ment. So far the greatest success has been in dealing with microbes outside the system, as in antiseptic surgery and preventive medicine, and further triumphs are to be hoped for in this direction, as, for example, in the prevention of tuberculosis. We have as yet little evidence of the power of antiseptics to follow and destroy the microbes when they have once got possession of the system. Quinine, however, kills the malarial plasmodium, and we have now the antitoxic serum. Apparently, too, one virus may be antagonistic to another, and an attack of small-pox has often seemed to cure phthisis. We must continue our efforts to apply antiseptic principles, but it is most important that we should not allow ourselves either to imagine that we have obtained effects which have not been realised, or to attribute results to antiseptics which may have come from other causes. It is not yet clear that any considerable impression has been made on the mortality from phthisis by guaiacol or creasote; and was not sulphuretted hydrogen, injected into the rectum, to deliver us from this scourge?

It was inevitable, again, that we should be greatly struck by the remarkable power of lowering the temperature possessed by the antipyretic class of drugs. We seem to have within our reach the means of dealing with our most formidable enemy, and it is a great triumph to be able to point out to friends the effect of our remedy on the temperature chart, especially when it has been accompanied by relief of headache and other symptoms. Here it is very important that we should maintain an attitude of cool observation, and not conclude that in bringing down the temperature we have necessarily exerted a favourable influence on the course of the disease. We may have been bringing down also the patient, and it is not so certain that Nature does not know her business when she sets up febrile reaction. I feel myself justified in re-echoing the warning given by Dr. Douglas Powell on this point.

But it is time that I should bring this long and disconnected address to a close, and in thanking you for the patient attention with which you have listened to it I congratulate you and myself that we live at a time when the art of medicine has made such progress, when science in its application to medicine has brought such marvellous and such beneficent aid to therapeutics, and when our beloved profession stands so high in the estimation of the world.

ADDRESS IN SURGERY

BY

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At the Annual Meeting of the British Medical Association at London, July-August, 1895.

THE LATE MR. DURHAM.

MR. PRESIDENT AND GENTLEMEN,—My first words must of necessity be an attempt to express the deep regret which you and I alike feel at the sad event which has been the cause of my coming before you. We had all looked forward with high anticipation to the pleasure of listening to an address on surgery from Arthur Durham. The hand of death has snatched him from us, and put a stern veto on our hopes. It is not too much to say that the whole profession deplores Mr. Durham's too early death as a heavy loss to surgical science, whilst to many of us it brings in addition deep sorrow for a much-loved friend.

The peculiar circumstances under which, at the desire of my friends and at very short notice, I have undertaken to give this address will, perhaps, plead my excuse if I avoid all attempt to bring before you anything original: I purpose rather to offer you a brief retrospective glance at the surgery of past, interspersed with a few comments as to what may be hoped for in the future.

SURGERY IN 1750.

In the year 1750 there was published in London by one of Mr. Durham's many distinguished predecessors, A *Critical Inquiry into the Present State of Surgery*. Samuel

Sharp was not only surgeon to Guy's Hospital, he was Fellow of the Royal Society and a man of acute and original mind. He wrote good English, he saw for himself, and he travelled, not merely for self-gratification, but in search of professional knowledge. His work was to some extent the result of a visit to Paris, and he displays familiarity with the practice of all the Continental surgeons of his day. His *Critical Inquiry* was received with so much favour that it was translated into French, German, and Spanish. I may, therefore, fairly take this book as representing the opinions of the day, and as affording to us fair criteria as to the topics which most interested the surgical world in the middle of the last century.

"DREADFUL IN THE DOING, OR MELANCHOLY IN THE EVENT."

Mr. Sharp thought well of his times and his compeers. In his preface he writes, "Perhaps there never was a period of time in which any art was more cultivated than surgery has been for these last thirty years." This, we may remember, was written when Pott was in his prime and Hunter a young man. It may perhaps not be without instruction for us if I glance for a few minutes at the topics which mainly claimed Mr. Sharp's interest. To begin with he dismissed luxations and fractures with the statement that all eminent surgeons were agreed as to the method of treating them. With an almost similar remark he put aside "tumours, wounds, abscesses, and ulcers," asserting that their treatment is "fundamentally the same in every country of Europe." His optimistic belief that finality had been attained in these large departments is to be regretted, for it much restricted the scope of his interesting *Inquiry*. His thirteen short chapters concern hernia, lithotomy, amputations, concussion of the brain, tumours of the gall bladder, extirpation of the tonsils, hydrocele, and a few other matters. A small 8vo of less than 300 pages, and in large type, suffices for what he has to say. Let me repeat that what he does say he says well, but how little there is of it, and how restricted are his topics! What a contrast is presented with the almost limitless multiplicity of the subjects which in the present day claim the attention of his successors! Mr. Sharp's chapter on the extirpation of the tonsils contains a strong recommendation of this simple measure. He remarks "there is not an operation in surgery that in my opinion ought to give an operator so much encouragement. It is neither dreadful in the doing nor melancholy in the event." From this remark we may infer much as to his general experience respecting the major operations of his day. He wrote before the days of laparotomy for intestinal obstruction, and when he gloomily hinted at procedures which were either "dreadful in the doing or melancholy in the event," his thoughts probably went no further than excisions of tumours, amputations, and cutting for stone.

SURGERY IN ENGLAND A CENTURY AGO.

Somewhat more than half a century later another important work appeared on the same lines, but far more thorough in character than that of Mr. Sharp. M. Roux, the distinguished surgeon of La Charité, spent a month in London engaged in the diligent investigation of English surgery. On his return to Paris he published the results of his observations. He had seen Lawrence, Brodie, and Bell operate; of the two former he speaks as young men. With Cooper, then in his prime, he had held controversy as to the possibility of bony union in fractures of the neck of the femur, and had promised to send him a specimen which should remove all doubt. Between the dates of Sharp's *Critical Inquiry* and Roux's *Relation d'un Voyage* the whole of John Hunter's career had passed. The "Father of Scientific Surgery" had now been twenty years in his grave, and the great work of his life, that triumph of genius and industry, his Museum, was already well housed under the guardianship of the College of Surgeons. Roux visited this Museum, and he notes over and over again the extraordinary love which English surgeons had for anatomical preparations.

I do not purpose now to occupy your time by any analysis of M. Roux's book, but I put it forward as a very valuable recapitulation of the surgical knowledge of the day as regards its two most important schools, Paris and London.

As my design is to make some comparison between the present and the past, I shall find occasion hereafter to recur to M. Roux's statements in reference to various special subjects. Some of his more general impressions it may, however, be suitable to briefly mention now. He held that England and France were really the only rivals in the art of surgery. Germany, Italy, and Holland had each, he admitted, produced their names, but they had been isolated and not of the first rank. It did not occur to him to even mention Austria. Russia was but just emerging from barbarism, and the United States, not yet more than twenty years independent, had given no indications of that praiseworthy activity which has been since so successfully displayed.

He found the London hospitals behindhand as regards the classification of their patients, only one of them (the London) having as yet attempted to separate medical from surgical cases. London operators he thought skilful but terribly slow. One of the best of them he had seen take twenty minutes in the doing of a circular amputation which any Paris surgeon would have finished in a quarter of the time. He thought the attention given to the management of fractures in England much inferior to that in Paris. He much regretted to observe that not only in London but in some other large cities special institutions had appeared for the treatment of diseases of the eye. These he thought to be good neither for the profession nor for the patients. Whilst I cannot agree with him in this, I venture heartily to applaud the sagacity with which he detected a weak point in the management of the Royal College of Surgeons ("*un vice essentiel de cette institution*"). He was amazed that an institution for the advancement of surgery should devote most of its lectures and the best part of its museum space to comparative anatomy. These subjects ought he held to find their place in a museum of natural history. Would that he could see it as it is now. The best part of the new wing, erected at vast cost, is now nothing more than a reading room or place of study for young anatomical students, and its walls are occupied by a collection of skulls and skeletons which have no connection whatever with our art. In place of a museum of clinical surgery, we have a Golgotha of anthropology.

This allusion to the present into which I have been betrayed reminds me that I must here leave M. Roux and his book, and pass on to another and more modern epoch.

SURGERY IN THE LONDON HOSPITALS FORTY TO FIFTY YEARS AGO.

In the year 1854 Mr. Spencer Wells was the zealous Editor of the *Medical Times and Gazette*. I had the honour to be his junior coadjutor. He determined amongst other projects to endeavour to bring to light the real facts as regards the results of operative surgery, and a plan was devised for the systematic publication in a classified form of all operations performed in English hospitals.

The scheme was wholly Mr. Wells's, but I was entrusted to carry it out. For nearly three years brief records of all hospital operations, collected, as far as we could attain it, with scrupulous regard to accuracy, were regularly published. I hope I shall be pardoned for adverting to a topic which is to some small extent personal, but I believe that those reports were not without their influence on the development of surgical knowledge, and that they present a more accurate picture of hospital practice a quarter of a century ago than can easily be found elsewhere. As such I ask your permission to use them, together with the two books which I have mentioned as supplying material for contrast with the present. These reports were commenced in 1855, and came to an end in 1858. The task of collecting the materials was of the utmost use to my own surgical training. I was every day in the operating theatre of one or more hospitals, and in constant confidential communication with the hospital surgeons of the day. The statements published were in most instances revised by those whom they concerned. It will be easily understood that in many instances I was cognisant of details which it was not permissible to put in print. In this way I was enabled to form strong and clear opinions on various points in practice, some of which have been borne out by subsequent experience, and others not. Amongst others I well remember that there was a time when Mr. Wells, as

well as myself, regarded the operation of ovariectomy as not much removed from manslaughter. We knew of fourteen cases in succession at different institutions, every one of which had ended in the death of the patient. There was a rumour about the same time that a well-known coroner had threatened Mr. Baker Brown that he would hold an inquest in the next case in which he did the operation. Another operation in reference to which I formed a strong prejudice was that of lithotrity. Although at this date Sir Benjamin Brodie had in private practice obtained satisfactory results, and had devoted much attention to the improvement of instruments, yet I could see nothing at the hospitals that was encouraging. A not inconsiderable number of the patients did actually die after it, and of the others it appeared to be the fact that scarcely any were really cured. They were perennial patients, and the same unfortunate man would appear over and over again to be subjected to a repetition of the same tortures. There was no single operation respecting which it was so difficult to secure trustworthy reports, and in many instances the cases which I was obliged to record as "cured" were, I strongly suspected, not really freed from stone. It was, of course, long before the days of litholapaxy when it was the custom to break a stone into fragments and leave them to find their way out as best they could. The impression which I formed of this operation was such that I determined never to do it; and when in 1853 I was elected surgeon to the Metropolitan Free Hospital, and a good share of stone cases fell to my lot, I invariably did lithotomy. This rule was continued during my surgeoncy to the London, and in contrasting my success with that of some of my colleagues, who frequently used the lithotrite, I found nothing to regret. When, however, Bigelow taught us how to complete the operation at one sitting and to remove all fragments, I saw, almost with regret, that lithotomy must henceforth give place. My fingers, however, needed practice in the new operation, and I found to my chagrin that I could not do it so quickly and neatly as those could who made it a special pursuit. One patient unfortunately died, and I felt very sorry that I had not cut him. I determined that I would not do litholapaxy *propria manu* again, but that I would watch its results in the hands of a specialist friend. From that date onwards I have always on discovering the presence of a stone of a size not demanding lithotomy transferred the patient to my friend. The result has been that during a long series of years we have had not a single death, and what is almost of equal importance, not a single case needing a second operation. All the cases have been adult, if not aged, men, and my list has included two near relatives, two ex-hospital colleagues, two other medical friends, and many strangers. In every instance the recovery has been *cito et jucunde* and the relief permanent. During the same period I have done lithotomy in a few exceptional cases but they have been only a very few, and in other respects there has been no selection and no case has been declined. Lithotrity as practised in our hospitals forty years ago was for the most part a miserable failure; litholapaxy in the present day is, in the hands of our specialists, a joyful triumph. I assure you that I regard the results of my practice in this department ever since I ceased to operate with my own hands with the utmost satisfaction and pride.

OVARIOTOMY AND THE USE OF THE CLAMP.

If, however, the triumph of lithotrity has been pronounced, that of ovariectomy may yet be held to surpass it. This is in part because at one time it seemed yet more hopeless. It needs some courage to attempt, even in the briefest manner, to sketch the history of this victory, so many are the points in dispute and doubt and so much of personal feeling is involved. Let me say then in beginning, what none but a churl will dispute, that to the operative skill, the patient attention to detail, the indomitable determination to go on from good to better, which through a long series of years were displayed by him whom we now honour as Sir Spencer Wells, the credit is mainly due. Yet Mr. Wells was by no means the first in the field, even in what we may consider the modern revival. Mr. Wells and myself did our first operations within two months of each other—he in February, 1858, I in May of the same year. But Mr. Baker Brown had been doing it for several years before, and he was present at both Mr. Wells's first operation and my own. From this date

ovariotomy took a new start. Successes were obtained, the cases were brought before our societies, and surgeons began to be hopeful. For many subsequent years it appeared as if the principle of keeping the end of the pedicle outside the abdomen was the main improvement. This plan I had practised and advocated from the first, and I had devised for its better accomplishment a clamp, which came into general use and held its ground for a decennium. Mr. Wells had in the first instance dropped the pedicle into the abdomen, bringing its ends out at the wound, and he considered the latter point an advantage, as keeping open a track for the escape of matter. His first case and mine alike recovered, but his after much "fœtid discharge" from the abdomen, and mine with primary closure of the wound. He subsequently used my clamp, and in a letter published many years afterwards very generously acknowledged his indebtedness to it. Mr. Baker Brown also very promptly adopted the clamp. Such having been the circumstances, I may, perhaps, be pardoned if I confess that there was a time when I allowed myself some gratification in the thought that I had myself taken some share in furthering the success of this important and life-saving operation. I bore with such equanimity as I could the discovery that I could not compete with my friend in the ratio of successes obtained, and acting on the rule of conduct that I would never keep a patient in my own hands if I believed that someone else could do what was needed with greater prospect of success, I gave up doing ovariectomies both in public and in private, and used to transfer my patients from the London to the Samaritan Hospital. As to the explanation of my comparative want of success I always felt in some doubt. That I could not keep my experience of the operation on a level with that of Mr. Wells was certain, for he had a special hospital and I only a general one. That lack of the skill which comes only from constant practice was not the only explanation, if indeed the chief, seemed proven by the fact that I had lost some of the very easiest cases which had made no demands on special skill. I was driven to the conclusion that as surgeon to a large general hospital, and in attendance upon all sorts of cases, and erysipelas amongst the rest, I could not keep myself from risks of contagion so completely as was accomplished by the precautions which were at that time enforced at the Samaritan. Another disappointment, however, awaited me. The time came that the clamp was discarded, and with it the principle which I had cherished of extraperitoneal treatment of the pedicle. Operators fell back on the old practice which had apparently been a great failure of cutting off the ligatures short and dropping the pedicle into the abdomen. This plan had been tried in a few cases during the reign of the clamp by Dr. Tyler Smith, and with much success. Mr. Wells was induced to resort to it, but soon returned to the clamp. Finally, however, it has gained the day. No one now practises any other method, and the clamp has even been disparaged as unsurgical. It is one of the many difficult problems which changes in surgical practice offer for our investigation to explain why a method of practice which seemed so fatal formerly should be so successful now. In part it may have been that we did not try it fairly, and that the assumption that the tied end of the pedicle must necessarily slough and infect the peritoneum prevented us from giving the method an adequate trial. It may have been that we did not in former times attend sufficiently to the various details included in the expression "toilet of the peritoneum," and it is quite certain that we were at time ignorant of the use of antiseptics. Probably the truth is that the latter have made safe what was dangerous formerly, and thus it possibly remains to be the fact that the clamp and the extraperitoneal method which it emphasised did really win the day for ovariectomy at a time when no other tactics would have succeeded.

SPECIALISTS AND PERSONAL SPECIALISM.

I must hasten to other and yet wider topics. M. Roux, as I have told you, saw with much disapprobation the beginnings of specialism in London. He found new hospitals for diseases of the eye, which he thought likely to prove injurious to the interests both of the profession and the public. Many years after the date of his visit to our metropolis I had

myself opportunities of witnessing the results of this prejudice in the wards of M. Roux's own hospital. I then saw cases of extraction of cataract treated in the open ward, and by the hand of the general surgeon. I saw eye after eye lost by suppuration. The same might, I admit, have been witnessed in some of our London hospitals, but not so frequently nor at so late a date. Common sense won the day somewhat sooner amongst us. The victory of specialism in diseases of the eye is now acknowledged by all, even by many who still echo M. Roux's prejudices in reference to specialism in many other departments of our art.

Can we, however, refuse to recognise the lesson which the modern practice of such operations as lithotomy and ovariectomy teach us? Are there not also many other procedures which stand on precisely the same footing? Would anyone allow an inexperienced surgeon to extract a gall stone when the services of one who had done many such operations were at hand, or entrust the removal of laryngeal growths to any surgeon, however skilled, who was not specially trained as regards that operation? If we could get the gross statistics of ovariectomy and lithotomy for the whole kingdom, I much fear that the ratio of success would be found to fall lamentably short of that habitually secured by our best specialists. I designedly speak of specialists rather than of special hospitals, for it is quite possible that the latter may, when the staff is large in proportion to the number of beds, cease to afford the advantages as regards individual experience which they are designed to do. Good specialists are, besides, sometimes developed quite independently of special institutions. The late Mr. Gutteridge, of Birmingham, is reported to have made a proposal that he should be appointed lithotomist to the United Kingdom, for the reason—almost sublime in its simplicity—that he could do the operation better than anyone else. He had never had any hospital appointment, yet I have been told by those who knew him well that his allegation was no mere empty boast. The remarkable results in litholapaxy in children obtained by Dr. Keegan in India, those of Sir Henry Thompson in lithotomy in adults, those of Mr. Macewen in brain surgery, and those of Mr. Mayo Robson in operations on the gall bladder are all of them, I think, good examples of what we may call personal specialism. Of these personal specialists it may further be alleged that not only do they develop remarkable skill themselves, but they almost invariably succeed as teachers in imparting their skill to others. Most of those whom I have named have in this direction had a wide influence, and there was a time when surgeons flocked from all parts of Europe to learn from Mr. Spencer Wells how to do ovariectomy with success. A man who thoroughly understands his subject in all its details can treat it with an efficiency and ease which are wholly unattainable by others. To encourage specialism in many branches of operative surgery is, then, I cannot but think, in consonance with common sense and common humanity.

THE INCREASE OF OPERATIVE SURGERY.

If any enterprising journal of the present day should undertake the publication of operation-statistics on the plan which I have described as devised by Mr. Spencer Wells thirty years ago, we should soon have before us materials for a most interesting comparison with the past. In the first place I do not doubt that we should be astonished at the enormous increase in the number of operations. Formerly one "operation day" a week was thought sufficient for most hospitals, then it increased to two, and now I suppose there are a few institutions in which every day is not so regarded. Nor is this only in hospital practice. Operations in private practice have probably increased in still greater ratio. I well remember the institution of the first nursing home in London, and a very modest one it was. Before that we had to take our patients into hotels or private lodgings. Now, in addition to such luxurious establishments as Fitzroy House, we have Homes and Hostels for the sick without number. There are West-end streets in which every other house is so occupied. The patients are, I believe, in great majority surgical cases, though by no means exclusively. These institutions are, without exception, managed, if not to perfection, at any rate with a degree of excellence above what was dreamed of half a century ago. If I praise the nursing homes what shall I say

of the nurses? Not a home is opened but it becomes provided at once with a troop of beings who, fair, intelligent, gentle, and indefatigable, would seem to have been created for their special work. What this class of young women did before nursing was invented is a constant puzzle to me. Its difficulty is equalled only by the question as to what becomes of them, for I never have yet seen one who was even approaching middle age.

If it be asked what are the special operations which have thus increased, the reply must be that they are most various, and that on the whole they are such as conduce most definitely to mitigate suffering and to prolong life. Permit me to take one as an example. It shall be one in which the development of sound doctrine as to pathogenesis, rather than augmented surgical daring, has gained the triumph. No one ought now to die of cancer of the tongue, for nothing except neglect of the early stage can bring about such a result. It is the doctrine of "the local origin of cancer" and of "a precancerous stage" which has placed us in this position. In former days no operations were, with the rarest exceptions, performed for this disease; and if they were, it was in the late stage, when, to use the forcible expression which I have quoted from Mr. Sharp, the procedure was both "dreadful in the doing and melancholy in the event." Cancer of the tongue was, in fact, hardly ever diagnosed until it was too late to operate. One of our most popular surgical manuals taught that enlargement of the lymphatic glands in the latter afforded one of the best means of distinguishing between syphilitic and cancerous disease. We should now regard it as evidence of almost culpable delay, and as implying that the case had advanced too far for surgical aid. That distinguished surgeon Mr. Syme was a pioneer in this branch of operative surgery as in many others. I well remember to have been one of a crowded audience in the theatre of the Edinburgh Royal Infirmary, assembled to witness what I had never seen before—an excision of the tongue. The symphysis of the jaw was sawn through, and its halves dragged apart. The operation was most dexterously done; it was most complete, but at the same time it was most formidable. The patient died a few days afterwards. This case was, I believe, the third in succession that Mr. Syme had lost, and he as a conscientious man determined never to attempt it again. There are surgeons now living—more than one—who can boast of their operations for cancer of the tongue by the score, if not by the hundred, and with no appreciable mortality. These are not, however, cases such as those which alone Mr. Syme attempted; a majority of them are cases in which the operation is in itself a mere trifle—the excision, it may be, of only a very small part of the organ. Year by year the number of cases in this category increases, and that of those in advanced stages diminishes. What hinders that all cases of cancer of the tongue should be submitted to operation in the earliest stage? Nothing excepting defective diagnostic capacity on the part of members of our own profession. The fault is but rarely on the part of the patient. I never yet met with a patient to whom it was kindly yet confidently told "You have got cancer" who did not gladly and without delay assent to what was recommended.

THE ADVANTAGES OF EARLY OPERATION.

In another department of surgery our work has also enormously increased, partly in connection with improved methods and partly from sounder principles of diagnosis. In the case of the tongue it is improved diagnosis only whilst in that of the female breast it is that in large part, but in still larger the modern methods of dressing which now enable us to promise to the patient a painless operation and a speedy convalescence. There never was anything formidable in the performance of an excision of the breast, but I well remember the time when the prospect of a febrile illness with troublesome suppuration and a succession of dressings scarcely less distressing to the patient than the operation itself, acted as a very powerful motive to the surgeon for delays which were very dangerous. No case was ever operated upon until the diagnosis was as clear as daylight, and until in but too many instances the disease was far advanced.

The class of symptoms by which our textbooks taught us as students to recognise cancer of the breast were for the most part, as in the case of the tongue, those present only in

the late stage. Those which we now teach to our students are of a wholly different class. What would be thought of the surgeon in the present day who should inculcate reliance upon such matters as the retraction of the nipple, the "saddle-leather" state of the overlying skin, or the unhealthy condition of the ulcer. We now trust solely to the trained finger to recognise the character of the induration, and we lay down an inexorable precept that if there be any reasonable doubt the breast should be removed. Our patients as a rule accede without much reluctance to our recommendations, for they know from general report that the modern operation is a mere trifle. The result of this change of practice is that the statistics of cancer of the breast must be rewritten. Those collected so laboriously three or four decades ago are no longer in the least applicable to our present results. Permanent recoveries after removal of the breast for scirrhus as after those of part of the tongue for epithelioma are now common in the practice of all operators.

THE EDUCATION OF THE SURGEON.

So much has been said or implied in the discussion of the last two topics that the present becomes a suitable place to introduce a few remarks upon the all-important topic of the educational training of the surgeon of to-day. The great examining bodies which exercise such a large influence over the destinies of our profession in presiding at its admission-portals have recently decreed that the education of the medical student shall be extended over five years. For myself I may say that, although in committees and council-rooms I have always consistently given my vote in favour of this addition of a year, I have never been a warm advocate of the measure. It has always appeared to partake too much of the faith that if you only keep a horse long enough at the water you can make him drink. The additional year must make medical education more expensive and may possibly hinder some of precisely the class which we wish to attract.

The suggestion which I have made as to lithotomy—that it is a very successful and happy procedure in the hands of a man well practised in its performance, but much the reverse in those of a novice—leads on to the remark that there are many others in the same position. There are operations which are good in themselves, and based on sound rules of surgery, but which are yet not for every surgeon's knife. Concerning many it is true that anyone decently trained on the dead body, and clever with his hands, can do them just as well as the experienced operator. Amputations, excision of tumours, resection of joints, ligature of arteries, and many others come into this category. Respecting these the old adage which declares that a barber learns his trade by practising on fools does not apply. Some of them are besides of such a nature and so rarely required that no one can possibly obtain much personal experience. Others there are, however, respecting which I cannot but think that the canon of surgery should be that unless the skilled diagnostician and the skilled manipulator are at hand it is to the patient's advantage that they should be avoided altogether. In that category I place with many others operations on the gall bladder and kidney, those for cancer of the bowel, laparotomies for obstructions, and trephining for abscess or tumours of the brain. In most of these the patient has some chance of recovery if he be left alone, whereas he has almost none if an unskilled operator take the knife in hand.

The estimate of the patient's chance of recovery and prospects of life without operation have been strangely neglected by some zealous operators of the present day. To put it in other words, in order to justify the plans which they recommend, they have, as it seems to me, drawn far too black a picture of the alternative probabilities. When Sir Everard Home's big silver catheter for enlarged prostate was laid aside, and we found that a soft rubber or gum flexible tube could be got in just as easily, and that the patient could be easily taught to use it, we were some of us sanguine enough to believe that the horrors of the senile prostate were pretty much at an end. For myself I may confess that I think so still.

Few, indeed, have been the cases in which of recent years conditions have presented themselves in connection with enlarged prostate which have seemed to require any other measures than the flexible catheter and the irrigator, and many are those which I could quote in which patients who

for a time suffered severely are now leading comfortable lives. Yet we are gravely asked to believe that when a man has had his testes removed, and subsequently passes his water better than he did, the improvement is consequent on the operation. We might as logically attribute it to his having had his hair cut. Operations upon the prostate itself stand on a different footing, for it is obvious that, if the patient survives the excision of the middle lobe, he is as a matter of mechanism in a better position than he was. These procedures are, however, in themselves dangerous, and I submit that the nature of the disease is not such as to demand them.

Many years ago I was the consultant in a case in which a lady had a cicatricial stricture of the œsophagus. We had tried bougies most carefully without success. She could swallow nothing, and death by starvation seemed imminent. The hour for the operation of gastrostomy was accordingly fixed and all preparations made. On the preceding evening I made, under an anæsthetic, a last attempt to get a small instrument through the stricture. I did not succeed, but very shortly afterwards the patient drank some milk. Next morning she could drink better, and I gladly agreed to defer the operation. She subsequently got well without it, and lived in comfort, on fluids, for some years.

About the same time I had in the presence of all my hospital colleagues a patient on the operating table in whom I purposed to open the abdomen for the relief of abdominal obstruction. It was a rare procedure in those days, but I was then an eager operator, and it was with much reluctance that I yielded to the representations of my colleagues, who urged that the case was too far advanced, and that if I proceeded the patient would probably die on the table. This patient recovered, the bowels acted the same day, and she regained good health. These two cases made a great impression upon my mind as to the possibilities in apparently hopeless conditions, and that impression has been deepened by many others which have occurred. Respecting laparotomy for intestinal obstruction of unknown causation, whilst I feel very certain that it should be shunned by all excepting the specialist, I do not feel sure that it is legitimate even to him. Here and there I admit a patient has recovered—a band has been divided, or a gallstone excised, or a kink untwisted. As to the ratio which exists between the survivals and the deaths, we have, however, no statistics whatever. It is a subject in which I have through all my professional life taken a keen interest. These operations were done in my youth. Although more frequent now than formerly, they are no novelties. As a student, I collected such facts respecting them as I could get, and I collect them still.

CONCLUSION.

I have touched, Mr. President and Gentlemen, in, I fear, a very fragmentary manner upon a great variety of topics, and there still remain many upon which I should have liked, did time permit, to have said a few words. I must, however, conclude. If there has been any one connecting thread running through the discourse to which you have so patiently listened it has, I think, been this—the desire to enable you to grasp with clearness and without prejudice the tendencies of modern surgery. In attempting this I have done my best to look at our profession as an organic part of our social polity, and to regard it solely in reference to the public good. The profession of surgery exists not for the enriching or ennoblement of individuals. The operator must not seek to display his own skill or to gratify his own predilections; and the student of physiology, if he be also a surgeon, must always remember that there are other claims upon him than those of devotion to pure science. As practitioners and as teachers we must always keep in mind that our first and foremost duty is to make our knowledge available to those around us. Regarded from this point, it is a source of the keenest pleasure to believe that those engaged during the last half-century in the cultivation of our art of surgery have done their work with honesty and zeal, and with very remarkable success. It has been the work not of few but of many, and not of one or two nations, but has been shared in by the whole civilised world.

The surgical skill now at the command of the community is of a far higher class than it was when Sharp wrote his *Inquiry* or when Roux visited our island. All maladies which

were then wholly outside its scope have been brought easily within its grasp. Nor is it otherwise than a source of satisfaction that, whilst this has been effected, it is probable also that surgical services have been made less costly. In our art, if in anything, it is true that the best things are in the end the cheapest. That which is to the pecuniary advantage of the patient is far from being always the same to the surgeon. The man who improves the art of healing and renders cures more rapid does so very often greatly to his own disadvantage so far as emolument is concerned. This is, I think, an aspect of the case which we may very fairly offer to the attention of the public when we ask it to find material support, not alone for our hospitals, but for the schools of medical teaching which are associated with them. The effort of the profession to improve the standard of knowledge is one in which we all take pride and pleasure, but it is far from being conducive to pecuniary gain.

Mr. President and Gentlemen, I thank you for the patience with which you have listened to my address: I conclude with an expression of faith, in which I feel sure we shall all agree, that we have reason to be very thankful for the progress of the past and very hopeful for that of the future.

AN ADDRESS

DELIVERED AT THE OPENING OF THE

SECTION OF MEDICINE,

At the Annual Meeting of the British Medical Association, held in London, July-August, 1895.

By F. W. PAVY, M.D., LL.D., F.R.S.,
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MICROBES, TOXINS, AND IMMUNITY: A PRELUDE TO THE DISCUSSIONS TO TAKE PLACE AT THE MEETING.

DIVISION of labour constitutes one of the results of civilisation. In our calling as members of the medical profession our province is to combat disease. It is through the medium of knowledge that we perform our part. One of the primary objects of the British Medical Association is "the promotion of medical and the allied sciences," and we meet here to-day to further this object. Science expounds and art applies. Through science the knowledge is attained. Art then steps in and is associated with the application of the knowledge to a practical end—in other words, with the exercise of our calling as medical practitioners. Upon knowledge our usefulness depends. It is knowledge which gives us the power to shape conditions in such a way as to produce a desired effect. We command the attainment of results by the knowledge of how to provide the conditions for bringing them about. Under the idea entertained previous to the discovery of the circulation that a vital spirit from the air existed in the arteries, and that the blood ebbed and flowed in the veins, how was it possible for practice to be based upon anything sound? From this time our position has advanced first in one direction and then in another until now, when it may be considered that our art is based upon exact science. Anatomy, minute anatomy, physiology, pathology, and the study of the precise action of drugs have all contributed their share to placing us in the position we now occupy. A new line of study, however, has recently sprung up which has opened out an entirely fresh view before us. But a few years ago bacteriology was unheard of, and look at the important information it now gives us. A new departure has been created by it in both medicine and surgery. In relation to operative surgery it has laid the foundation for success which was previously thought to be quite unattainable, and in that branch of practice it has led to the production of greater surprise than in our branch, as the now known effect upon the healing process of the exclusion of micro-organisms had not hitherto entered the mind. In medicine, on the other hand, suspicion has for a considerable time existed that certain diseases might be attributable to the invasion of the system by micro-organisms. Our countryman, Dr. William Budd, in 1849, urged that cholera and typhoid fever were due