cavity deep in the stump, and, as the distal portion of the latter sloughs, it sooner or later becomes permeated by putrefaction; but this is a slow process in the dense thick uterine tissue hardened with perchloride of iron, and, long before there is any danger of its spreading to the wound generally, the peritoneum is thoroughly sealed. The dangerous time is when the pin and wire separate, or are cut away; for then, as the stump sinks back, little tears or cracks occur in the granulation-tissue round its edges, and absorption of putrid matter may take place, sharp rises of temperature, even accompanied by chills, showing the reality of the danger. The same thing was occasionally troublesome and even fatal during the separation of the clamp on the ovarian pedicle in the old days. Here, again, however, perchloride of iron is very useful; for if it be carefully applied to any points which bleed, it seals the cracks against absorption, and the powdered iodoform forms a paste with the blood and serum, and completes the protection. I think, then, that Listerism with the spray is a great safeguard in hysterectomy, for it enables us to perform an aseptic operation, and protects the patient during the early days, and until the peritoneum is sealed. The parts around the stump eventually become septic, but, with such care as I have indicated, this is of small moment when the main parts of the wound have healed. When it is impossible to bring the stump quite out of the wound with the pin, and it sinks back partly into the peritoneum, it is almost impossible to prevent putrefaction of the peritoneal wound; and if I were certain in any case that this would happen, I should not attempt perfect Listerism, but should make the whole operation as dry as possible, and use a Keith's glass drainage-tube.

The latest contributions to the statistics of hysterectomy, are from the pens of Dr. Keith and Mr. Lawson Tait. The former has, as usual, obtained brilliant results; in two papers published in this JOURNAL,³ he has recorded 38 cases, with only 3 deaths. He scorns the spray, and expresses his belief that one may do all that is necessary in antiseptics, "as Mr. Lawson Tait does with boiled water and soda." This reference to Mr. Tait's work is rather unfortunate, for, just as Dr. Keith's paper appeared, Mr. Tait published his results in hysterectomy, in the *Medical Press and Circular*, and admits a mortality in this operation of 35.7 per cent.⁴ If a surgeon, who claims an experience of 1,000 abdominal sections, have to admit such a fearful mortality as this in hysterectomy, and another with large experience who says, "I have almost gone back to the boiled water and soda of twenty years ago" only have a mortality of 7.9 per cent., it is clear that it is not the soda and water, but something more in the method of the individual surgeon, which brings the success. Until those who discard Listerism can show as a result of their method a nearer approach than this in their mortality, those who believe in the additional safeguard of Listerism, as I do, may be excused if they still give their patients the benefit of the doubt, if doubt there be. My recent results, as recorded in this paper, eighteen cases with two deaths, are sufficiently near to Dr. Keith's thirteen with one death; but they are too small series for any useful comparison, and the element of chance comes too much into play.

Dr. Keith has favoured my work with somewhat extensive notice in his last paper; but for that I should have waited longer before publishing the present cases. Surely his own brilliant records gain no additional lustre from these bitter attacks upon a fellow worker, whose chief fault is that he remains faithful to the teaching of his old master and best friend. In this JOURNAL, on October 19th, 1878, Dr. Keith published the following remarks upon Listerism. "Since 1876, every operation has been performed with all Mr. Lister's care, and I shall never go back to the old way." Again, "That the spray is essential in ovariectomy, to the perfect carrying out of Mr. Lister's principle is proved, by my experience, over so many years of the simple carbolic acid treatment. There can be no two opinions about this;" and much more to the same purpose, with all of which I cordially agree. But now all this, which was unalterable in 1878, is changed, and we are to go back to the soda and water of twenty years ago, or, if we do not we are to fall under the lash of Dr. Keith, for he now says "those who teach that the carbolic acid spray, in abdominal surgery, is anything else than an useless ceremony, can make of these results what they may." I have found that with the spray, and increasing experience in the use of Listerism, in abdominal surgery, I get increasing success, and I should be most unwise to myself, and most unjust to my patients, if I threw it aside, because one of its most ardent advocates in 1878 has become one of its most bitter foes in 1885. I began to use Listerism regularly in all my abdominal work, before Dr. Keith tried it, and I have never altered my

method up to the present time, years after he has discarded it; so that I can at any rate speak with a fuller knowledge of it than he can, and if I am still a little behind him in success, perseverance may yet give me the lead. He began work before I was even a student of medicine, and time and sticking to what he proved to be good (by his 79 successive successful ovariectomies under the spray), are both fighting on my side. I admire his work with or without the spray; let him be just to mine.

CÆSAREAN SECTION: A CASE AND ITS LESSONS.

By THOMAS M. DOLAN, M.D., F.R.C.S. Ed.,

Fellow of the Obstetrical Society of London, etc.

ON Tuesday, December 30th, 1884, I was summoned by my midwifery-nurse to the Halifax Union Maternity, to see A. M. P., who was reported to be in labour. I saw her at 9.30 A.M. She was in labour; the pains were weak and occasional, and had been on a few hours. On examination, I found that the promontory of the sacrum was not only angular, but exostosed, and so far approached the pubes that it barely allowed the tips of two fingers to pass to feel the presentation; and that the pelvis was generally contracted. I anticipated some trouble with this patient, as she had been in the house a few weeks; she was dwarfed, measuring only 3 feet 11 inches. I immediately had a consultation with Mr. H. Wright and Dr. Davy; and we decided, after several examinations and measurements, that it would be impossible in any way to deliver *per vias naturales*, and that the only chance lay in Cæsarean section.

A room in another part of the building was at once prepared, and the temperature raised to the desired heat. This, of course, took little time, and it was not until 2.30 P.M. that the patient was transferred to this room. She was cheerful, not weakened, and in every way seemed to be a favourable case.

In these days of antiseptic precautions, it is needless to say that the spray was employed, and that every attention was paid to the avoidance of anything that could give rise to sepsis. The position of the placenta and child was made out, the beat of the fetal heart being very distinct. Ether was administered by Dr. Davy, and the operation performed by Mr. Wright and myself. A central incision was made, beginning just below the umbilicus, and carried down, a little to one side of the linea alba, to an inch above the pubes. As the abdomen was thin, the uterus was soon reached, and incised without any trouble, the intestines not interfering. But little difficulty was experienced in extracting a male child, which was alive; and comparatively little blood was lost. The placenta was taken away at once; all the parts well washed and cleaned; a drainage-tube was inserted; the uterine wound was brought together with interrupted carbolic catgut ligatures; and, after the usual details, the external wound was closed with silver sutures, and dressed with iodoform and salicylic silk, kept in position by a strong firm binder. She was soon removed to bed, and made comfortable, and very soon recovered from the effects of the ether. The whole operation occupied about twenty minutes. Two nurses were told off to look specially after her—one for the night, and one for the day. An opiate suppository was inserted, a catheter used, and ice only given. She passed the first night well. The following are the temperatures: at 8 P.M., 100°; at 9.30 P.M., 95.2°; at 12 midnight, 98.4°; at 3 A.M., 99°; at 5 A.M., 98.4°; at 8 A.M., 99.2°. The uterine passages were well syringed through a tube.

She was seen repeatedly on the 31st by Mr. Wright, Dr. Davy, and myself. She craved very much for something to drink; a little milk and soda-water was allowed. Pain was very slight. She had urinated, and was in very good spirits up to about 8 P.M., when she commenced to feel sick; this was followed by vomiting. The suppositories were continued, and beef-injections of peptonised beef-jelly (Mottershead's) were given. At 12 midnight, she complained of great pain; this seemed to be relieved by the opiate suppositories.

At 4 A.M., there was a great change. A sudden state almost of collapse set in; this was overcome by hot bottles to the feet. The tube had come away during the day, and the passages were syringed in the ordinary way. The discharge was not offensive. The following were the temperatures: at 10 A.M., 100°; at 12 noon, 100°; at 2 P.M., 99°; at 5 P.M., 105°; at 6 P.M., 102°; at 8 P.M., 100°; at 10.30 P.M., 101°.

January 1st. The wound was examined; it looked well, but there was a slight discharge at the lower portion. The dressings were changed every three hours. She was still kept under opium, and

³ BRITISH MEDICAL JOURNAL, December 3rd, 1883, and January 31st, 1885.

⁴ Medical Press and Circular, January 28th, 1885.

beef-suppositories were introduced into the rectum. She gradually sank during the day, dying at 8.30 P.M. The following were the temperatures: at 1.30 A.M., 102.4°; at 4.10 A.M., 102.2°; at 6 A.M., 103.6°; at 8.30 A.M., 101.3°; at 12 midday, 102.2°; at 5.5 P.M., 105.5°; at 7 P.M., 100°.

Post mortem examination, 1 P.M., January 2nd, seventeen hours after death. The body was well nourished. She was not externally deformed, the dwarfed condition being chiefly noticeable in the lower extremities. The spine was straight. Her length was 47 inches, thus distributed: lower extremities, 19 inches; trunk, 19 inches; head and neck, 9 inches. The upper extremities measured 21 inches, 11 and 10 inches respectively. The extreme measurement from the anterior superior spine of one ilium to another was 8½ inches. The wound in the abdominal walls was in excellent process of healing. I made an incision on each side, so as to reflect back the abdominal coverings without touching the central wound, so that we might observe the exact condition of the uterus. The cause of death was at once apparent; a large clot of blood lay free in the abdomen, which had been forced through the uterine wound, owing to the vomiting. The peritoneal inflammation was slight; there was no sign of pus; no offensive smell. As regards the other organs, there is nothing particular to note. I ascertained the measurement of the pelvis, which I found to be as I had already made out, one inch and a quarter antero-posteriorly, with general contraction, the bones being generally thickened.

REMARKS.—There are some lessons to be derived from this case. 1. So far as antiseptic precautions, it had been successful; and, had it not been for the vomiting, a fatal termination might not have been arrived at. The first lesson is that food should not be given by the mouth in such cases for two or three days, even though the patient is doing well, owing to the danger of exciting vomiting. This is found, I believe, to be the best practice in ovarian cases.

2. If we look at the list of cases published, sutures have been frequently inserted in the uterine wound. Though Davis says (*Parturition and its Difficulties*, p. 140), "No suture should be applied to the uterus, its contractions alone being sufficient to close the wound, while sutures through its walls would be exceedingly hazardous," yet Sir Spencer Wells, in a successful case, employed continuous sutures, to bring the uterine wound into apposition. And in Case 121, (Dr. Radford's *Observations*, p. 218), under the care of Mr. Alcock, fine carbolised catgut sutures were used to the uterine wound, and we see that the patient recovered. In my case, owing to the attack of vomiting, the sutures gave way. Had the wound been left unsutured, the same result would have followed; the blood would have come through. I think it would be better in all cases to use the continuous suture, as less likely to yield.

3. If we again analyse the cases of Cæsarean section, we find that the great cause of death is peritonitis. There is every reason to believe that this is set up by uterine exudation. In many cases, a clot has been the primary cause of disturbance. Hence Porro's operation of utero-ovarian amputation, *primâ facie*, supported as it is by statistics, suggests itself as the appropriate adjunct of Cæsarean section. 4. If we look at our statistics in bulk, we find one striking feature, namely, that cases in the country have done very well. We must allow for this good air and good constitutions, apart from surgical skill. If, however, we examine some of the successful cases, we shall find that some of our preconceived ideas as to the value of pure air, and other requirements in this class of cases, are rudely shaken. Thus, for instance, if we look at details of the case under the care of Mr. Clement Gray, we find that the operation was performed on a single woman, four feet in height, aged 41, and that the operation was done in the cottage in which the patient lived, situated in a small yard off the main street in Newmarket (England). Mr. Gray says (*BRITISH MEDICAL JOURNAL*, vol. ii, 1883, p. 727): "The drainage and ventilation were very defective. The bedroom in which the operation was performed was barely large enough for myself and four medical friends, who gave me their assistance. The wretched apartment was so close, and the weather so sultry, that we were obliged to keep the window open during the operation. The patient was placed on a common deal board, in a half sitting posture, and, the bowels and bladder having been emptied, Mr. Hutchinson proceeded to use the ether-spray.....The foetus weighed seven pounds, and had been dead a week. Five equidistant wire sutures, including the peritoneum, brought the wound together, which was covered with a compress of lint, supported with bands of adhesive plaster and a broad bandage.....I was amazed to find, on the following day, five children down with the measles in the only available room for the use of the family, eight in number; a narrow stairs connecting this with the dwarf's room above, which thus received the foul air from the lower apartment. The diet con-

sisted of milk, and from first to last no stimulant was administered.The patient had no nursing beyond that given by a neighbour, who ran in and out when she could spare time, but I watched her with the closest attention."

Mr. Gray very truly says, "This case, performed under the most disadvantageous circumstances, without antiseptic precautions, and amid the most unsanitary conditions, is probably unique of its kind." It certainly is. When we consider that Cæsarean section has been fatal in the hands of surgeons of the highest eminence, who have carefully safeguarded their patient by the strictest precautions, as to the temperature of the room, antiseptic measures, skilled nursing, special attention of every kind, we must come to the conclusion that there is no scientific basis for Cæsarean section as at present performed, and that we yet must seek for the cause of failure. It may be true that we have found it in the retention of the uterus, and that Porro's operation may be the key to success; but upon this point the profession is not yet agreed, so that it is to be hoped that, at the next International Congress, at Washington, we may have some papers on this subject, and the latest statistics. Though a rare operation, yet it may fall to the lot of any practitioner to have to decide what he would do in the presence of such deformity.

5. Opinion is divided as to whether a drainage-tube should be inserted or not. My opinion is that a drainage-tube is quite unnecessary; in place of assisting, it may act as an obstruction to the flow; it soon becomes clogged up, and, unless continually cleaned by injections, will not carry any fluid off.

6. I have alluded to Porro's operation as the complement of Cæsarean section. In Great Britain, the opinion of obstetricians seems to be growing in its favour, and we have already several cases on record in which it has been performed.

In the *BRITISH MEDICAL JOURNAL*, vol. i, 1881, pp. 910, 956, there is a very good summary of facts bearing on Porro's operation by Professor Simpson (Edinburgh); from which it appears that, up to that date, 30 mothers were saved by the operation and 42 lost, with 57 children saved and 14 lost; very gratifying statistics indeed when compared with the results of Cæsarean section, as ordinarily performed. More recent statistics give even better results. Professor Simpson lost his patient, but the child lived; nevertheless, he seems to be in favour of the operation, more particularly as out of 18 cases of Cæsarean section performed in Scotland, not a single mother survived.

In the *BRITISH MEDICAL JOURNAL*, vol. i, 1884, page 142, there is the most complete paper on the subject yet published in England, from the pen of Dr. Clement Godson, which was read in the Section of Obstetric Medicine, at the meeting of the British Medical Association in Liverpool. He gives a record of 134 operations, representing 59 recoveries and 75 deaths. He says: "The first idea will not be altogether favourable." "But," he adds, "in comparing these results with those of the old Cæsarean operation, I would call attention to the following astounding facts. In the Vienna Hospital, for one hundred years, there had not been a recovery after Cæsarean section; whereas, recently, in three cases of Porro's operation performed in one week by Professor Carl Braun, the whole of the patients recovered. In Italy, the old Cæsarean operation was almost always fatal. Professor Chiara of Milan writes that, out of 62 cases operated on by Porro, Lazzati, Billi, and himself, only three recovered. On the other hand, nearly half (23 out of 53) of the Porro's operations have been successful, notwithstanding that the operation has been performed by as many as thirty-five different surgeons. In our own city (London), I know that our late colleague, Dr. Greenhalgh, performed Cæsarean section ten times with only one recovery, while I have myself seen it performed by four different operators, every case proving fatal." The most telling evidence is conveyed in the *BRITISH MEDICAL JOURNAL*, January 26th, 1884, page 192, in a letter from Dr. Godson, detailing the results of Porro's operation in the hands of three men, namely:

	Cases.	Recoveries.	Deaths.
Professor Porro, Milan.....	5	4	1
Professor Breisky, Prague	4	4	0
Dr. Fehling, Stuttgart.....	4	3	1
Total.....	13	11	2

Dr. Godson is to be congratulated as the only successful performer of a true Porro's operation in Great Britain, it having failed in the hands of Dr. Heywood Smith and Dr. Grigg. Utero-ovarian amputation has been performed in Great Britain by Savage; but, as Dr. Godson points out, in the *BRITISH MEDICAL JOURNAL*, February 16th, 1884, page 341, Dr. Savage's cases were not performed with the special object in view of saving the child's life. Dr. Godson says: "Dr. Savage's were not Porro's operations, and are not included in

Supplement to Dr. Radford's Tables.

No.	Years.	Locality.	Operator.	Hospital.	Cause of Difficulty.	Age.	Height.	Long Diam.	Time in Labour.	Uterine sutures.	Result to Woman.	Result to Child.	Cause of Death in Woman.	Lived after Operation.	Reference.
132	1881	Barnet	Dr. Perigal	Workhouse Infirmary	Pelvic Deformity	20	—	2½ in. ant. post.	26 hours	Wire sutures 2½ inches diam.	Dead	Dead	Peritonitis	39 hours	BRIT. MED. JOUR., Jan. 21st, 1882, p. 79
133	1881	London	Dr. Galton	Soho Hospital	Cancer	34	—	—	17 hours	No suture in the uterine walls; silver wires in abdominal walls	Dead	Fœtus dead	Peritonitis	27 hours	<i>Lancet</i> , 1881
134	1882	London	Mr. Morris	Middlesex Hospital	Epithelioma	29	—	—	30 hours	Fish-gut sutures	Lived	Lived	—	—	<i>Obst. Trans.</i> , 1882, p. 304
135	1883	Newmarket	Dr. Edis Mr. Gray	—	Deformed Pelvis	41	4 feet	—	Some hours	Wire sutures	Lived	Dead	—	—	BRIT. MED. JOUR., vol. ii, Oct. 13th, 1883, p. 727
136	1884	Halifax	Dr. Dolan Mr. Wright	Union Infirmary	Deformed Pelvis	26	3ft. 11in.	1½ in. ant. post.	5 hours	Carbolised cat-gut; silver wires for abdominal walls	Dead	Lived	Peritonitis	54 hours	

my tables as such, for the very reason that they were performed before the fœtus had reached the viable period. Porro's operation is particularly directed towards saving the life of the child, as well as that of the mother."

In midwifery practice, I have always held that we owe a responsibility to the child as well as to the mother, and that we cannot either bring on abortion or perform craniotomy, or any other operative procedure on the child, at our own will and pleasure. I believe there is a growing feeling in this direction amongst the best accoucheurs.

Dr. Radford, of Manchester, whose name is much associated with Cæsarean section, was a staunch supporter of the claims of the infant, and advocated Cæsarean section as an operation of election, and not of necessity. His statistics usefully assist us in arriving at the comparative mortality after Cæsarean section and after utero-ovarian amputation. Dr. Radford furnishes a list of 131 patients on whom Cæsarean section had been performed, out of which number only 23 mothers recovered; the death in a large number of cases being undoubtedly due to the long period of labour, and the enfeebled state of the women.

If we compare the results obtained in America, collected by Dr. Harris of Philadelphia, we cannot fail to be struck by the difference in the results. Dr. Harris says: "We have had 113 operations and 49 cures in the United States. Twenty-eight early operations in the United States saved 21 women and 19 children; 23 children were delivered alive; 9 women in North America, and 8 in the United States, were operated on twice, with 16 recoveries in the 18 cases, 14 children saved."

The favourable results obtained in the United States are remarkable, and must be estimated in deciding whether Porro's operation is to be the operation of the future. In order to bring the statistics down to the present time, I supplement Dr. Radford's tables with additional cases recorded in our English journals up to 1884.

The case thus stands: Porro's operation, as recorded by Dr. Godson, 134 operations, 59 recoveries and 57 deaths; Cæsarean section in Great Britain up to the present time, 136 operations, 25 recoveries and 111 deaths. If we take the statistics of the United States, we have 113 Cæsarean operations, 47 recoveries and 66 deaths.

There is ample scope for debate with such statistics as the above. My own opinion now is, that Porro's operation is the one I would recommend should I have another case. My patient would not have died from the cause found out at the *post mortem* examination; though she might, it is true, have died from shock, hæmorrhage, or septicæmia, had Porro's operation been performed.

In the discussion on Dr. Godson's paper at the British Medical Association, I do not gather that any conclusions were arrived at, relating to the following points:

1. As to whether Cæsarean section was to be discarded and utero-ovarian amputation recommended as a substitute;

2. Whether, in all cases of known deformity or diseased condition, the pregnant woman should be allowed to go to her full time so as to allow of the birth of a viable child.

These two points would form a fitting theme for our Obstetrical Society, and some definite expression of opinion might be issued, so as

to guide general practitioners, who are likely from their position to meet with this class of cases; such expression might also include not only the various steps of the Porro's operation, but also what the Society might deem the best method.

PARASITICIDES IN THE TREATMENT OF PULMONARY PHTHISIS.

By JOHN EDWARD MORGAN, M.D., F.R.C.P.,
Professor of Medicine in Victoria University; Physician to the Royal Infirmary, Manchester.

In one of Dr. Hermann Weber's interesting Croonian Lectures on the hygienic and climatic treatment of chronic pulmonary phthisis, which have lately appeared in the JOURNAL, he expresses a hope that some means may eventually be discovered of destroying the bacillus and its spores, either in the air we breathe, or in our tissues, without injury to ourselves. I have long thought that, if we are to contend successfully with phthisis, and set some limit to its diffusion, it is in the direction here indicated that our labours may most profitably be expended; for, as Dr. Weber further remarks, "when once the system is infected, we do not yet know of any parasite-killing remedies which, in effective doses, would not injure the host together with the parasite." The mischief, in fact, is then done; the fatal seed is sown, the bacilli are protected within the tissues and secretions of the lungs, and antiseptics are comparatively useless.

On this subject of disinfectants, in their varied bearings, much has been written of late years; some apparently coagulate albumen, others oxidise organic matter, while others, again, are fatal to the growth and increase of microzymes. Many of these substances have long been used in cases of sickness, and, in numerous instances, beneficial results have followed their adoption. But, though we are often told that antiseptic gases, sufficiently potent to destroy contagium, cannot be tolerated by the living tissues, we still know comparatively little regarding the amount of rough usage the respiratory organs are capable of enduring, not only with impunity, but, in some cases, with apparent advantage. The information we possess on this subject is certainly scanty; still, certain facts have been recorded which tend to show that healthy lung-tissues may be beneficially influenced by the action of disinfectants, and, at times, seemingly protected from the inroads of bacillus. Whether, in such cases, these organs become so altered in their chemical composition or in their vital properties as no longer to prove a congenial soil for the growth of the parasites, or the bacilli and their spores are themselves destroyed, we have at present no means of deciding.

In confirmation of these remarks, I would refer to what really may be looked upon as extended experiments on antiseptic remedies, continually and efficiently carried out in the north-western highlands and islands of Scotland. The great majority of the inhabitants of these districts unwittingly expose their lungs to an atmosphere largely charged with disinfecting fumes; thereby teaching us a useful lesson on the extraordinary tolerance of the respiratory organs to such sources of irritation. I will briefly describe the mode of life of these highlanders, in so far as the construction and heating of their dwellings

¹ Dr. Radford, *Observations*, page 80, second edition, 1880.