tion. Similarly for the defective articulation. Now for paralysis corresponding to loss of visual ideas; in these ideas most of all mentation is carried on. Here I admit a discrepancy. It is said that there are no abnormalities in ocular movements in general paralysis; but I think that there is, in some cases, a want of even gliding of the eyes in their different excursions. I say this diffidently, and, instead of founding anything on it, will admit that I can show no evidence of paralysis answering to loss of motor elements of the physical bases of visual ideas in cases of general paralysis. (The pupillary inabilities in this disease are presumably owing to lesions of lowest motor centres.)

ADDRESS IN SURGERY,

BY

T. PRIDGIN TEALE, M.A., F.R.C.S., F.R.S.

DETAIL IN SURGERY.

In deciding what line of thought to select for this address, I had to consider whether, following the example of many of my predecessors and of the earlier retrospective addresses, to give an account of recent advances and changes in surgery, or to select some definite subject perhaps not entirely in accordance with precedent.

Happily my immediate predecessor devoted his address to a review of the surgery of the last half-century, absolving me from the obligation to adopt a similar course, and setting me free to choose a subject more congenial to my habit and work.

"Detail in Surgery" is the title selected for this address, in which I hope to show how much some of the triumphs and shortcomings of modern surgery are made or marred by the carrying out of detail, detail which is essentially embodiment of principle, not the mere multiplication of points of practice such as may not materially further the end in view.

In working out this line of thought, I hope to be able profitably to employ the time at my disposal, and to give prominence to conclusions which have been formed during a surgical life of over thirty years, made up not of my own work alone, but very largely of the freest interchange of thought and experience with most friendly and active-minded colleagues, medical and surgical, with whom it has been my great happiness to be associated. In so doing, it has been my endeavour to be as little egotistical as is compatible with the attainment of the end in view.

LIGATURE OF ARTERIES.

It happened not long ago that I had to deal with a wound of the brachial at the bend of the elbow. Esmarch's tourniquet enabled me to expose beautifully to the eye a longitudinal slit in the artery. Of course I was obliged to apply a ligature on both sides of the puncture. There were then clearly exposed to view the two ligatures and about half an inch of the artery containing the slit. It occurred to me to divide the artery between the ligatures, and so to relieve obvious tension. I then appreciated what I had never before fully realised in connection with ligature of an artery, the immense elasticity of the arterial coats. The separated ends receded fully half an inch from one another. The question at once occurred to me, Can it be right ever to tie an artery by a single ligature, and to leave this powerful force of elasticity to work for ulceration of the coats and gaping of the ulcer, with the risk of final disturbance by retraction of the divided ends when ulceration has completed its work? May we not here find an explanation of the numerous failures of ligature of the great arteries of twenty and thirty years ago, and of the fatal secondary hæmorrhages, chiefly from the distal end? Some may say that antiseptics and the cutting short of the ligature have changed all that, have reduced the risk of ulceration of the coats of the artery and of secondary hæmorrhage. Well, antiseptics fail now and then; and if they should fail we may be thankful for the additional protection of a doubly-tied divided artery. Secondary hæmorrhage and fatal result will be thereby rendered extremely improbable. Recently I assisted my friend, Mr. R. N. Hartley, in a case in which he first ligatured the femoral

and, a week later, the external iliac on the same side in the same patient. On both occasions he doubly tied and divided the artery with admirable result. This principle, proposed by Abernethy and afterwards forgotten, has recently been restored to practice at St. Bartholomew's Hospital by Mr. Walsham, and is, I believe, practised elsewhere. May we not call this "a detail" in the operation of tying an artery? Does it not embody a principle—the principle of physiological rest? Are we to recognise and act upon the fact of the elasticity of an artery or are we to ignore it, and to place our patient at the mercy of elastic drag, tension, ulceration, retraction when liberated, and secondary hæmorrhage? Does it not also involve the larger principle of *rest* as an important factor in the healing of any tissue?

STRICTURE.

There is a form of instrument for the treatment of stricture which has been but little written about and, although at last slowly making its way into use, has not met with the attention which I feel sure it deserves. It is known to me by the name of "Lister's sound," and was invented by Sir Joseph Lister.

From the very commencement of my professional life I have been familiar with and have been taught to use in the treatment of stricture "bulbed" steel sounds, which seem to have existed as traditional instruments in the Leeds Infirmary, were constantly used by my father and the older surgeons, and were, I believe, brought to Leeds by the late Mr. Samuel Smith, who had learnt their use from his master, Sir Charles Bell, in Edinburgh. The virtue of the bulb is this: that, the stem of the instrument being necessarily smaller than the bulb, as soon as the bulb has passed through the stricture the instrument is free, and the touch of the surgeon is at liberty to perceive the character of the succeeding part of the urethra. Compared with the bulbed sound, the ordinary catheter which, as a student, I frequently witnessed in use in the treatment of stricture was clumsy and eminently unsatisfactory. The defect of the bulbed sound in common with most other methods of treating stricture, was that as soon as one size had been passed through a stricture, the same process of difficulty had to be encountered in passing the size larger. Some twelve years ago, whilst I was considering how to overcome this difficulty, our house-surgeon, Mr. Rowell, on his return from a visit to Edinburgh, said to me: "Here is the instrument you want, a Lister's sound." I ordered a set, and I have used them ever since, exclusively, and have never flinched one moment from my allegiance to them. The principle of the instrument is this. It is bulbed at the point, like our old bulbed sounds. Then after the narrow neck the stem gradually increases until it attains, at a point about four inches from the bulb, a calibre two sizes larger than the bulb. Thus: No. 1 at the bulb swells to No. 3 or 4; No. 9 to 12; No. 11 to 14. It is clear then that if you can once pass No. 1 safely into the bladder, you have prepared the way by the thickness of the stem for the more easy introduction of a sound with a bulb of the size of No. 2, and so on, each number passed rendering the way more easy for its successor. As a matter of fact, the larger sizes are passed with constantly increasing facility.

Have we not here a "detail" in the form of an instrument which solves many difficulties, combining the advantages of the bulbed sound with those of the conical sounds and bougies, and avoiding the disadvantages of both? It destroys the need of catheters with the hollow eye capable of carrying concealed poison, of gum-elastic catheters, and catgut bougies with the possibility of septic material lurking in interstices and cracks, and reduces very greatly the need of perineal section or internal urethrotomy.

Let me sum up my own experiences of the use of Lister's sound, which for the last 12 years has been, both in hospital and private practice, most satisfactory. Since their adoption, as far as I can recollect, I have only once had to perform perineal section from inability to get through, or to satisfactorily dilate a stricture. I have never performed internal urethrotomy, nor felt the need of it. Rigors are extremely rare after the use of Lister's sounds. This rarity of rigor I am inclined to attribute to the fact that in nearly every instance dilatation has been carried at the first sitting, up to 10, 11, or 12. It is my belief that full dilatation at the first sitting is safer than the older method of partial and gradual dilatation, and for this reason. Even in partial dilatation there is frequently some laceration or bruising of the surface at the strictured point. If the stricture be only partially dilated, there remains a narrowing at this sore point sufficient to materially arrest the flow of urine, and therefore there is urinary

pressure on the raw surface; whereas in full dilatation the urine flows along the urethra equably and without undue pressure at any point; and puts no stress upon the tender and perhaps lacerated surface of the stricture.

In a small number of cases I have failed to introduce Lister's, No. 1, but these have been got over by the aid of Teevan's filiform guide, which in every case was successfully passed. The guide having been introduced through the stricture, its outer end is then screwed into the tip of a conical sound, like Lister's with the bulb cut off. The filiform bougie guides the solid instrument through the stricture, and thus dilatation up to 4 or 5 Lister is secured, with the usual easy sequence, up to 12 or 14.

EFFECTIVE DRAINAGE.

"Effective drainage" may be defined as "such a provision for the escape of fluid from any cavity as shall secure that the discharges, which when secreted are sweet, shall escape from the cavity before they have time to putrefy, and shall be received into one of the aseptic absorbent materials with which surgery is now so abundantly provided." Formerly the idea of drainage was almost limited to "free incision and a dependent opening." This idea was true to a certain extent and in some cases, of which the following is a brilliant example. A man was received into the Leeds Infirmary suffering from pneumothorax on the left side, from broken rib. The air was rapidly absorbed, but shortly the pleural cavity became full of fluid. This was drawn off twice, and on the second occasion was purulent. For some reason or other, the patient being extremely ill, an opening was made into the chest in front. He continued to lose strength and flesh, became extremely emaciated and albuminuric. As a forlorn hope, an incision was made into the pleural cavity posteriorly, whereby a free, dependent, self-draining opening was secured. In three months the wounds had healed, the patient had gained three stones in weight, had lost his albuminuria, and was well.

But a dependent opening is not always the most efficient or the best. I was requested by my colleague, Mr. Mayo Robson, to see with him a lady with pelvic suppuration discharging through the rectum, that is, by a dependent opening. It was the source of much pain and of occasional febrile attacks and ill-health. A tumour about the size of an orange, and supposed to be the source of the pus, was felt by rectum and vagina. Mr. Robson carried out the following treatment agreed upon at our consultation: Having exposed the tumour by direct abdominal incision, he stitched the peritoneum of the edge of the incision to the upper surface of the tumour, leaving a small area of the tumour exposed, and rendered thereby extra-peritoneal. He then cut into the tumour until he reached a collection of offensive pus, and washed out and drained the cavity. Immediately pus ceased to appear by rectum, that is, by the downward drainage, and in four weeks the whole was healed and the patient was well.

Until recently surgery has been too much a slave to the principle of a dependent opening. A dependent opening may be for the moment efficient whilst the cavity is distended, and yet, after it is emptied and collapsed, may become valvular and inefficient. Moreover, when a large cavity has been emptied the walls may by their collapse shut off portions of the surface from satisfactory drainage. Drainage, therefore, is a "detail" which needs to be studied in reference to each individual case. The leading idea should be so to provide, whether by position of openings, by shape of opening, or by use of drainage-tube, that secretions shall escape from every part before they have time to become septic, remembering that if a way of escape for fluid without risk of imprisonment be provided, we generally have to aid us the elasticity, or contractility, or displacing compression of surrounding tissues, and that we may be, to a great extent, independent of mere gravitation.

Such ideas, clearly held, will set us free, and encourage us to continue, as we now do, to drain abdominal cavities, abscesses, irremovable cysts, distended gall bladders, pelvic abscesses, and, perhaps, even abscesses connected with diseased hip-joint, by a mode of drainage which is anything but a dependent opening, but which we have learnt how to render efficient.

This idea of drainage, combined with the principle of rendering a cavity extra-peritoneal, is the key to some of the recent masterly developments of abdominal surgery, whereby deeply seated cavities containing offensive and septic materials can be treated with comparative safety.

PERITONEAL STITCHING.

Another "detail" in surgery which I have only recently learned

to appreciate is that of the independent stitching of the peritoneum. The looseness of the attachment of the peritoneum to the abdominal wall allows it to be dealt with with great freedom, as has already been referred to in the paragraph on "Drainage." A few months ago, when I was about to stitch up the abdominal wall after ovariectomy, Mr. Hartley, who was assisting me, asked, "Why not stitch up the peritoneum alone, and then unite the rest of the abdominal wall by a separate set of stitches?" I at once acted on the suggestion, knowing that it had been practised by others. The effect was to make the closing of the abdominal wall much simpler, and not more tedious. The advantages appeared to be (a) absence of tension on the peritoneal union, (b) very little bleeding from the peritoneal stitches, and (c) greater facility in uniting the abdominal wall, from not having to provide for the accurate adaptation of the peritoneal edges. After the operation the patient seemed to be more free than usual from discomfort in the wound. It is possible that further advantages may accrue, such as diminished proneness to hernia of the scar, and less liability to suppuration in the track of the sutures. So much for the value of this detail in ovariectomy and abdominal section. But the lesson thus learnt went further. Not long ago, I was called in the middle of the night to a patient suffering from strangulated umbilical hernia, who had been admitted into the Leeds Infirmary in order that she might undergo an operation for radical cure, strangulation having suddenly set in whilst she was waiting for the operation. After reducing the bowel and removing a large mass of omentum, I was prepared to close the abdominal ring, which had a diameter of an inch. To close this in the ordinary way by sutures, so as to secure union of the peritoneal edge, which is adherent to the margin of the ring, is no easy nor certain proceeding. I therefore, with the scalpel, incised round the margin of the ring, and thereby got a starting point whence I could strip the peritoneum from the under surface of the abdominal wall over a radius of about an inch. The edges of the opening in the peritoneum were then easily brought together, and closed by a row of five or six stitches. The peritoneal cavity having been thereby closed and cut off from the wound, two wire sutures were inserted into the aponeurotic ring of the linea alba, so as to bring the opposite sides together, and were cut off, to be left as a permanent barrier. It seems likely that such a proceeding may increase the safety of operations for umbilical hernia, whether undertaken to relieve strangulation, or for radical cure.

THE SPHINCTER ANI IN THE SURGERY OF THE RECTUM.

There is a detail in operations on the rectum or anus which, rightly carried out, contributes very greatly to ease in operating, to the comfort of the patient after the operation, and to the permanency and perfection of the result. As a preliminary step, in every operation on the rectum or anus, there should be dilatation of the sphincter ani by the fingers. To some this may seem a truism, a self-evident proposition, which it were waste of time and breath to assert. The fact, however, is that it is far from self-evident to many surgical minds, and has not been acted upon as a general rule, and, until very recently, has been absolutely ignored by many rectal specialists, and by writers on general surgery.

First and most conspicuous in this relation are bleeding internal piles. Some twenty-five years ago I was asked to operate for bleeding piles on a gentleman about 30 years of age. On mentioning the case to my father, he said, "Dilate the sphincter, and most likely you will never have to operate on the piles; they will be cured." His anticipation proved to be correct. The advice was acted upon, and the gentleman has remained well to the present time. So late as in 1887 did M. Verneuil bring this subject as a novelty before a meeting of surgeons in Paris, nearly all of whom were entirely ignorant of the question. This experience was amply confirmed by subsequent cases, and I now rarely operate on internal hæmorrhoids without having previously tested the effect of simple stretching of the sphincter. In more severe cases, requiring the removal of hæmorrhoids, the stretching, as a preliminary to operation, at once displays the piles to view, and places them in a ready position for being seen, seized, and dealt with. Another advantage is that, after the operation, the parts remain at rest, and the wounded tissues are not liable to protrude and to be strangled by a resentful sphincter. Also, if there be bleeding, there is great facility for the escape and discovery of the blood, and therefore less danger of concealed hæmorrhage, which may fill the rectum with a large clot, perhaps only to be suspected from the pallor and feeble pulse of the patient. A

further advantage is that wounded and granulating surfaces within the rectum are not interfered with, or kept in a painful or irritable state, after the fashion of fissure, by an over-active excitable sphincter. Two cases have recently been under my care in which long-continued suffering after removal of piles, without stretching of sphincter, was at once cured by simple dilatation.

Contrast with this the clumsy and unscientific plan until recently recommended in the textbooks of requesting the patient to "bring down" the piles by sitting over hot water before operation, so as to afford the surgeon an opportunity of playing hide and seek with the elusive hæmorrhoids, aided by their confederate sphincter.

In operations for fistula in ano, dilatation of the sphincter is an essential preliminary. If the internal orifice be close to the anus it is at once displayed or brought within easy reach. If it be at some distance, and beyond the sphincter, this proceeding renders it possible to cure the fistula without extending the incision up to the internal orifice, and so risking loss of control over the action of the bowel by too free division of the sphincter ani. Such deeply burrowing fistulas I have cured on several occasions in the following manner. The sphincter having been freely dilated, the external orifice of the fistula was enlarged laterally in such a way that the opening in the skin was the base of a triangle with its apex at the other end of the fistula, where it communicated with the bowel. The track of the fistula was freely scraped, and a drainage-tube was inserted, so as to reach within half an inch of the opening into the bowel. Undoubtedly the key to a successful result in such a case is the "detail" of dilatation of the sphincter, which by its relaxation allows the contents of the bowel to pass away easily, and without forcing secretions backwards into the fistula, until time has been given for the freshly scraped surface to unite and seal the offending track. Time will not allow me to say much more on this far-reaching topic, but there is one point I must not omit. Of late years, the question of dilatation of the os and cervix uteri, and of treatment of the cavity of the uterus for endometritis and other metritic troubles, has come very much to the front. Indeed, it is a selected subject of discussion at the present meeting in the Obstetric Section. In some of the discussions by gynaecologists I notice that much is said of constipation as a factor in these cases, and as one that ought to be treated and remedied, of course by medicines, as a preliminary to any special interference with the uterus. In some cases I know, and in many others I suspect, that the cause of the constipation is a tight, or spasmodic, or irritable sphincter. In such a case stretch the sphincter, and you may "throw physic to the dogs." And let me note in passing that there are instances in which the sphincter may cause constipation and its train of symptoms, without any evidence of fissure, or anal pain, or bleeding, or there may be, what I have often observed but have never seen described, a peculiar rigidity, a sort of inelastic ring, like a fibrous degeneration of the muscle, which does not resist the introduction of one finger, but bars the rectum as with a ring of iron to the introduction of two. In such cases only artificially softened evacuations can escape. May we not consider dilatation of the sphincter to be a "detail" in surgery worth study no less by the physician than by the surgeon?

ETHER VERSUS CHLOROFORM.

This is a subject on which I wish to speak with a sense of grave responsibility—the more so that I have to express views which are strongly opposed to those uttered at Glasgow last year by my predecessor in this chair.

If anyone asks why I venture to differ so widely and strongly from one whose surgical experience is probably not less than my own, and may be greater, my plea is as follows:—

For the first fifteen years of my surgical life, which includes ten years as surgeon to the Leeds Infirmary, I knew little of any anæsthetic but chloroform. So far, probably, our experience runs parallel. During the last fifteen years ether has almost superseded chloroform in my practice. Here the parallel ceases. Sir George Macleod's second fifteen years are still devoted to chloroform. He cannot speak from fifteen years' experience of ether. As a result of the comparison of these two periods I unhesitatingly assert that ether is, for safety to the patient and for comfort and convenience to the operator, immeasurably the better anæsthetic of the two. Ether can be given "*tute, cito, et jucunde*." I say can be; would that I could say *is* always so given.

My earliest experience of ether was in the method introduced by Dr. Joy Jeffreys, when, at the International Ophthalmic Congress in 1872, he preached his crusade against the almost universal use of chloroform prevalent in the United Kingdom, and

compelled British surgeons to take up the question of ether. He appealed to our sense of duty in reference to the fearfully increasing fatality of chloroform, and we responded to his call, in spite of the grave disadvantages, of the clumsy, wasteful, nay harmful, method of giving ether by lavishly pouring into a cone formed of a towel, to which he introduced us. The disadvantages of ether so given were great and obvious. The struggling of the patient, the icy coldness of the inhaled air, the saturation of the air of the room by 12, 15, or 20 ounces of ether spent upon a single case, and the not infrequent, and occasionally fatal, bronchitis which followed, were such obvious drawbacks that the wonder is that ether survived as an anæsthetic in England, until it had time, by improved methods and increased experience, to win its way to the pre-eminent confidence which it now commands. The towel was, after a time, superseded by the wicker grid—brought over from America by a late chaplain to the Leeds Infirmary, the Rev. E. Spencer Gough—an improvement on the towel, but sharing with it the chilling of every inhalation by the evaporating ether as well as a high percentage of waste of the anæsthetic. The method of administering nitrous oxide gas before giving ether was, in his later years, largely given up by Clover. Next came the great step, which was the saving of ether as a British anæsthetic. Ormsby, of Dublin, invented the inhaler in which the exhaled warm air, charged as it is with ether, was received into an india-rubber bag and breathed over and over again, thus economising the heat of about 90 per cent. of the exhalations and reducing the waste of ether. This idea was taken up by Clover and developed into the present form of inhaler, which, as far as I know, is unapproached by any method of giving ether that has come into use. But, "*Non cuius homini contingit adire Corinthum*." It is not everyone who knows, and there are some who are incapable of learning, how to administer ether, even with Clover's inhaler.

There are many hospitals in England, and still more, I believe, in Scotland, where the use of ether is practically unknown, or where, if ether is given, the obsolete towel or the grid, or the very inferior inhaler of Ormsby is used; or even should the hospital possess a Clover, it may not possess an etherist who knows how to use it to the best advantage. To administer ether badly is to bring it down nearly to a level with chloroform as to safety, and to render it inferior to chloroform as to comfort to the patient. A bad etherist will cause fear, coughing, distressing sense of suffocation, excitement, struggling, blueness of lips, mucous rattling in the trachea and bronchi. He will take many minutes, five to ten, in getting his patient under the anæsthetic, will use twice or thrice as much ether as is needful, will keep his patient when unconscious overcharged with ether in a state of profound stertor, and will now and then set up a dangerous bronchitis. A good etherist will win the confidence of his patient, even of the most timid, by judicious encouragement, and by first applying the mouthpiece alone. As confidence becomes established he adds the reservoir and then the india-rubber bag, slowly turning on the ether as tolerance of the vapour becomes established, and unconsciousness begins to steal on. Then he more rapidly increases the proportion of ether, and the patient quickly falls into complete anæsthesia. Such an administrator will, in nine cases out of ten, have his patient ready for operation in two or three minutes, and not infrequently in about a minute and a half, without a struggle, without coughing, often without even a transient sense of suffocation, and with the expenditure of about half an ounce of ether, and will but need about one ounce of ether for each quarter of an hour that the anæsthesia is kept up. In such a case we need fear nor danger at the time, nor subsequent bronchitis. So much for the patient.

But there is another side of the ether question which I have never seen adequately stated. The advantages to the operator of using ether instead of chloroform are very great. In the first place his anxiety is less, his fear of a fatal issue is less, and when obliged to trust to an inexperienced administrator, as he must do at times in sudden emergencies, he can more efficiently keep an eye on the patient's condition, and superintend the administrator, than when chloroform is used.

In the second place there is a saving of time, a patient being brought under the influence of ether in two or three minutes, whereas chloroform, in my experience, needs eight or ten. Such a saving is of no slight moment in modern hospital practice now that the sphere of surgery has become so enormously extended.

In the third place, under ether return of consciousness to pain generally lags behind the return of mental perception, and thus

anæsthesia can easily be re-established without interrupting the operation. So marked is this fact towards the end of a prolonged operation, that sometimes the surgeon may continue to operate for ten minutes or a quarter of an hour without re-application of the inhaler, and even converse with his patient whilst stitching up a wound. This is hardly, or rarely, the case with chloroform. Let anyone who is not yet a convert to ether, or who, having used ether, is wavering in his allegiance to it, ask himself these questions. Have I myself studied the details of successful etherisation? Am I using the best form of inhaler? Have I taken pains to have those who act for me properly taught and trained? If not, let him ask himself one more question—have I done my duty?

INSTRUMENTS. THE SCALPEL. F. F.

An essay on "Detail in Surgery" would hardly be complete without some words about "instruments." Instruments bearing the same name are apt to vary in shape. Some forms are certainly better than "other some." Certain good forms and types are apt to go out of fashion, to "get out of print," and to be superseded by inferior types. It is often difficult to get the best type of instrument, or to renew a lost form, so great is the tendency to degeneration and departure from the original type. Take as an illustration one of the simplest and most frequently used, a "scalpel." How rare it is to meet with a scalpel of good form; and yet we have the pattern admirably drawn in the work on *Surgery*, by that master hand in the selection, designing, and handling of instruments, Sir William Fergusson.

The scalpel should be to the surgeon what the pencil is to the artist. The surgeon should be conscious, even with his eyes shut, where the point of his scalpel is, his eye should be upon the tissues he is about to cut, not in continual search for the point of his instrument. And how can he feel where the point of his instrument lies unless the point be central; and how can the point be central except the scalpel be truly lancet shaped? How few of our instrument makers, turn out truly balanced central pointed scalpels. Fewer still can keep our scalpels in order without grinding the point away until it reaches the level of the back of the knife, giving us, instead of the beautiful, sawing, lancet-shaped curve of edge, an edge belly shaped, flat towards the point, ready to be blunted by the first plunge into the skin.

THE DIRECTOR. A.

Another simple, universally used instrument, is the "director," which is rarely met with of good form, as generally offered for sale. It is straight, instead of having an elegant double curve, slight indeed, but such as would enable the surgeon to insinuate the instrument along curving passages, or more conveniently to bring the point to tell from beneath against the skin. It is often too deep or too narrow in the groove, and the groove, instead of shelving off to a vanishing point and allowing the bistoury to continue its course, ends in a full stop, and spoils both the course and the point of the knife. Another faulty point is the handle. A director should be capable of being held firmly, the handle being substantial, not thin, long enough and not stumpy, and horizontally roughened and not slippery. You may perhaps think this a long tale about a small matter.

CATHETERS AND SOUNDS. B. C. D.

The metallic catheter or sound is, or was, an instrument used by nearly every medical man. As with the scalpel so with the catheter, the surgeon should be able to feel, that is to be conscious, where the point of the catheter or sound is, and without seeing it, as he cannot have his eye upon the point when in use. In order that we may feel where the point of the catheter is, the straight stem should be continued into a true curve, that is, a segment of a single circle, probably exactly a quadrant. And yet what do we generally find? A curve, which at one part is the curve of a one-sized circle, at another part is a curve of a circle of a different size, or the catheter may terminate with about one inch of its length which is a segment of no circle whatever. The same applies to sounds, and even to some sets of Lister's sounds. My own had to be remodelled and brought to a correct curve.

VOISELLUM FORCEPS. G.

Perhaps no single instrument has been made in greater variety of form and shape than the "voisellum forceps," of which I possess a considerable variety. The principle on which the majority are formed is that of one, two, or more pairs of teeth or claws, or fangs, which sometimes fit accurately when closed, so as to present no projecting points, sometimes expose unguarded points which interfere with easy manipulation, and may prick the surgeon's finger when guiding them to their destination.

Probably the best of this class is the hawk's-claw forceps, designed by Mr. R. B. Hewetson, of Leeds, copied from a bird's claw. It consists of five prongs, which fit so accurately at the points as to present when closed a smooth rounded surface. Forceps of this class are essentially grouped hooks, and like hooks are apt to tear through tissues when any forcible drag is put upon them. The needs of abdominal and uterine surgery have, however, created a demand for a form of forceps which shall be capable of maintaining a firm grip without tearing of tissue, even under the stress of considerable drag. This need forced itself upon my attention when working out a satisfactory method of rapid dilatation of the os and cervix uteri. Marion Sims taught us the value of drawing down the os uteri by a hook. But the hook will not provide for a prolonged and powerful drag, such as is needed to fix the uterus in dilating the os internum. The other forms of hook were tried, and the claw-like volsellum forceps, and all at times disappointed me, until, taking a hint from a small pair of forceps which were found in the collection at the Leeds Infirmary, I had made by Messrs. Weiss a pair of forceps which has proved most satisfactory. The teeth, seven in number (three and four), are short, and so fit into one another when closed, that they not only act as seven hooks, but also close upon and nip firmly the tissues that lie between them. They are also provided with a catch, so that they will hang, or can be held by a single finger passed through one ring. The key to satisfactory uterine dilatation is the power of holding the os uteri down towards the vulva, and no form of forceps that I have met with is equal in efficiency to the one now described. Had I possessed them years ago, they would have saved me hours of work, and perhaps sometimes failure, in operations for vesico-vaginal fistula.

THE TWITCH TOURNIQUET AND TORSION CLAMP. H.

Some years ago Messrs. Weiss made for me an instrument named the "twitch tourniquet," which has not yet been described in print. It has proved useful to me on many occasions, as an easy means of controlling the cord in extirpation of the testis, as a more handy and manageable clamp in amputation of the penis than the ingenious vulcanite plate of Clover, and as an aid in removal of intra-uterine fibroma. The idea was suggested by the "twitch" used by veterinary surgeons for controlling horses by a hold on the upper lip. The idea stood me in such good stead when in a great fix not long ago that I have developed out of it the "uterine torsion clamp," designed to do the work of Kœberlé's and Lawson Tait's clamp in hysterectomy. The emergency was as follows: A few months ago, when operating on a supposed simple ovarian tumour at the Leeds Infirmary, I unexpectedly found that it was so completely united with the back of the uterus that I must include the uterus in the pedicle. Kœberlé's clamp was produced, but the screws would not bite, and we had no other clamp at hand. We were suddenly face to face with an extreme difficulty. Mr. Littlewood, who was assisting me, suggested the wire *écraseur* as a way out of the difficulty, and the thought struck me at once that, having surrounded the pedicle with the wire, I might tighten by torsion instead of by the mechanism of the *écraseur*. The result was so satisfactory that I determined to modify the "twitch tourniquet" so that it might admit of the use of suitable flexible wire, which, having been tightened by torsion to any desired extent, could be released and left on the pedicle as a clamp.

CONCLUSION.

Those of my hearers, and readers, for an address to the British Medical Association is practically delivered *urbi et orbi*—those, I say, who have expected to hear a triumphant record of the astonishing progress of surgery, or a paean on our local surgical achievements, may be disappointed at the humble theme which I have attempted to work out, and may think that I have failed to do justice to colleagues who have done much to leave a mark upon the progress of surgery. My aim has been not to sound the praise of individuals, much as they deserve it, but rather to leave an impression on the practice of surgery.

If any of you shall have been induced to study afresh, and from the point of view put forward in this address, the question of division of an artery between two ligatures, the bearing of the sphincter ani upon the surgery of the rectum, and disturbed functions of the colon; the substitution of Lister's sounds for older methods in the treatment of stricture; the emancipation of "drainage" from red-tape rules; and, lastly, the proper method of administration of ether so as to raise it as an anæsthetic to a position of incontestable superiority to chloroform; if such should be the outcome of this address, your time in listening will, I trust, not have been wasted, and my labour in composing it may not have been in vain.