of drunkenness and its accompaniments in promoting the spread of cholera was associated with the terrible outbreak at Liverpool in July 1866. Dr. Trench, the Medical Officer of Health, received information on Monday, July 2nd, that a death from cholera had occurred on the previous evening. This was the first case, the victim being an Irishwoman. The friends resolved on waking the corpse. The body was laid on a board; and in the apartment, scores of persons (men, women, and children) ate, drank, and slept, the orgies being kept up, amid drunken and profane revelry, during day and night. The whole place reeked with the loathsome and disgusting emanations of drunken and unwashed bacchanals. Drunken women squatted thickly on the flags of the court, before the open door of the crowded room where the corpse was laid. Before a week had passed, the husband of the woman was among the dead; and before the end of July, forty-eight persons had died from cholera within a radius of a hundred and fifty yards from the court which had been the scene of the ill-timed revelry.

Numerous facts teaching a similar lesson could easily be added; those cited will, however, suffice to show that, in taking means for preventing the advent or spread of cholera, the utmost efforts should be used by the authorities for limiting the facilities for procuring intoxicating liquor. When an attack is impending, intemperance ought to be most stringently dealt with. The drunkard is a source of the greatest danger to himself and to the community. The utmost efforts of the authorities, and the most lavish expenditure of funds, may be neutralised by the reckless conduct of a few intemperate persons. Every means ought therefore to be taken in order to prevent drunkenness.

It is not intended to imply that the attention of the authorities should be confined to the promotion of temperance—every hygienic method should be employed; but incentives to intemperance must be especially repressed—indeed, as far as may be practicable, suppressed.

ON THE TREATMENT OF ANEURISM BY COMPRESSION.*

By RAWDON MACNAMARA, M.D., F.R.C.S.I.,

Surgeon to the Meath Hospital, etc.

It may perhaps be in the recollection of some of the members present of this great Association, that upon the occasion of their honouring my native city, Dublin, with a visit, I read a paper in the Surgical Section on the Deligation of the Femoral Artery, in what is now known amongst surgeons as Porter's space. Upon that occasion I supported my views as to the eligibility of selecting this space as the site for operation by a record of eight cases, in six of which the operation had proved eminently successful, whilst in two the results had proved fatal, but fatal from causes perfectly independent of the site selected for operation. This paper will be found in the *BRITISH MEDICAL JOURNAL* for the year 1867, vol. ii, p. 285. Since then I have had no further personal experience of this operation; but I have learned from Professor Gross that since his return to America from the visit he recently paid these countries, he also has deligated the artery in this space with success, and that it is his intention to introduce a description of this operation into the forthcoming new edition of his well known *System of Surgery*. My inability to support this mode of procedure by a further record of additional cases is to be accounted for by the fact, that all the cases of popliteal aneurism which I have witnessed in the interval have proved amenable to treatment by compression. Even within the month just passed two cases have been successfully so treated in the wards of the Meath Hospital—one by Mr. Porter, the other by Mr. Wharton; the former case being brought to a successful issue in thirty-two days, the latter in seven days.

The treatment of aneurism by compression has been attended with such happy results in the hands of Irish surgeons—results contrasting in so marked a manner with the exceptionally favourable cases occurring in the practice of English surgeons—that I have on more than one occasion been asked by eminent London authorities how I could account for this discrepancy. To enable me to answer this question at all in a manner satisfactory to myself, I shall give a brief sketch of this mode of treatment since its revival in Ireland up to the present moment, and I shall lay before the Section several of the instruments which have been employed for the purpose during that period. By such a course I hope to clothe my observations at all events with somewhat of historic interest; and here, gentlemen, I beg of you to observe that I have used the phrase "*revival* in Ireland"; to do otherwise would be but to display a gross ignorance of the literature of the subject, inasmuch as that Irish surgeons cannot lay claim to absolute originality in the matter. In our earliest surgical writings we find recorded cases so treated. Not to go further back than Galen and Rhazes, we find these worthies using pressure in the treatment of aneurisms occurring at the bend of the elbow; whilst in more modern times, in the year 1772, Guattani published a treatise on aneurism, in which he records the results of this plan of treatment in eleven cases of popliteal aneurism, in five of which there was a successful result. So that we cannot claim for Irish surgery absolute originality in the matter; but we can claim for it the merit of its revival—of unwearied study of the subject—of having established the principles whereby the cure is effected—and of the suggestion of numerous most ingenious improvements in the class of instruments suited for the successful conduct of such cases. Pre-eminent amongst these labourers must always stand the names of Bellingham, Carte, and Tufnell; and to this latter gentleman am I indebted for being able to exhibit to you many of the most interesting of the instruments now lying upon the table.

Historically, the treatment of aneurism by compression may be divided into two eras—one anterior, the other subsequent, to the year 1785—a year memorable in our annals as that in which John Hunter per-

* Read before the Surgical Section at the Annual Meeting of the British Medical Association, in Plymouth, August 1871.

formed the first of those operations for the cure of popliteal aneurism which will bear his name so long as civilisation lasts. In the first of these eras the pressure was applied directly over the aneurismal tumour, the object being to empty the sac of its contents, with the view of bringing the edges of the wound or slit in the vessel into apposition, so as to cause their adhesion and thereby to cure the disease. However faulty were both this theory and mode of treatment, undoubtedly successful results occasionally ensued. Why this should be so is capable of explanation did time permit; but more important matters press, and I must hurry on.

After Hunter's brilliant operation a long interval occurred, during which all such efforts as the cure of aneurism remained in abeyance until the year 1820, when Mr. Todd's now celebrated cases occurred in the Richmond Hospital. These cases are recorded in the third volume of the *Dublin Hospital Reports*, p. 121, *et seq.* In this paper Mr. Todd thus expresses himself: "The tumour was so much under the control of pressure on the inguinal portion of the artery, that I was not altogether without hope that, by diminishing the current of blood in the trunk of the artery, so as to favour the coagulation of the contents of the sac, a cure without operation might be effected." In both of these cases, however, recourse was subsequently had to deligation of the artery. In the year 1825, Mr. Todd for the third time employed pressure in the treatment of a case of popliteal aneurism, and upon this occasion with success; but his premature death interrupted his labours, and indeed prevented his placing this case upon record; and probably it would long since have been forgotten had it not been communicated to the profession by his son, the late lamented Dr. Robert Todd, in the pages of the *Dublin Quarterly Journal*, in the year 1846; the case being recalled to memory in consequence of the fact that Irish surgeons were then becoming sensible of the value of this mode of treatment, through the earnest exertions of the late Dr. Bellingham, whose masterly treatise on the subject is well worthy of careful study. As bearing upon this subject, I should also wish to direct your attention to Mr. Tufnell's work upon aneurism, the pages of which are enriched with several interesting plates illustrative of many of the instruments employed in this plan of treating aneurism.

The period of the *renaissance* of this plan of treatment was marked shortly afterwards by what must always be recognised as an important epoch in the treatment of aneurism by compression, to wit the superaddition of elasticity to pressure in the controlling power. From the very earliest period up to then, *dead* pressure alone had been employed, and the sufferings resulting therefrom were alone sufficient to baffle the best directed efforts of the most zealous and intelligent surgeon, and to exhaust the endurance of the most heroic patient—so much so as in numerous cases to induce them loudly to call out for deligation of the artery, thus reversing those well known lines—

—rather bear those ills we have,
Than fly to others that we know not of.

To Dr. Carte must be attributed the merit of suggesting an instrument in which pressure of sufficient power could be combined with an amount of elasticity calculated to render that pressure tolerable.

Another and most important defect in the earlier instruments was, that no provision was made in their construction for altering the direction in which they were to exercise the pressure, and thus were they difficult of application and unsuited for general use. An instrument might control the artery in one individual, and yet fail altogether to do so in another; in fact, they were not suited for universal application: and even in such cases as those in which they were able to control the artery, their action was but temporary, as they were perpetually liable to displacement every time the patient shifted his position. To Mr. Read, the well known cutler in Dublin, is due the merit of meeting this difficulty, by adopting in our more recent instruments the ball- and socket-joint and the pelvic cradle. Since then Mr. Read has introduced to our notice another instrument which bears his name—"Read's compressor"—of the merits of which it would be difficult to speak in too eulogistic terms. This is the instrument which was mainly instrumental in effecting the cure in the two cases of popliteal aneurism already alluded to as having been successfully treated last month in the wards of the Meath Hospital. In it, in my opinion, are combined the *ne plus ultra* of all that should characterise a good compressor—directness and permanence of pressure, associated with the requisite amount of elasticity.

A radical defect in our earlier efforts at curing aneurism by compression was, that the pressure was restricted to but one portion of the artery. Bellingham pointed out to us this error, and all subsequent experience has confirmed his teaching. Now-a-days we supplement the pressure applied by means of a Carte's or a Reid's compressor to the vessel in the upper portion of its course, by a second instrument such as Signoroni's or Salt's tourniquet, or some one or other of those

instruments constructed on the clamp principle, applied to the artery some three inches lower down. Thus are we enabled, when the pressure becomes even irksome in one situation, to remove it to another, and, by thus alternating it, to impede the ingress of the blood into the aneurismal sac, and thereby to allow the cure continuously to progress; for, be it well understood, one pressure is not relaxed until the other is brought into play.

A mistaken idea also pervaded our earlier efforts at the cure of aneurism by compression, that, to cure the disease, it was essential to cut off *entirely* the supply of blood to the sac. The fallacy lurking in this theory, so plausibly supported, as it was thought, by the analogy existing between the *modus curandi* of this plan of treatment and of that at the time attributed to the ligature, was also exposed by Bellingham. No theory more obnoxious to the satisfactory carrying out of this plan of treatment could have been promulgated. In the first place, it would render necessary an amount of pressure which, on its application painful, would quickly become intolerable. In the second place, it is absolutely antagonistic to the pathological conditions which must be established to assume a successful issue—the deposition in the aneurismal sac of successive layers of the fibrine of the blood. To secure this, a feeble current of blood through the sac is not only desirable, but essential; and therefore is it that an amount of pressure which would command the complete circulation through the artery is not only uncalled for, but is absolutely prejudicial to the ultimate cure. How important becomes a knowledge of this fact in the practical use of compression, will presently appear.

Another error which long prevailed was, that firm pressure should be applied through means of a roller to the entire extent of the limb; which roller, it was hoped, would act as an auxiliary to the pressure directed upon the vessel in the inguinal portion of its course. So far, however, from such pressure supplementing the cure, it actually obstructs it, inasmuch as it interferes with the establishment of the collateral circulation. Occasionally, also, too little attention was paid to the general condition of the patient's health. Anæmic and hyperæmic patients should not all alike be subjected to compression, without appropriate preliminary treatment. Long since have we learned in Ireland how certain such conduct would be to be attended with disappointing results.

From this hasty recapitulation of our earlier mistakes may be collected the plan upon which we now conduct such cases in Ireland. It may, however, prove useful to epitomise them. A case of popliteal aneurism presents itself for treatment. We determine to use compression. We first carefully ascertain the condition of the patient's general health. If anæmic or hyperæmic, we take appropriate measures; and, when we are satisfied upon this point, we apply some one or other of the most improved compressors—those in which the compressing power is modified by elasticity. With this we compress the artery in the upper portion of its course, having previously arranged, some three or four inches lower down, the auxiliary instrument by means of which we propose to alternate the pressure. The upper instrument is now made to control the artery, so as but just to arrest the pulsation in the sac. This is the most delicate step in all the procedure, and is regulated by the hand of an intelligent assistant, who at once informs us when the pulsation is arrested; and then and there the further application of pressure is arrested. A roster of intelligent students is now organised, and to them is entrusted the management of the case. Two are appointed to take charge of the patient for one hour, when they are relieved by two others, and so on during the day, whereby we secure unwearied attention during the period that pressure is kept up; and, as in Dublin we visit our hospitals at 9 o'clock A.M., the treatment generally commences about that hour, and is continued up to 9 o'clock P.M., when all pressure is removed, and the patient is encouraged to take his night's rest undisturbed. Next morning the treatment is resumed, and so on until the cure is perfected. At the commencement of the case, we take the patient into our confidence; explain to him the nature of his case and the method we are about to adopt for his cure, placing clearly before him the alternative, with all its possible dangers, which we should have to adopt in case compression should fail. The value of this procedure is very frequently demonstrated by the intelligent interest exhibited by our patients in the management of their own cases—so intelligent as in protracted cases to supplement, if not altogether to supersede, the supervision of them by our students. In the selection of our compressing force, we adopt in its widest sense the maxim "*Nullius in verba* addictus jurare in verba magistri". Should one compressor prove irksome, we try another; if all should fail, we have recourse to digital compression, or to compression by means of weights; but, in every instance convinced of the soundness of this plan of treatment, we leave no stone unturned to secure its success.

As you will collect from the preceding remarks, gentlemen, every

exertion is made on our parts to conduct the case with as little inconvenience or pain to the patient as is possible. Pain in the seat of pressure we look upon as an evil; but there is a pain, and that sometimes for a few hours a very sharp pain, to the advent of which we anxiously look forward. I allude to pain in the neighbourhood of the knee-joint, which pain is the harbinger of cure. This pain is due to the rapid enlargement of the collateral circulation, dependent upon the diminished calibre of the aneurismal sac, encroached upon by the deposit in it of fibrine, and is best combated by narcotics.

So far, gentlemen, for our Irish plan of treating aneurism by compression: I now come to the question so often asked me, why we should be so successful, and you so much the reverse, in thus treating aneurism. I confess that the tone in which this question has occasionally been asked me has pained me very much. A doubt in the truthfulness of our statistics has not been openly expressed; still "*c'est le ton qui fait la musique*", and so with this question. This is a painful theme upon which to descant, as painful as I feel it to be unnecessary before such an audience as I have the honour now to address. The majority of our cases have been conducted not only in the presence, but with the assistance, of our students in our public hospitals. Under these circumstances, to attempt to colour the facts would be worse than a crime, for it would be a blunder. No! gentlemen, before you I feel that it would be a work of supererogation to attempt to vindicate the character of Irish surgeons for honour, truth, and loyalty to our common profession; whilst, on the other hand, to no man will I yield in profound reverence for what has been done in the past, what is being done in the present, by British surgeons, for the scientific progress of our profession. Therefore is it that I feel myself acquitted of any unworthy motive in placing on record my ideas as to why we should succeed and you should fail.

First, and above all, we have faith in the efficacy of our treatment, and reverently be it expressed, faith can do all things. Your experience can scarcely justify you in entertaining such faith.

Second. In this instance, at all events, the spirit of nationality pervades our ranks, and the humblest, the most indolent, the most apathetic surgeon amongst us, will try every expedient ere he will acknowledge that in his hands the Irish method of cure has failed.

Third. Our hospitals are visited at 9 A.M.; yours, I believe, at 2 P.M. By our arrangements we are enabled to visit our patient, and to commence his treatment under our personal supervision at an early period of the day.

Fourth. All our hospitals are within a few minutes' drive of the residences of their surgeons; thus are we enabled to pay during the day repeated visits to such cases, and so to watch them from hour to hour; and no matter how zealous, how intelligent, be the house-surgeons or the pupils, there is no eye equal to the master's for seeing that the work be done. That such surveillance imposes great trouble on the attending surgeon I freely admit, still it must always be borne in mind that it was *per tadia et labores* that this plan of treatment has been brought to its present perfection, and that *pour réussir il faut travailler*. You know best, gentlemen, your arrangements in these respects.

Fifth. Thoroughly aware, as we are, of the pathological changes which must be brought about in the contents of the sac to effect a cure, and convinced, as we are, of the principles whereby alone these changes can be produced, we are not afraid, during the night, to remove all pressure, and so to secure for our patients uninterrupted sleep, whereby we keep up their health to the condition most favourable for fibrinous deposit in the sac.

Sixth. And here I trust that I will not be considered as blowing too loud a blast on our Irish trumpet, I am of opinion that some of our success must be attributed to the intelligence of the patients whom we are called on to treat. Many are the instances in which their co-operation has proved to us of inestimable value. One of the class of instruments (the clamp) of which, even to the present day, we frequently avail ourselves, is due to the suggestion of a patient, a carpenter by trade, of the late Professor Harrison's; and, did time permit, numerous other instances of the truth of this assertion could be adduced.

Finally, the physique of our patients differs widely, I suspect, from yours. I fancy that the disease occurs, in the majority of English patients, in the persons of well-fed, robust, and plethoric individuals; such patients will require a compressing force of high tension; but as a rule it may be laid down that if the force employed exceed that which would be represented by a *dead* pressure of nine pounds, the pain to which it will give rise will soon render it intolerable. Our patients rarely, if ever, present such appearances; they rather incline to the opposite extreme—and when such is the case, we are obliged to call to our assistance good diet. 'Tis true that the plethoric individual may be reduced by regimen, etc., to the *juste milieu*. Still, after all, it is but human nature that we should find patients more amenable to a plan of

treatment which involves generous diet, than to one which enforces starvation and depletion.

Whatever be the motive, gentlemen, which actuates Irish surgeons in advocating this plan of treatment, there is one of which their history must hold them acquitted—pusillanimity. In a country where, within these past few years, the common iliac has been tied by Hargrave, the innominate laid bare by Porter, the abdominal aorta by Stokes, there must exist potent reasons for inducing such surgeons to prefer compression to deligation of the femoral artery. Irish surgeons may dare much in their operative proceedings, but one thing they must not do—submit a patient to a dangerous operation when they have at hand a procedure at once so simple, so effectual, so free from risk, as that to which I have so feebly drawn your attention this day.

TREATMENT OF HÆMORRHAGE ARISING FROM RETENTION OF THE SECUNDINES AFTER ABORTION.*

By J. G. SWAYNE, M.D.,

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AN abortion about the middle of utero-gestation may become one of the most troublesome, difficult, and dangerous cases which can fall to the lot of the accoucheur. The reason is, that at this time it is peculiarly liable to be complicated with retention of the secundines. During the first two months of pregnancy, the aborted ovum is usually cast off entire, and there is seldom any further trouble. During the last three or four months, the membranes generally are ruptured, and the foetus and placenta expelled separately; but the latter is sufficiently bulky to stimulate the uterus to expel it; and, even if this should not happen, the uterus is large enough to admit of the introduction of the hand for the purpose of removing it. During the middle of pregnancy, however, or rather, I should say, during the third, fourth, and fifth months, the ovum is very likely not to be expelled entire: the placenta and membranes are not sufficiently bulky to induce expulsive efforts of the uterus, and are, therefore, very liable to be left behind; and the uterus is not large enough to admit the hand for the purpose of extracting them. Under favourable circumstances, the placenta and membranes may be cast off with, or immediately after, the foetus; but it is quite as usual, I think, to find that this is not the case, and that the secundines, if let alone, may be retained for an indefinite period. For instance, on making an examination, the accoucheur finds the uterus contracted in all its dimensions, and the os uteri tightly encircling the filiform funis, which will inevitably give way if any attempts are made to remove the placenta by its means. In fact, circular contraction of the fibres of the os uteri internum, or what is commonly called hour-glass contraction of the uterus, is a much more frequent occurrence after abortion than after labour at the full term, and is accompanied with similar dangers, although in a minor degree. As long as the placenta and membranes remain behind in the uterus, the patient is subject to attacks of hæmorrhage, which may be very frequent and very profuse; or she is liable at a later period to septicæmia from the absorption of putrid matter caused by the decomposition of the retained secundines.

To prevent such untoward results, the obvious indication is, of course, to remove the exciting cause; but this is a matter of so much difficulty in practice, that obstetric authorities have for a long time been divided in opinion as to the advisability of attempting it. The older authorities—for instance, Denman, Davis, Dewees, Burns, Ingleby, and Blundell—are in favour of the expectant plan, and disapprove of manual attempts to extract the placenta. Denman, who always relied so implicitly on the *vis medicatrix nature*, is especially opposed to manual interference, and at the same time very much underrates the risk arising from retention of the secundines, for he goes so far as to say, "Much less mischief may be expected from the retention of a putrid placenta than from attempts to force it away by the medicines usually given, or by manual assistance." I have myself in many instances tried the expectant plan of treatment, and can by no means give a favourable report of its results. As long as the placenta remains in the uterus, the patient is liable to sudden and alarming attacks of hæmorrhage; and so greatly am I impressed with the danger of this occurrence, that during the first three or four days after an abortion I would not on any account leave a patient with the placenta in the uterus, unless I had previously guarded against this accident by plugging the vagina. In all cases of miscar-

* Read before the Medical Section at the Annual Meeting of the British Medical Association, in Plymouth, August 1871.