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Contributors

Thornton, John Knowsley.
Royal College of Surgeons of England

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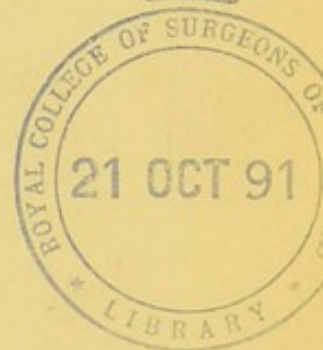
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ABDOMINAL SURGERY PAST AND PRESENT. 2

OPENING ADDRESS.



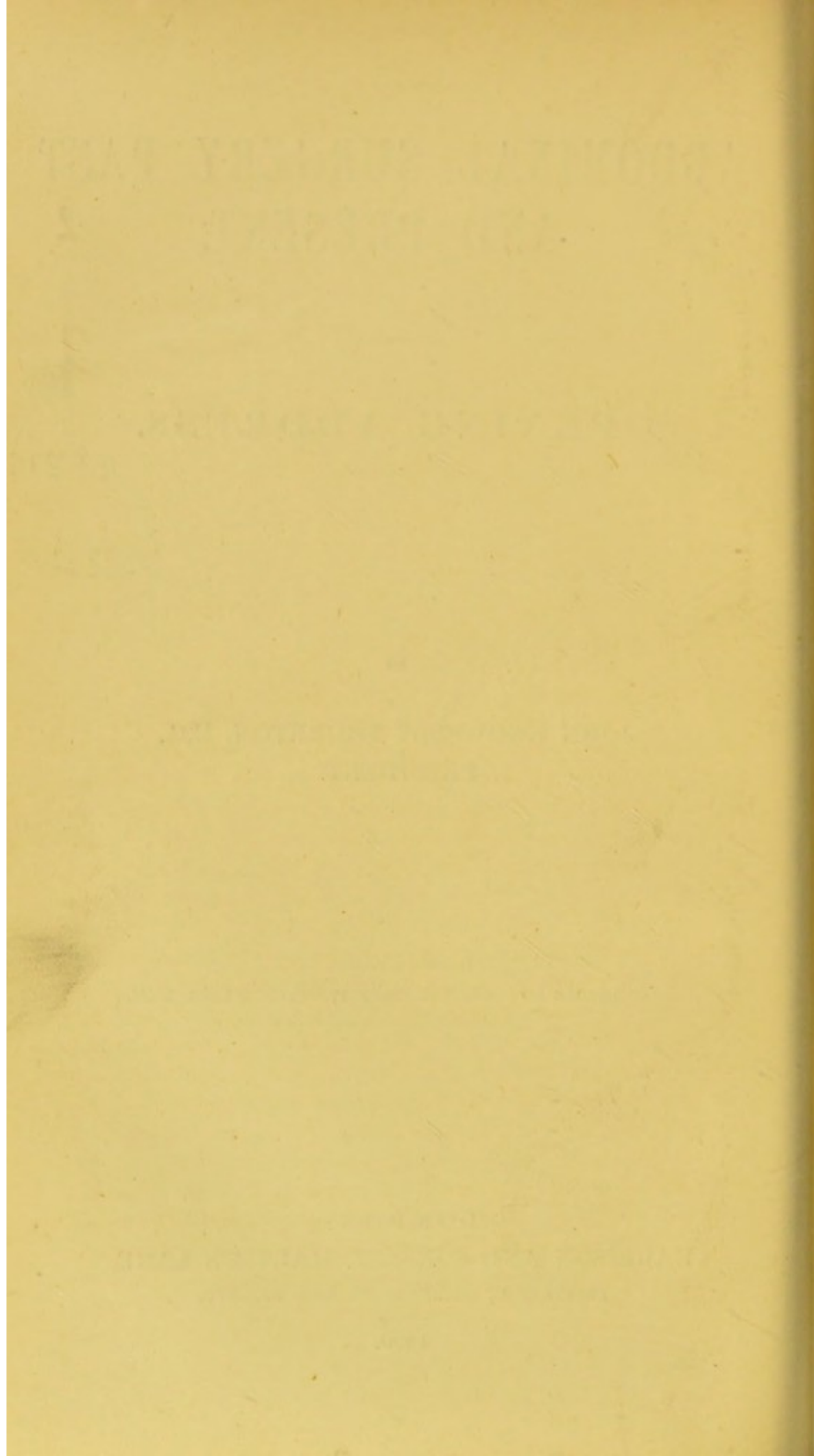
BY

JOHN KNOWSLEY THORNTON, M.C.,
PRESIDENT.

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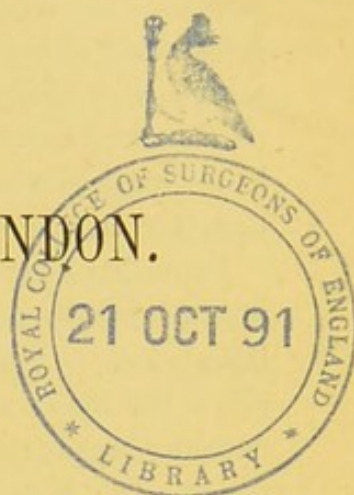
October 20th, 1890.

OPENING ADDRESS—ABDOMINAL SURGERY PAST
AND PRESENT.

By the President, JOHN KNOWSLEY THORNTON, M.C.

FELLOWS OF THE MEDICAL SOCIETY OF LONDON,—It is, as you are aware, the custom of our ancient Society, that your President shall open the winter session by an address, and it seemed to me, on thinking over the possible subjects for my address this evening, that I could not do better, than speak upon that branch of surgery, to the study of which the greater part of my professional life has been devoted. I propose then, first, to review briefly the past history of abdominal surgery, pointing out, as I recall the work of the past, the causes of its failures, which our riper experience has taught us how, in a great measure at any rate, to avoid, and then endeavour to take stock of our present work, and indicate, to the best of my ability, the directions in which I think advances may still be made, in what I shall venture to speak of as the triumphal march of abdominal surgery.

The operation of ovariectomy must undoubtedly be regarded as the starting point of abdominal surgery, and Dr. Ephraim McDowell, of Danville, Kentucky, as the father of this great operation, and there is every reason to suppose that to his studies under Mr. John Bell, in my own Alma Mater, Edinburgh, he owed the suggestion, which he successfully put into practice in 1809.



McDowell, from his own account of the operation, appears not to have used the median incision, but to have made one nine inches long, parallel to the fibres of the rectus on the left side; the pedicle was secured by a ligature, merely tied round it, and the long ends were brought out at the lower angle of the wound, which was closed by interrupted sutures, fortified by strips of adhesive plaister, applied between every two sutures. Five days later, when he visited his patient, he found her making up her bed, and in twenty-five days she returned to her own home.

From his description of his third case, I infer that the ligature was of whipcord, and in this case he made his incision in the linea alba. In the first case he turned the patient on her side to allow the blood to escape from the peritoneum, and in his second case he appears to have used some other means for cleaning out the cavity; but his reports are very brief, and it is impossible to make out from them the exact details of his operations. It is nearly eighty years since this first great step in abdominal surgery was taken, and for fully sixty years, *i.e.*, down to 1870, or later, but little real advance was made. Ovariectomy became gradually more general, and its statistics slowly—very slowly—improved, and isolated attacks were made upon fibroid tumours of the uterus, enlarged spleens, and other abdominal tumours; but success was the exception rather than the rule, and it seemed as if ovariectomy was to hold the field alone, and with a very heavy mortality. I will now, by an examination of the methods employed during these sixty years, endeavour to show why this stagnation took place.

Dr. Nathan Smith, Professor of Surgery in Yale College, Connecticut, must also be credited as one of the originators of ovariectomy, because he operated at Norwich, Vermont, in July, 1821, with no previous knowledge of McDowell's work, and his method was nearly perfect, for his incision was only three inches; he waited to open the peritoneum till all blood had ceased to flow from the incision through the parietes, and he used animal ligatures, cutting them short and dropping in the pedicle; the patient was walking about in three weeks. Is it not marvellous that, with such a perfect example of good surgery before them, operators should have gone on blundering with long incisions, long ligatures, clamps, and abominations of every kind, piling up the victims till the total is probably equal to the death roll of a great battle?

Two years later Dr. Alban Smith, of Danville, Kentucky, operated, and marked another important step in the correct method of operating, by the pains he took to include the cut edges of the peritoneum in his sutures; his patient afterwards bore two children. He had operated unsuccessfully in 1818, and probably, as most of us do, if we have an open mind, had profited by the knowledge gained by the first failure.

Dr. Rogers, of New York, in 1829, again used short ligatures, tying the separate vessels in the pedicle, and closing the incision; and in 1835 Dr. J. Billinger, of Charleston, undaunted by a previous failure, operated successfully, tying the arteries in the pedicle with animal ligatures, cutting them short, and closing the incision.

In 1843 Drs. Dunlap and J. L. Atlee both performed their first operations; and this marks an important point in the history of the operation, for they are the first operators who may be said to have become specialists, each going steadily on and doing a considerable number of cases, their predecessors only having done an occasional case at long intervals.

Dr. W. L. Atlee, brother of the above, performed his first successful operation in 1849, and was afterwards for many years the leading ovariologist in America. According to Peaslee, himself a well-known operator, and author of a valuable work on ovarian tumours, the total number of known operations in the States up to 1850 was 36, with 21 recoveries, a mortality of 41.66 per cent. Then in the next twenty years the total rose to 739 operations, with the terribly increased mortality of 70 per cent. I have little doubt, from a study of the records of this period, that the long ligature first, and later the clamp, were the chief causes of this lamentable failure.

The long ligature appears to have separated from the nineteenth to the thirty-fifth day, or even later, and during the whole of that period the unfortunate patient had a carefully prepared moist roadway for the causes of putrefaction and death, leading directly from the outer air to the deepest recesses of her peritoneum, and at the bottom of this roadway a lump of half-strangled tissue; and probably the dirty fingers of the nurse, and the still more dangerous fingers of the surgeon, fresh from other suppurating and putrid wounds, had a tug at it daily, stirring up fresh irritation in the remains of the pedicle, which nature was all the time doing

her best to heal, and leaving only too often in the moist silk thus handled, the most deadly causes of future mischief. Shall we marvel that there is a death-rate of 70 per cent., or shall we not rather marvel at the hair-breadth escapes there must have been, and at the marvellous vitality and resisting power of the tissues, of the lucky 30 per cent. who recovered?

Then we must remember that this does not represent the whole early history of ovariectomy, for what strikes one most is the enormous number of incomplete operations; probably this was largely due to the want of anæsthetics, and to the want of suitable instruments for dealing with adhesions and hæmorrhage.

Peaslee still, alas! far ahead of his time, writing in 1865, says: "Recent facts led to the conclusion that the treatment by the ligature cut short, and the pedicle left in the peritoneal cavity, as first practised by Dr. Nathan Smith, will prove to be the best method." Ten years later, when I first became thoroughly conversant with the methods employed by the then leading operators, I however found the clamp in general use, and the mortality only reduced to from 25 to 35 per cent.

I have dealt thus at some length with the work of the American operators, because on their soil the operation had its birth, and by them the young plant was feebly kept alive and nourished, though its offspring mostly perished; but I now pass to consider the history of the operation in our own country, where its greatest successes have undoubtedly been achieved, and where the operators, at last returning to the good teaching of Smith, Rogers, and Billinger, have been rewarded by a success as remarkable as is the long history of previous blindness and failure.

In the 'Philosophical Transactions' for 1724 is recorded a case of ovarian tumour operated upon by Robert Houston, of Glasgow, in 1701, but this is really an incomplete case, for he merely incised and cleared out the tumour, and left a tent in the lower angle of the wound for some days; the patient recovered, and was alive thirteen years later. Both the Hunters discussed favourably the possibility of doing ovariectomy, and, as Tait points out, they were born and brought up in the district where Houston's case was operated upon, and probably knew all about it. I have already alluded to the influence which John Bell's teaching probably had on McDowell, and he was a friend of the Hunters, so that, though we cannot credit Houston with the first successful ovariectomy,

we may well believe that from his venture the operation really sprang into being. Lizars attempted ovariectomy in 1823, but found no tumour, and publishing this case in 1824, he appended the record of McDowell's work, which the latter had sent to him several years earlier (1816). He performed ovariectomy successfully in 1825, using the long ligature for the pedicle. In the same year he had a fatal case with the short ligature. In his successful case he transfixed the pedicle. He had some other unsuccessful and incomplete cases, and the result of his work seems to have been, that the operation was thoroughly discredited in Scotland, and was not again attempted till 1845, when Dr. Handyside operated in Edinburgh. From this time up to 1862, the operation was rarely attempted, and only once with success. But in 1862, Keith appears upon the scene, and henceforth Scotland must take the foremost place in the history of successful ovariectomy; it seems in his hands to have mattered little whether the clamp, the short ligature, or the cautery were used—brilliant results were obtained by all; and, as I know from personal conversations with him ten or twelve years later, he sometimes thought the one method best, and sometimes the other; but I am anticipating, and must return to Keith's work later.

In the sister isle, the operation had been only three times performed up to this time, and always with a fatal result.

In England Dr. Granville operated in London in 1826 and 1827, but the first case was abandoned on account of adhesions, and the second proved to be a uterine tumour. Ten years later, Jeaffreson, of Framlingham, had a successful case, introducing the use of a very short incision, and the same year King and West had successful cases; the latter had another in 1839, and also a failure which is noteworthy as having been performed in a large London hospital—the London Hospital. In 1846 Mr. Cæsar Hawkins first operated successfully at St. George's Hospital. Up to 1842 there had been no successful case in London, though ten successful cases had been recorded in the provinces. In this year (1842) Charles Clay, of Manchester, commenced his operations, and saved three out of his first four cases, and in the same year Mr. Walne had the first success in London. Jeaffreson, writing in 1844, remarks that, "if not the originators of the operation, British surgeons at least deserve the merit of having placed it on anything like a sure foundation." I am afraid, however, the remark

was hardly justified at that time, for there had been no successful case in the metropolis, and only a few with many failures in the provinces. Frederick Bird, Aston Key, Bransby Cooper, and S. Lane, were among those who had the courage to perform the operation in these early days. To Charles Clay, however, must be given the credit of establishing the operation at this time, though I am afraid I cannot see any justification for the title of "the original hero" of the operation given him by Fehr. Undoubtedly he did much to overcome the opposition to the operation by his success, and by the full report of his earlier work; unfortunately he did not continue to give full and accurate reports of all his cases, and hence suspicions arose as to whether his success was maintained. He had 95 recoveries in his first 137 cases, a mortality of 30.65 per cent., a very respectable result when we consider the records of ovariectomy down to 1876, or thirty years after he began his work. The unfortunate hybrid term ovariectomy was first suggested to Clay by Dr., afterwards Sir James, Simpson, and has now become so much a part of the surgery of our time, that we can never hope to substitute a more correct term. Writing in the 'Transactions of the Obstetrical Society,' in 1863, Clay says: "I believe I have been mainly instrumental in bringing ovariectomy before the public, although I have had much to contend with, and have often been grossly misrepresented; still, in spite of every opposition, I have lived to see it established (under proper circumstances) as a legitimate operation in surgery, and practised by others with a fair share of success. Had I never accomplished any other great object in my professional career than this, I still fancy I shall not have lived altogether in vain, but have contributed something to the benefit of my species." Unfortunately, as I have said, he ceased to record his cases, and doubts arose as to the results, and the operation was again falling into somewhat evil repute, when, in 1858, Spencer Wells began to operate. At this time Baker Brown blazed like a comet across the field of surgery, dazzling the public and the profession by the brilliance of his success and operative skill, but sinking almost as quickly to obscurity and loss of good name. Unsuccessful in his early series of ovariectomies, *i.e.*, so long as he used the long ligature and the clamp—67 cases, 30 deaths, 44.7 per cent.—he became much more successful after he introduced his cautery clamp, reducing his mortality to about 11 per cent., and

this method must still be regarded as the most perfect theoretically, though, for various reasons, it cannot hold its own in practice against the short ligature. Though ovariectomy was practically born and nourished in its infancy in the United States, the surgeons there soon fell behind this country in the race, for there were in the latter 91 cases up to 1850, against the 36 I have already mentioned as being performed in the States up to that date. Of those 91 cases 33 died, a mortality of 36.27 per cent. Thus in this country the number of operations was not only three times as great, but the success was 5 per cent. greater.

It is difficult for me to speak of the work of my old master, Spencer Wells, and I must leave it to the future medical historian to assign him his exact place among the select few, who will have their names handed down to future generations, as the founders of one of the greatest works in surgery—great not only in its actual saving of valuable lives, and relief to human suffering in one particular form of disease, but far greater in the vast change it has wrought in all surgery, and in the ever widening field it has opened up in the special surgery of the abdomen. It is certain that the regular publication of all his cases gave the public and the profession a confidence they had never before felt, and greatly helped to sustain the operation at a critical period of its history, and I think it would have been well for surgery had his example in this particular been more followed with regard to other surgical operations.

Wells made his first attempt on December 29th, 1857, but finding the tumour behind the intestines he closed the incision, and the patient recovered, to die later under the care of another surgeon, of peritonitis, the result of tapping and rupture of cyst.

On February 19th, 1858, he performed his first complete ovariectomy, using the long ligature, which came away with a large slough on the twelfth day: the patient recovered.

In his third case he used the clamp; and I must record my opinion that this was a most unfortunate thing, not only for his own success as an ovariectomist, but also for the progress of the operation; or I would rather say it was the great cause of its want of progress, for, though plenty of cases were operated on, and a large proportion of lives saved by himself and others during the next twenty years, abdominal surgery practically made no advance

during this time ; and this I attribute mainly to the heavy mortality attending the use of the clamp.

When he threw aside the clamp, and used only the short ligature, his results immediately improved enormously ; and I firmly believe that if he had followed the example of Nathan Smith, from his start in 1858, his success would have been treble what it was. When I first saw his practice, in 1873, I at once took a great dislike to the clamp as a dirty, clumsy, and unscientific instrument : and I only used it in a few of my early cases, and, as my published tables show, with anything but success.

Keith commenced to operate in 1862, using, first, a ligature for the pedicle, but keeping the stump out with a pin, and in his next case using the clamp. His work is before the world, and no one can give it anything but the most unstinted admiration and praise. Tait followed five years later (in 1867), and was for a considerable time a very unsuccessful operator ; indeed, a careful examination of his published tables, leads me to the conclusion, that his results only improved with the general improvement which took place in all abdominal work about fifteen years ago, *i.e.*, when antiseptics, in some form or other, came into common use, and the short silk ligature and the drainage tube became popular. It has always surprised me that he, of all men, should have followed, blindly, a method which he now so loudly decries.

Passing now from America and Great Britain to the Continent of Europe, we find Delaporte proposing the operation in 1774 ; and in 1798 Chambon said : " I am persuaded that a time will come when this operation will be extended to more numerous cases than I have proposed, and that it will not be found difficult to execute ;" but nothing came of their advocacy, and it was not till 1844, when Chereau published a paper containing a collection of 65 operations with 42 successes—a mortality of only 35·38 per cent.—that Dr. Woyerkowsky performed the first successful ovariotomy in France ; and so late as 1856-57, at a great discussion at the French Academy of Medicine, we find all the best known names in French medicine and surgery ranged in the opposition. The reading of the opinions then expressed is, in the present day, extremely amusing ; but it was not so then to the poor victims of ovarian tumour, for it checked the progress of the operation in France for several years.

Koeberlé, of Strasburg, who has been one of the leading Con-

tinental operators, and to whom we owe the first suggestion of the glass drainage tube, and the valuable *serre-nœud* which bears his name, operated first in 1862, the same year as Keith; and it is worthy of note that to Keith we owe the modified and improved Koeberlé's tube, now in general use. The results in France up to 1867 were deplorable, however, for Boinet collected up to that time 122 operations with 73 deaths—a mortality of nearly 60 per cent. In Germany, Chrysmar, in 1819, first performed the operation, and this was the first case in Europe. His first and third cases died, and his second recovered. According to Dutoit, there had been in Germany, from 1819 to 1856, 64 operations—with the terrible mortality of nearly 72 per cent. It is not surprising that, with such a record before the profession, the operation did not make much progress in succeeding years, and even as late as 1870 the deaths exceeded the recoveries; but Lister has changed all that, and now the German operators run us very hard in their operative successes.

It would occupy me too long if I were to attempt to follow, even in the brief fashion I have adopted so far, the rise and progress of ovariectomy in other European countries, and in India, and the Colonies; it must suffice to say, that nowhere did it make even as good progress as in our own country, and in most places it was very slow in making any progress at all. Before considering in a little more detail the methods employed during these years of slow progress and occasional collapse, I will briefly refer to the operation for the removal of fibroid tumours of the womb, and to the few removals of the spleen, which are really the only abdominal operations, outside ovariectomy, which were ever attempted, before the great advance of fifteen years ago, at which period I propose afterwards to commence my remarks on present abdominal surgery. I do not forget that there were occasional operations for obstructed bowel, but they were so rare, and so commonly fatal, that they hardly deserve even a passing notice.

In 1861 Spencer Wells did his first hysterectomy for fibromyoma, treating the pedicle by a long ligature brought out of the wound; his first five cases all died. In 1870 he began to fix the stump in the angle of the wound, and in 1874 he used the clamp. His published tables show that his results were most discouraging, a mortality of 66·66 per cent. up to 1876. When we consider that the operation was often performed in cases which might have

lived on and recovered without operation, if they could only tide over the menopause, we cease to wonder at the strong opposition which the operation has encountered. Fibro-myomata are such a very different class of cases to the ovarian tumours, that a mortality which might seem justifiable in attempting to cure the latter, is altogether unjustifiable for the former, and here it is more than double as great. Keith did not perform hysterectomy till 1874, and then believed the tumour to be ovarian. Koeberlé's serrenœud, which still, in my opinion, holds the field as the best means of securing the stump, was used. In 1885 he published thirty-eight cases with only three deaths, a brilliant series, when we examine the record and see how many desperate cases are included in it. After 1881 he frequently used a clamp with long thin blades. To this part of his work, however, I shall refer again in the second part of my address.

Wells removed the spleen three times before 1876, and in every case with a fatal result. He has recently had two successful cases. We have then up to 1876 an immense number of ovariectomies performed, with a varying mortality, according to the operator, but with a general mortality of from 30 to 40 per cent., a limited number of hysterectomies, and hysterotomies for fibro-myoma, with a much higher mortality, and a few other cases of an exceptional kind which were almost all fatal. What a ghastly record, when we contrast it with the present success in the much larger field of abdominal surgery as at present practised, though the latter includes a large number of operations incomparably more difficult, and more likely to be dangerous to life, than ovariectomy! What then were the causes of the different results obtained in the past, as compared with the present? I think I must bracket the long ligature and the clamp together, as the prime causes of disaster. What could be more unscientific, than to tie a great lump of tissue with a long string or silk, without special preparation of the material, and then to leave this ligature dangling from the wound? The tissues in the distal part of the stump were partly or wholly cut off from nourishment, and unless they very quickly acquired a fresh base of supply, by adhesion to neighbouring parts, were almost certain to slough. If they acquired a new attachment the separation of the ligature was long delayed, and during this time it was, as I have already explained, a constant source of danger. If they sloughed separation was quicker, but

the only hope for the patient lay, in the rapid encysting of the ligature and slough, to shut off the poison from the general cavity of the peritoneum, and by the time the slough was ready to come away, the external opening through which the ligature passed had closed round it, so that the slough could only escape by fresh breaking up of tissue, with its attendant risks of septic absorption.

To these risks, inseparable from the long ligature itself, must be added the risk that it became contaminated by the hands, instruments, or sponges of the surgeon daring application, and that the stump was also well smeared with every variety of septic organism. For there was no flushing with clean water, or bathing of hands and instruments in powerful germicides. On the contrary, every conceivable abomination was practised, for as late as 1874 I saw ovariectomy performed in one of our largest London hospitals, and the vomit and froth due to ætherisation, were wiped away from the patient's mouth with sponges, which were then washed in the same vessels with those used inside the peritoneum; if this was not as good an attempt at murder as the chance blow in a drunken brawl, then I hold views on such matters which I suppose I must regard as peculiar, yet many a poor fellow has suffered the penalty of the law for the latter, while the highly educated and scientific surgeon is the admired trainer of a host of our future surgeons. Now in what did the clamp differ from the ligature? Well in one very important particular; it brought the sloughing stump outside the peritoneum, though commonly only into the lips of the parietal wound, but it was infinitely worse than the ligature in other respects, for, with its great clumsy blade, it crushed a great mass of tissue, and rendered sloughing inevitable; the ligature, while it checks hæmorrhage at the time, does not necessarily, or even generally, cut off all nourishment from the distal part of the stump, as I have proved by careful experiment and dissection, but with the clamp, the very essence of its method was sloughing, and this sloughing only too often extended rapidly into the proximal part of the stump, below the actual grasp of the clamp, and then it at once had all the disadvantages of the long ligature. Moreover, it covered in the very part of the wound that ought to have been uncovered, so that it could be kept clean, and at every dressing there was necessarily more or less disturbance of the putrid tissues, and consequent risk of septic absorption. So

much for its method ; but what of the actual instrument, with its great hinge, impossible to clean ? It was taken off the pedicle of a patient dying of septicæmia, or it came away reeking with the foulness of a separating slough, and it was sent to the instrument makers to be cleaned, came back with its hinge oiled with the grease of an instrument maker's shop, in which probably post-mortem and dissecting instruments were cleaned, shall I not rather say dirtied, side by side with it, and then it was put on to a fresh pedicle without even a wash, or a boil, or a steeping in some antiseptic lotion. It was put on, I say, to a nice little pedicle, which a fine sewing needle and silk would have secured, and the patient, a beautiful girl, perhaps, in the first flush of womanhood, was in thirty-six to seventy-two hours a corpse, bloated and disfigured, with foul gases bursting from her tissues wherever they were incised, and then came the record too often "exhaustion" or "peritonitis." It is a terrible retrospect, and yet how many years this clumsy tool, which the commonest mechanic would at once have cast aside, was praised and recommended in every text book ; and, so strong is the power of authority and reiterated error, that I fear it has not even now quite vanished from the field ; indeed it is still commonly figured in the instrument maker's catalogue. The prevalence of the use of the long incision must also be credited with a share in the bad results of the early work in ovariectomy, for, while I hold strongly that it is bad practice in this as in any operation, to cramp oneself by a too short incision, and when dealing with extensive adhesions in ovariectomy, I believe that it is best to extend the incision, so as to get full view and control of parts to be separated, and bleeding points, I cannot but think, that the very long incision, once commonly used, must have added greatly to the shock of the operation, besides exposing the peritoneal surfaces much more extensively to possible causes of contamination. Long delay in operating and antecedent tappings were also causes of increased mortality, the former acting by its influence on other vital organs, especially the kidneys, and the latter by increasing adhesions, by lowering the general vitality of the patient, and still more disastrously by the frequency with which it led to putrefaction of the cyst contents, and consequent contamination of the peritoneal surfaces, pedicle, ligatures, and sutures, during the subsequent removal of the tumour. I am quite certain that a large share of the mortality of my own prac-

tice has been due to this latter cause, and that I thus suffer, unjustly, blame that should fall on the shoulders of those who tapped clumsily, and without due attention to surgical cleanliness, before sending the cases to me for operation. This must be the experience of everyone who has performed many ovariectomies.

While I thus dwell upon details which are special to the operation we are considering, I must not forget the general want of knowledge, as to what was meant by cleanliness in surgery. We have lived so much in the age which has been revolutionised by the example and teaching of my great master and friend Lister, that we are apt to forget the awful experiences of our early student days, when it was our privilege to hold up a stump, while the surgeon pressed out a stream of putrid pus, and the poor patient writhed with agony at the rough handling of the inflamed and irritated tissues. When one contrasts the reception in Berlin, and the grand appreciation of a great life work shown in Italy, with the good taste and scientific acumen of a recent address in our own country, we are indeed forcibly reminded of the words of Holy Writ, "A prophet is not without honour, save in his own country." It is a consolation, however, to know and feel, that history is just, and that the one name will echo through the ages, famous for evermore, as one of the greatest relievers of human suffering who has ever glorified our art, while his critic will be only remembered, at most for a generation, as a skilful operator in one special field.

To sum up then the causes of slow progress and too frequent failure in abdominal surgery up to 1876, and to place the various causes in what I believe to be their order of importance. We have first the general want of cleanliness and the lack of all appreciation or knowledge of what constituted surgical cleanliness, then the long ligature and the clamp, both as I have shown clumsy and unscientific, and both specially suited to make the want of cleanliness more deadly, and then following with an appreciable but far different influence, we have delay in operating, tapping, and the long incision. Then I must not forget drainage, for I think it is highly probable that a really good system of drainage, such as we now have, thanks to Koeberlé and Keith, would have done much to counteract the evils I have named above, though the frequent use of the drainage tube, with the long ligature and the clamp, would have introduced new elements of risk, which

I shall have to refer to again when I speak of the place which drainage occupies in the successes of to-day.

Let us turn then from the dark picture of the past, and watch the gradual breaking of the dawn of our present successes, revealing the general adoption of antiseptics, and an appreciation of perfect cleanliness; coincidently the general adoption of the short silk ligature, and the dropping of the pedicle; the more frequent use of the glass drainage tube, and the flushing of the peritoneum; and, last but not least, the recognition of the fact that it is folly to let a woman be half killed by a disease before you attempt to relieve her of it, and that it is equal folly to suppose, that she is more likely to recover quickly and well, in this half dead condition, than when in average health. Of course this error arose from the observation that simple cases so often died quickly from septicaemia, the explanation of this being partly, that in a robust person acute diseases generally run a rapid course, and also probably, that patients worn down by suppuration in the tumour and septic infection, as they so often were before operation, were not so susceptible to septic inoculation, of which nearly every patient operated upon had to run the gauntlet.

In 1876, I did my first hysterectomy at the Samaritan Hospital, removing the whole of the uterus except the cervix, and also both ovaries and tubes, and securing the stump by transfixion and ligature, after the method which I had for some time previously adopted entirely in ovariectomy. The patient recovered, but by good chance, rather than good surgery, as a large piece of the pedicle sloughed and was discharged through the os uteri into the vagina. This and unsuccessful cases in 1877 and 1878 convinced me that it would not do to ligature the stump, and I then tried the old ovariectomy clamp with success for a tumour weighing 62 lbs., having then not seen Koeberlé's *serre-noëud*; the clamp, however, caused considerable sloughing of the uterine tissues below its grasp in a case operated upon in 1880, and the patient died of septicaemia, and I have ever since used Koeberlé's *serre-noëud*, whenever it has been possible to apply it, and with increasingly good results. I do not think that this is by any means a perfect method, because, as with the old clamp, the stump has to separate by putrid suppuration and sloughing, and, though it is much easier to keep the parts fairly clean round the thin wire, it is risky always, every disturbance with change of dressing leading

to cracks and fissures in the granulating tissues round the separating slough, which may and sometimes do allow septic infection. Moreover, unless very great care is exercised to apply the sutures so as to leave the skin edges pretty loose round the stump, abscess is very apt to form in the fat and cellular tissue of the abdominal walls, and to burrow into the cellular tissue above the uterine stump, and in some few cases the pressure of the wire causes sloughing below, just as did the old clamp.

Theoretically Schroeder's plan of suturing the various tissues of the stump with successive layers of buried sutures should be the best, and I have had a few excellent cases by this method, when it was impossible to apply the *serre-nœud*, and I always use it now when the fibro-myoma can be removed without opening the uterine cavity. When this cavity is opened, as in an ordinary supra-vaginal hysterectomy, the difficulties of thoroughly cleansing the uterine mucous membrane and vagina, so as to certainly avoid sepsis, are in most cases insuperable, because one cannot efficiently control hæmorrhage without closing the very channel one has to clean. If any method could be devised by which the vessels in the stump could be temporarily, but efficiently, secured, the cavity of the uterus being at the same time kept quite free and open, so that one could thoroughly clean it right through into the vagina, and then pack the latter with some efficient dry antiseptic material, which would keep this passage aseptic without risk of poisonous absorption, the days of the *serre-nœud* would be numbered, and the success of hysterectomy greatly increased.

In some cases it is possible to leave one or both ovaries, and when this can be done, especially in young women, I think it is right to leave them; the few cases in which I have been able to do so have recovered just as well, or better, and it is an immense relief to them to hear afterwards that they are not altogether unsexed. One would have rather expected that such cases would have menstruated from the remains of the uterus, but none of my cases have done so, and none of them have experienced any inconvenience at the month from the ovaries, while they seem to me to have to some extent suffered less from the flushings, perspirations, &c., which are such a source of worry, to most patients, for a longer or shorter period after the removal of both ovaries. These cases seem to offer some support to Tait's theory as to menstruation not being in any way dependent on the ovaries, but they are at present too

few to argue from, and as a set off to them, the only case in which I have ever completely removed both tubes, leaving both ovaries, goes on menstruating quite regularly, though with, if anything, more pain and discomfort than she had before the operation. The operation was for double pyosalpinx. Before leaving the subject of hysterectomy for fibro-myoma, I must refer to those cases in which the tumour has been developed in such a direction that it lifts up the pelvic peritoneum, either anteriorly, laterally, or posteriorly, or in some cases in all directions at once. These tumours are generally very large, and on first opening the abdomen it seems absolutely hopeless to attempt their removal, but a knowledge of their method of vascular supply, makes them in reality, not nearly so formidable as they look; but few vessels enter the substance of the tumour, and these through the uterine wall close to the junction with the cervix, the rest of the vessels ramify in two layers in the capsule of the tumour; first, there are the ordinary ovarian vessels, with their anastomoses from the uterine arteries enormously enlarged, and then there is a second series deeper in the capsule, the exact source of which I have never been able to make out. It is obvious, then, that if the capsule can be separated with these two sets of vessels, and the tumour cleared down to its base, this base can be dealt with by the application of the serre-nœud, as in an ordinary hysterectomy, the only difference being that the serre-nœud is applied to the uterus at the junction of the body and cervix, inside its peritoneal investment, instead of outside it. The vessels in the broad ligaments and capsule are, as I have said, enormously enlarged, and lie in two separate planes, but chiefly on each side, and over a limited area, so that, if their situation is seen, the capsule can be divided on each side of them, and they can be secured temporarily by large clamp forceps, or strong ligatures, while the other steps of the operation are completed, and afterwards tied by transfixion, as in ordinary ovariectomy, or removal of the appendages. It is a question which can only be settled in each individual case, and by the experience of the operator, whether these vessels shall be first secured, or whether most of the capsule shall be separated from the tumour before they are secured. I much prefer the latter plan, whenever it is possible, and have adopted it with success in some of the largest tumours I have enucleated. If we tie the vessels first, there is an enormous volume of blood stagnated in the tumour,

as it is pumped in through the vessels already referred to as entering at the base, and prevented from returning into the general circulation by our ligatures, the result being that when the tumour is removed the patient is deprived of an immense quantity of blood, and the after-steps of the operation are, moreover, obscured and rendered very difficult by the constant escape of this dark blood over the parts the surgeon is separating. Whatever plan is adopted, it is of the first importance that the enucleation should be commenced at some one point, and steadily proceeded with in one direction, and with definite aim. Tait has pointed out the importance of this in the enucleation of cysts from the broad ligament, and it is even more important here.

The surgeon must also, before beginning such an enucleation, with an enormous solid tumour weighing perhaps 40 to 60 lbs., have the most perfect confidence in his own nerve, coolness, and readiness of resource; a minute's hesitation and indecision at a critical moment, may allow such hæmorrhage, that the patient is lost. I believe, as the result of some considerable experience in this particular class of case, that the enucleation should always commence by a straight incision right across the face of the tumour just above the bladder, and the latter should then be perfectly peeled back, so that its exact relation to the base of the mass is seen, and a reasonable notion obtained as to the probable situation of the ureters; if this is not done, the bladder is very apt to be torn at a later period of the operation, when the parts have become confused by extensive enucleation. This incision will often be 10 or 12 inches long, and will require the rapid application of a couple of dozen pairs of pressure forceps to the divided vessels on its sides. Having completed the separation of the bladder, the next step is to make a similar cut across the capsule, at the back of the tumour, and separate it posteriorly, lifting the mass which generally fills the true pelvis, which it has completely stripped of its peritoneum; and during this procedure great care must be taken not to damage the ureters, iliac vessels, rectum, sigmoid flexure, or cæcum, all of which are in very close relation to the tumour. When this is done, we have the tumour attached at its base, and at its two sides. The finger should now be carefully insinuated close to its base under the deeper layer of the lateral vessels, and through the channel thus made the wire of the *serre-nœud* should be applied round the base,

and lightly screwed up ; a large portion of the arterial supply is now cut off, and, the large veins in the pampiniform plexus being still free, the tumour rapidly loses most of its blood, and by the time the broad ligaments, and the deeper layer of vessels on each side, have been secured, the broad ligaments and base can respectively be rapidly cut through, and the tumour removed without the enormous escape of back blood from the tumour, which often renders this part of the operation so difficult, when the ligatures have been applied to the broad ligaments too soon.

I know of no operation in surgery which requires more exact knowledge of the thing to be done, and the way to do it, and I know equally of none that gives one a greater feeling of relief and satisfaction when it is safely concluded. Our late lamented friend Dr. Matthews Duncan, whose sudden and premature loss we all so deeply deplore, has often expressed to me his profound admiration and wonder at the rapid and successful completion of such an operation, and he was not easily led into commendation of any operation.

Let me add here one word of caution, lest the neophyte in surgery should feel fired with the ambition to feel the glow of satisfaction I describe. No man is justified in attempting such an operation till he has had a large experience in the more simple procedures of abdominal surgery.

Passing now to consider the treatment of diseases of the ovaries and tubes, other than ovarian tumours, one is at once amazed that no attempt should have been made to deal with such cases till Battey, Hegar, and Tait all began to work in this special field, about 1872. Battey's original idea was to remove ovaries, not in themselves diseased, for the cure of certain nervous diseases, which he believed were caused, or kept up, by real or functional derangements of the ovaries. Hegar must have the credit of introducing the removal of the ovaries for the cure of fibromyoma uteri, while to Tait belongs the introduction of the operations for diseased ovaries and tubes. The number of operations in this field has been so very great, and so out of proportion to the number of ovariectomies for tumours, that one cannot but suspect that diagnosis has not always been very accurate ; certain it is that many of the cases operated upon remain in worse health afterwards than before, that others are no better, and that a large number travel about from the consulting room of one specialist to that of

another, bewailing the loss of their ovaries, and urgently demanding relief from the discomforts which are incident to the abrupt production of change of life. I think that every close observer must see that one reason this class of operations did not earlier take the field was that there were not nearly the same number of women seeking relief for the miseries of inflamed and adherent ovaries, and tubes blocked by inflammation, and filled with serum, blood, or pus, before the gynaecologist, as he is known to us to-day, appeared with all his awe-inspiring array of instruments, and every pelvic ache or pain, whether in the matron or the maid, at once became an excuse for tenting, dilating, scraping, burning, and alas! too often slaying. My own consulting practice convinces me, beyond any doubt or question, that far more of the diseases for which Tait's operation is necessary are due to unskilful and often improper treatment of slight uterine disorders, than are due to true pathological conditions arising from accidents, chills, &c., during menstruation, and during unassisted labour; and here I must also record my belief that much of the disease arising among child-bearing women is due to the too great prevalence of instrumental delivery.

I must return for a moment here to the subject of fibro-myoma uteri, to say that I believe a very large number of cases can be traced to injuries inflicted on the uterine tissue by gynaecological and obstetrical instruments. Since I have returned to the subject of uterine tumours, I would say a word about electricity in the treatment of these tumours. I have never used it myself, but I have seen a number of cases which have been treated by others, including all those who have made it a specialty, and I am bound to say that I think it is an utter and complete failure. I have seen a few cases in which the tumours have appeared to shrink for a time; but I have seen quite as many shrink as much under a judicious regulation of diet, and with a carefully watched administration of ergot of rye. I have, moreover, seen several cases in which the tumour has considerably enlarged as the result of the electrical treatment, and in which the patients have suffered so much from it that they have urgently demanded operative relief, and in several such cases I have either removed the appendages or the tumour by hysterectomy, with completely satisfactory results. On examining two of these tumours after removal, I found them curiously softened and altered, and full of vessels

blocked with clot and extravasations of blood. It is then, I have no doubt, by these violent effects on the circulation in the tumours, that electricity cures, when it does cure, and if it ever does cure; but the operator has no possible means of regulating the amount of damage caused, or of knowing when he has done enough to hope for re-absorption of the tumour. Hence he too often goes on till the whole mass sloughs, and the patient either dies of septicæmia, or escapes by the skin of her teeth, after a desperate illness and the extrusion of a large sloughing mass *per vias naturales*. When I first heard Apostoli introduce the subject at the Copenhagen Congress, I said to myself, this is nothing new; it is only a revival of an old method in an amended and slightly more scientific form, and I don't believe it will do much for us in the treatment of these diseases. I have carefully watched the progress of the whole business, and the work of its re-introducer, and if it is not already condemned by the general voice of the profession as a failure, then I am sure the day when it will be is not far distant. Many of the so-called cures have been simply due to blunders in diagnosis, leading to the puncture of ovarian cysts, or other fluid collections in the pelvis, in mistake for fibroids. One case of my own was subjected to the treatment, because she had some pretty severe hæmorrhages after the removal of the appendages for the cure of fibro-myoma, but the case has been seen since, and I have heard her whole history, and I am convinced, from my experience of similar cases, that all that she got from the treatment she would have got by patiently waiting till the full effects of the removal of the appendages were obtained. I may as well, while on this subject, say all that I have to say about the removal of the ovaries for the cure of fibro-myoma. We owe an immense debt to Hegar for the introduction of this method of dealing with fibro-myoma; it, of course, has its risks and its failures, but with care in the selection of the proper cases, and care in the removal of every particle of ovarian tissue, it is most satisfactory in its results, and I consider it one of the most thoroughly scientific and valuable operations in the present field of abdominal surgery.

After this long digression, let me return to the question of the removal of diseased ovaries and tubes. I have stated my conviction as to the causes which render operation necessary in by far too many cases, and I think we may fairly hope that, as the medical student becomes better educated in the diseases of women,

this class of cases will greatly decrease; but there will always remain a certain number of cases, arising from what I will call legitimate pathological conditions, and there is a large field here for the truly beneficial exercise of the abdominal surgeon's art. It is, however, a class of cases requiring great diagnostic skill and great judgment, as to when it is right to operate, and when to hold one's hand. When I look at the enormous lists published by some operators, I feel that I am a very baby in this field; but I know that I have myself operated on cases which might have got well without operation, and I am more and more inclined to persevere with the administration of ergot, and the use of the hot douche, for prolonged periods, before resorting to the knife. I believe both these agents have the same action, *i.e.*, they regulate the circulation in the pelvic viscera, and prevent those engorgements and stagnations which are so harmful, when once the appendages become inflamed and displaced. Some women can bear to have their ovaries chronically inflamed, and even also displaced, without suffering more than slight increase of the flow during menstruation, and some extra discomfort during, or just before, and just after, the flow. Others are made complete invalids by the same condition, and their whole usefulness in life is destroyed, and they become a burden to themselves and to their friends. In such cases, especially if the ovaries are firmly adherent, I believe we are just as much bound to give relief by operation, as we are to cure by the knife any other painful disease which is amenable to surgery. If we could differentiate between hydrosalpinx, hæmatosalpinx, and pyosalpinx, then I think we should not be justified in operating in the former, should wait long and watch the case carefully before deciding to operate in the second class of cases, and should always operate at once in the latter; and I think, as we cannot surely diagnosticate each case, the danger the patient runs from unrelieved pyosalpinx is so great that when we have good reason to think the latter condition is present, it is better to operate than to delay, even at the risk of occasionally removing a hæmatosalpinx, or even a hydrosalpinx.

Before leaving this subject, I would point out that there is a vast difference between these operations. Inflamed and firmly adherent ovaries with fairly healthy tubes, hydrosalpinx, and even hæmatosalpinx, may be removed with a very trifling risk; but there is no more dangerous and difficult operation than the removal of closely

adherent tubes when filled with putrid or specifically diseased pus. And, quite apart from the danger of infection of the peritoneum and septicæmia, another danger attends these cases, and that is, that the intestines are especially liable to be closely adherent, and not only closely adherent, but softened, and in a condition very likely to tear, or, if they do not actually tear at the time, perforate shortly after, and hence a fæcal fistula is one of the dangers to be dreaded in operating for pyosalpinx, and, though by no means an incurable condition, it is a very serious one. I am certain from my own experience, and from watching the work of others, that if the mortality could be obtained for all the cases of pyosalpinx operated upon in the United Kingdom since Tait introduced the operation, it would run what we may call the natural mortality of the disease very close indeed. Then we must not forget that an immense number of the women who escape with their lives are not in any proper sense cured, for they remain martyrs to all sorts of pelvic pains and discomforts for months and even years after the operation.

The direction in which this class of cases wants improvement most is in the method of operating. The making of a very small incision and the scraping out of the diseased parts with the finger tips is a thoroughly bad and unscientific form of surgery. As in all other surgery, the incision should be free enough to give us all the aid which accurate sight as well as touch can give. Then the diseased parts should be gently and thoroughly freed from all but their base of attachment, and this should be tied off with the finest silk that can be used, and in small portions, not in a big lump, and the distal portions of the stumps should be as short as is at all consistent with safety. This is the direction in which I have been working in this class of cases, and I am sure the condition of my patients soon after operation, amply repays me for the extra time and trouble in operating. I am constantly seeing patients who have been successfully operated upon by other operators, who have in their pelves great lumps of tender inflamed tissue, which are evidently the stumps and ligatures remaining after the operation has long been performed. Such cases often suffer as much or more than before, pelvic pains, inability to walk, pain on defæcation, flatulence, and obstinate constipation, being among their most frequent troubles. It is among these cases too, that we find most frequently menstruation or, more

properly speaking, irregular metrostaxis after removal of both ovaries.

In 1879 Tait performed his first abdominal section for pelvic abscess, and for this suggestion we owe him undoubtedly much. I know of no more miserable class of cases than pelvic abscesses allowed to open by nature, or opened through the vagina or rectum by the surgeon, and one of the most satisfactory cases I ever had in practice was a case of pelvic abscess following confinement, which I insisted on freely opening by abdominal section, though it had during the night before I operated begun to discharge slightly into the bladder and vagina. The patient was the daughter of one of our best known general physicians, now, alas! no longer with us, and I met him and Dr. Playfair in consultation on the morning of operation, and had great difficulty in persuading him that it was still right to operate. My view was, however, supported by Dr. Playfair, and my old friend often thanked me afterwards for the long misery spared to his daughter by my firmness in advocating prompt abdominal section.

I feel that I owe some apology to these among my audience whose interest does not centre in the pelvic organs of the female, for I have occupied more than half my space with the surgery of these organs, and I must still say one word about uterine cancer. It is clearly demonstrated that there are a certain number of cases in which it is right to remove the uterus, and it is equally demonstrated that this is not an operation properly belonging to abdominal surgery, so I shall content myself with saying that I believe the abdominal method is or should be entirely abandoned for the vaginal, and that the cases in which the latter operation is justifiable are very few, *i.e.*, it should not be undertaken when the uterus is still absolutely free, and when the disease is thoroughly confined to the inside of the cavity, or has at most only slightly affected the cervical canal. Cases in which the os is affected either primarily or secondarily are only suitable for partial operation, such partial operations being infinitely less dangerous, and just as likely in this class of cases to give the patient a respite from the disease, as is the complete extirpation of the organ.

My own experience of complete extirpation is small, when compared with that of many of our Continental brethren, and I think the operation has not taken root, either here or in America, as it has on the Continent. Such experience as I have had leads

me to think that improvement in results, both immediate and remote, is to be sought by separating the tissues slowly and patiently bit by bit, applying forceps to the bleeding points, or tying them at once, as is most convenient at the time, rather than by tying the broad ligaments in large pieces and by deep transfixions. By the slower method one is much better able to avoid danger to the ureters, runs less risk of septicæmia, as there are no masses of tissue liable to slough, and is also better able to estimate the exact condition of the successive portions of tissue as one divides them.

I have once successfully removed a cystic spleen, and I have twice removed much hypertrophied spleens with fatal result; in both the latter cases a most curious condition of the circulation was observed as soon as the enormous vessels entering the spleen were secured: the patients became cyanotic, and all the small vessels which had been divided in the abdominal wall, and in adhesions, commenced to ooze dark blood, this oozing continuing after every possible effort had been made to check it by numerous fine ligatures, close suturing of the wound, and the application of styptics. In the first fatal case this condition was only transitory, but the patient bled to death through the retraction of a small vessel in the omentum, the hæmorrhage going on slowly between the layers of the omentum and being only discovered at the post-mortem; comparing this case with the second, this concealed hæmorrhage appears to have led to the cessation of the dark oozing, for in the second case the oozing continued from the exterior of the abdominal incision, and, I have no doubt, into the peritoneum as well, though I had no opportunity of examining after death. I made one curious observation in this case: I used styptic colloid to try and check the external oozing, and when it was freshly applied it at once frothed on admixture with the blood, and this coating of froth seemed to have no styptic power, the oozing going on under it unchecked.

I am convinced that there is some great change in the blood in these cases, which only becomes active when the blood is cut off from flowing through the large spleen, but I am quite at a loss to account for the condition. It was present to some extent when the vessels were first secured in the successful case, but passed off before the abdomen was closed, returning from time to time for some days after the operation during convalescence, and causing

attacks of dyspnœa with dark flushing of all the skin surfaces, and accompanied by pain in the region of the tied splenic vessels.

I have never removed a pancreatic tumour, and the successful cases are so few that they are rather curiosities of surgery than operations likely to teach us much. I have on two occasions had very troublesome hæmorrhage from tearing the pancreas in separating renal tumours; in both cases I had to pass fine needles, armed with silk, into the substance of the gland in order to stop the hæmorrhage; both cases recovered well, and were apparently not in any way injuriously affected by the interference with the pancreas. In one case of operation for gall-stone, in which the parts were much matted together, I got into the head of the pancreas by mistake, and made a hole of some depth, from which the bleeding was very free, but stopped spontaneously; I afterwards completed the cholecystotomy, and the patient made a good recovery.

The surgery of the liver is one of the departures in abdominal surgery which has made, and is still making, marked progress. I am not sure who first systematically attacked hydatids of this organ by abdominal section, thorough cleaning out of the cavity, and drainage, but I have had a considerable number of successful cases, some of which I have had the honour to report to this Society, and several remain to be published. It is very remarkable how these hydrated cysts of the liver form pouches deep in remote parts of the abdomen and pelvis, which keep in communication with the parent cyst, and will drain through it and cure, without separate opening. One such case in my own practice formed a large tumour in Scarpa's triangle, and another a large pelvic tumour simulating ovarian cyst. The operation of cholecystotomy we owe to the late Dr. Marion Sims, for, though his first and, I believe, only case was unsuccessful, he laid down with admirable clearness and precision the steps of the operation in the account of this case, which he published in the 'British Medical Journal,' 1878.

This is now a most successful operation, even when it is undertaken at a late period of the illness, and after repeated inflammatory attacks have caused adhesion, and even suppuration, in the neighbourhood of the gall bladder. I have now had many cases, and have only once failed to find and remove the stone or stones. This was a most disappointing case, for I felt certain of my

diagnosis, and found a much thickened and adherent gall bladder, which I emptied clean out and sutured, but could find no stone. The patient died of peritonitis, evidently from separation of the sutures in the inflamed tissues of the gall bladder, and the stone was found lying loose in the peritoneum, close beside the gaping wound in the gall bladder. How I missed it I cannot imagine, for I made a very prolonged and patient search. I think I may take to myself the credit of a new departure in this class of cases, which will, I believe, be found a valuable addition to our methods of dealing with impacted stones. I refer to the incision of the common duct, removal of the stone, and suture of the duct without interference with the gall bladder. I have now performed this operation three times, and in all three cases with a perfectly successful and satisfactory result. The great difficulty of the operation lies in the depth at which the duct lies, and the propinquity of such important vessels as the aorta and vena cava; the incision into the duct should be longitudinal and on to the impacted stone and it has to be made entirely by touch, the knife being quite out of sight, and guided along the left index finger resting on the stone. The suture of the opening in the duct is not so difficult as one would expect, and is performed by a long fine curved perineum needle, and fine interrupted silk sutures.

The cases in which this operation is necessary are those in which the stone, or stones, have passed entirely through the cystic duct, which has returned to its natural calibre, but with its walls thickened and hardened by the passage of the stone, so that it is impossible to dilate it sufficiently to withdraw the stone through it into the gall bladder. In one case, after free incision of the common duct, I was unable to extract the stones, and had to content myself with needling them well up, and then suturing the duct over them, left the fragments to find their way into the duodenum, which they did in the course of some days, and the patient, an elderly woman, made a good recovery. It might seem, at first sight, better, in such cases, to needle up the stone without opening the duct, or to crush it *in situ* with padded forceps, as suggested by Tait; but the needling is a very difficult and dangerous business without opening the duct, and the use of padded forceps also very difficult and dangerous in such a situation.

There is nothing in surgery like clean cutting, especially where

one is surrounded by large vessels, in which a chance puncture, or crush, may cause concealed hæmorrhage, or after-sloughing of the most disastrous kind.

In ordinary cholecystotomy, there can be no doubt that it is better, whenever possible, to sew the cut edges of the gall bladder into the abdominal incision, and drain, though the fistulous opening is in some cases very slow in closing, and very troublesome. When the gall bladder is so much damaged during the operation, or so friable from old inflammatory attacks, or so deeply held in the peritoneum, that this procedure is impossible, we have a choice of three operations. We may entirely suture the opening in the gall bladder and drop it in; we may leave the gall bladder open in the peritoneum, and bring a rubber tube out of it through the external wound; or we may entirely remove it, cholecystectomy. Each and all these methods I have practised with success, and I believe each has its advantages in individual cases. When using either method, it is advisable to pass a glass tube through the parietes, just above the pubes, and drain the pelvis, by the rubber suction tube and syringe, for the first few days, as in ovariectomy, in case there should be any overflow of bile or mucus from the gall bladder into the peritoneum.

The leaving the gall bladder freely open deep in the peritoneum appears, at first sight, to be a very dangerous proceeding; but, having been compelled to do it in one case, and having observed how satisfactorily it drained through its rubber tube, and how little fluid came from the pelvic tube, I was encouraged to repeat the procedure in another case, in which any other procedure would have been very difficult or impossible, and again with complete success. I hope to bring these cases before the Society in more detail shortly. My experience in the treatment of abscess of the liver has been comparatively small, but very successful, and I see no reason to suppose that abscess differs in this situation from abscess in other parts of the body; free opening, free drainage, and avoidance of putrefaction are the essentials for rapid healing. I may briefly recall one case (already published) in which, finding it necessary to open a large hepatic abscess through a healthy pleura, I did so with complete success by sewing the parietal and visceral layers of the pleura together round a lozenge-shaped opening between the ribs, and thus making a safe aqueduct for the passage of the pus through the diaphragm and pleura.

The operation for establishing a permanent communication between the gall bladder and the intestine, cholecystenterostomy, is one of the recent additions to our methods for dealing with closure of the bile ducts by inflammatory or other deposits, and may, in a limited number of cases, be found useful, but should, I think, never be allowed to take the place of the other operations we have been considering, when the obstruction is due to the presence of stones.

Tumours of the supra-renal capsule are now known to be not very uncommon, and to attain a very great size without necessarily implicating the kidney; two large tumours of this kind I have myself successfully removed, only to learn their true nature, through the kindness of Messrs. Eve and Targett in investigating their minute structure. A careful study of the history of a large slow-growing tumour in this situation might now lead one to form a correct diagnosis: the absence of any symptom of implication of the renal tissue, as evidenced by repeated and careful examinations of the urine, being the important differential diagnostic; and I think it probable that, in some exceptional cases, it may be found possible to remove the tumour and leave the kidney. The difficulty in this procedure lies in the fact that the same vessels supply the tumour and the kidney, and that they become enormously enlarged; still, I can conceive a case in which the vessels might be secured, after they have broken up, to supply the tumour, and the main trunk passing to the kidney be left undisturbed. I have so recently had an opportunity of laying my experience, and the views founded on it, in renal surgery, before the profession in my Harveian Lectures, that I do not propose on the present occasion to do more than briefly indicate the stages of advance in this department of the surgery of the abdomen, and the names of those to whom, I think, we owe these advances. Writing, as I have done, in the country away from any good library of reference, and from my own medical books, I have been dependent upon my friend Mr. Malcolm for names and dates, to a great extent, in this and in other portions of my address, and I have pleasure in taking this opportunity of thanking him for valuable assistance rendered on this and many other occasions.

The early nephrectomies were all performed on a mistaken diagnosis, and were uniformly fatal. A few rare attempts at

removal of renal calculus from a suppurating kidney, or from a perinephric abscess, shared the same fate.

In 1869 Simon successfully removed the kidney by lumbar incision, for wound of ureter, and in 1871 he had an unsuccessful case for calculous pyelitis; to his careful researches and work, much of the after success of renal surgery is undoubtedly due. Langenbüch had a successful nephrectomy by lumbar incision in 1875, but was not clear whether it was sarcoma of the kidney or of the lumbar muscles. Jessop, of Leeds, followed with a successful case for cancer in a child of $2\frac{1}{2}$ in 1877.

Campbell, of Dundee, had a successful abdominal nephrectomy in 1873, on a mistaken diagnosis of ovarian cyst. In 1878 I had a successful lumbar nephrotomy, but on a mistaken diagnosis, believing the suppuration and pain to be due to stone, and finding it to be tubercular. In the same year Weir had a successful case for hydronephrosis, and Muller, of Oldenburg, had a successful lumbar nephrectomy for calculous pyelitis, while in the following year Czerny had a successful lumbar nephrectomy for pyonephrosis and fistula, and in 1880 John Couper another for pyonephrosis. In 1881 Barwell had a successful case for calculous pyelitis and fistula. In 1873 Ingalls, of Boston, successfully removed a calculus from a suppurating kidney by lumbar incision, and in 1880 Morris performed the same operation for calculus without suppuration, Beck, Butlin, and John Duncan following his lead in the following year.

In 1880 I performed abdominal nephrectomy on a child of 7 for hydronephrosis, and followed up this first venture by ten more successful cases of abdominal nephrectomy for various diseases before I had a fatal case in 1885.

In 1884 I first proposed, and performed successfully, the removal of calculus from the kidney by combined abdominal and lumbar incision.

In this brief record of the early operations, I may have left out some, or have failed to give due prominence to others; for these omissions, if such there be, I plead want of time and space. The value of these isolated cases is to be found in the lessons they have taught us, as to what can be done with success in a new field of work. I am convinced that the future of renal surgery, both as to accuracy of diagnosis and success in relieving suffering

and saving life, lies mainly in the domain of abdominal surgery; much successful and good work may be done by lumbar incision, but it can never advance our knowledge in anything like the same way that abdominal exploration can. I should like to discuss at some length the recent work in intestinal surgery, more especially the contributions to our knowledge made by Senn, Parkes, Treves, and Jessett, but time will not allow it, and I must leave it to some future President to deal with this important portion of abdominal surgery, after the debate, which we hope still to have upon it, has furnished further material for theory and practice. I will merely say that our chief endeavours should be directed to the early differential diagnosis of the various forms of obstruction, because upon this entirely depends the question in each case, whether it is right to operate, and whether there is a fair chance of success. Thus, if I could always with certainty diagnose volvulus, I would urge immediate operation, because no case recovers without it, and with such prompt interference I should expect a large share of success. So again with constricting bands, apertures, or adhesions, I should urge immediate operation, because the gut is so apt to become gangrenous: in fact we are simply dealing with an intraperitoneal strangulated hernia; if, on the other hand, I diagnosed intussusception, I should be inclined to wait and watch, unless I was quite sure the case was perfectly fresh. This form of obstruction occupies a sort of intermediate position between the acute forms named above, in which early operation gives the only chance, and the more chronic forms, due to obstructing growths, abscesses, and strictures, a class which often recovers spontaneously, and in which I believe the surgeon is generally wise to hold his hand, and trust to atropine and morphia, leaving the cause of the obstruction to be dealt with after the acute stage is recovered from, and when the patient is in a better condition to bear a serious operation. Suppose that we could have a table of all the cases of obstruction which have recovered spontaneously, another of all that have died without operation, and likewise tables of all the successful and all the unsuccessful operations, I believe nature would run surgery hard, and would be out and out the victor if cases of volvulus, band, and aperture were excluded. I believe, however, that the balance of recoveries would be in favour of careful surgery, if only a correct

diagnosis could be made early, *i.e.*, before the case has been subjected to the injudicious use of purgatives and enemata.

I should like to have said something on gastrostomy and the other operations on the stomach, but time will not allow it. Of gastrostomy for the removal of foreign bodies I have had some successful experiences, of other operations on this organ I have none. The operations of Loreta and Woelfler (gastro-enterostomy) seem to me highly scientific and full of promise; for pylorotomy I have no sympathy—it is a desperate operation, and its results are, in my opinion, too poor to warrant its performance. I do not believe that any malignant disease that has once involved the peritoneal covering of an organ contained in the cavity of the abdomen, or more or less projecting into it, is likely to be cured by the surgeon's knife.

Time will not allow me to deal with such fascinating themes as supra-pubic cystotomy, the operations for the removal of ectopic pregnancy, of which I have had a fair experience, the Cæsarean section and its various recent modifications, Porro's operation, and the surgical treatment of tubercular and septic suppurations in the peritoneum. The mere mention of them shows how rapidly progressive is the abdominal surgery of to-day. I may say that I in the main agree with Tait as to the pathology and treatment of ectopic pregnancy, though I firmly believe in the possibility, nay, probability, of ovarian and abdominal as distinguished from tubal cases, though I admit that the latter is the common variety. As in so many other pathological conditions of organs contained in the abdominal cavity, it is to correct early diagnosis that we must look for more precise and certain pathology and for success in treatment. If diagnosis could be made with certainty before rupture, I would operate in every case; I do not believe that, with our present knowledge of the dangers of the condition, we are justified in risking the life of the mother by waiting for the very doubtful chance of saving a viable child. When once rupture has taken place it is equally the duty of the surgeon to operate, but each case must be carefully judged on its own merits, as to whether the operation shall be immediate, or delayed till the patient has rallied from the first hæmorrhage. I believe the great majority of cases do rally from it, and then I think it is better to wait; in some few it may be necessary to operate at once to save

the woman from bleeding to death. Now, by a few brief references to the statistics of well-known operators, let me justify my selection of 1876 as the turning-point in the advance of abdominal surgery. Wells had, up to the beginning of that year, performed ovariectomy 737 times, with a mortality on the whole series of a fraction under 26 per cent.; in 1875, with 66 cases, his mortality was still 22·7 per cent.; in 1876 and 1878, the clamp still being a good deal used, but not nearly so much, the percentage drops to 18 on 151 operations; and in the next two years, when Lister's method is adopted and the clamp is practically abandoned, there are 83 cases, with only a fraction over 8 per cent. mortality.

I have already given the results of his hysterectomies down to 1876: mortality over 66 per cent.; in the next five years, it dropped 20 per cent., and there was a further drop of 10 per cent. after he adopted Lister's method.

I commenced to assist Mr. Wells in 1873, and began abdominal operations myself in 1874; in 1874 and 1875 I only did an occasional case, and, following strictly the teaching of the day, made but poor work. In 1876 I definitely abandoned the clamp, and by so doing reduced the mortality of my ovariectomies 4 per cent. In October, 1877, I began to operate with the spray, and after the method then known as Lister's; the result of this was a further reduction of my percentage of 9·35, or, in other words, the abandoning of the clamp and the adoption of antiseptics lowered my mortality nearly 14 per cent. I have continued to use the spray and the carbolic lotions of the same strength as at first adopted, and I use the drainage tube oftener than I did; but I have only once or twice flushed out the peritoneum with water, and of my last 106 ovariectomies I have lost two, one dying in a few hours of acute peritonitis, which was present when I operated; and the other, an old lady of 69, of bronchitis, acquired from carelessness, when she had practically recovered from the operation. I am not ashamed still to use the spray, and all the precautions which have advanced my results in ovariectomy to 1·88 per cent. mortality, and I find increased practice and a steady adherence to methods which have yielded me good results in the past, increase in like ratio my success in all abdominal operations, whether upon ovary, tube, uterus, kidney, liver, or gall bladder.

Tait's mortality, in his first 50 non-antiseptic cases, was 38 per

cent., and on 176 non-antiseptic cases 13·95 per cent.; then after I had been some time at work with antiseptics, in 1879, he took them up, and had 50 cases with only 3 deaths, only 6 per cent. Thus there was a marked improvement from his early series when he used the clamp chiefly, to his further non-antiseptic work with the ligature, and a still more marked improvement when he took to Listerism; he then learnt for the first time what surgical cleanliness meant, and he has never forgotten the lesson, though he has chosen to adopt other methods of attaining it than those then used by Lister, just as Lister himself constantly varies his method.

The most recent record I can find is in the 'British Medical Journal,' November 17th, 1888, when he published 1,000 abdominal sections, and, so far as I can make out, the ovariectomy mortality is about 3·3 per cent.

I cannot find the exact dates of Keith's changes of practice, but before he used antiseptics he had 229 cases, with a mortality of 15·23 per cent.; with antiseptics he had 113 cases, with a mortality of 6·19 per cent.; and I believe his present results with clean water and frequent drainage are still better, but I have not seen any very recent record of them.

Bantock had 30 cases before he began antiseptics, with a 26·66 per cent. mortality; 6 cases with thymol, with 18·33 per cent. mortality; 87 cases Listerian, with 13·79 per cent. mortality; and then a series of 30 cases with such weak lotion that they were probably inert, with 13·33 per cent. mortality. He then gave up carbolic acid and the spray, but still prepared his sponges most carefully with a strong antiseptic sulphurous acid, and drained very frequently, clearing the tube at very short intervals, then he added the flushing-out process to his methods, and what with clean sponges, immediate removal of clot, &c., with pure water, and his method of frequent cleaning out of the drainage tube, he has adopted an aseptic method which has, I believe, yielded excellent results. Last year at this time he published 238 cases, with 21 deaths, or 8·8 per cent., but of the last 100 he only lost 4. Thus Bantock has a 4 per cent. mortality, and Tait over 3, against my 1·88, a small difference in favour of antiseptics it is true, but differences must be small when we come to single figure percentages.

Now let me very briefly sum up this far too long though very imperfect review of the past and present of abdominal surgery.

I hold that from the days of McDowell to 1876 or 1877, so little real progress was made in reducing the mortality of ovariectomy, that there was no encouragement to surgeons to attempt other abdominal operations; that with the abandonment of the clamp, there was a marked improvement, which was the chief cause of the introduction of other operations on the ovaries and tubes; the general use of the ligature was quickly followed by the general adoption of Lister's method, with such an immense advance in the success of ovariectomy, and the other operations on the ovaries, tubes, and uterus, that an impetus was at once given to the attempt to treat surgically many diseases of other organs in or partly covered by the peritoneum, which had up to this time been left to die under the care of the physician. Every operator of any eminence has improved his results enormously as soon as he adopted Listerism; then, having learnt how to be surgically clean, some have found for themselves ways of attaining this end with more or less success by methods differing from those of Lister. The drainage tube and the flushing with pure water both act in the same way: they remove the pabulum of the septic organisms. Lister, as Mr. Erichsen has recently well said, aims at keeping them out; Tait says this is impossible. I venture to doubt the correctness of Tait's view, because with a limited use of the drainage tube, and practically no use of the flushing, but with all the old means for keeping out the organisms, I obtain results which are, to say the least, as good as those obtained by any of the newer methods. My results are to some extent more valuable than those of any other operator, because they have been obtained with a steady adherence to one method, so that the value of the element of personal experience can be well seen. When a surgeon is constantly changing his method, it is impossible to say whether his results are improved by his increased experience, or by his change of method. The sum and substance of it all is, that if we had never had Lister to teach us true cleanliness, we should never have used antiseptics, flushings, or drainage tubes to attain it. The great advance is due to the antiseptic system; the minor details are merely the different ways of attaining the same end, asepticity. Time alone can show what is worth retaining, and what we may safely cast aside. Let us each then

follow our own method, aiming with single eye at the relief of suffering and the improvement of our noble science and art, and remembering the exhortation of Hufeland:—

“Thine is a high and holy office. See that thou exercise it purely; not for thine own advancement, not for thine own honour, but for the glory of God and the good of thy neighbour. Hereafter thou wilt have to give an account of it.”

