The Porro Modification of the Cæsarean Operation, in Continental Europe; Chronologically and Analytically Examined: showing the success of the new method; its advance from Italy to other countries; and its diminishing fatality under a better knowledge of the requisites for securing success; the whole statement being prepared with a view to enable our Obstetrical Surgeons to decide whether we should introduce this method into the United States.

By Robert P. Harris, A.M., M.D., Member and Ex-President of the Philadelphia Obstetrical Society, etc.

In the number of this Journal for October last, I presented, in the form of a review, a very imperfect and unsatisfactory record of the Porro operation, the defects of which record no one now better understands than I do myself. There is this, however, to be said as an apology—I did the best that I could at the time, and the errors that I fell into were due to the very imperfect and incorrect statistics furnished us in the accessible journals of the old world. At the time of its preparation I determined, if possible, to obtain a full tabular statement of the cases, arranged in the order of their occurrence, and giving at a glance all the important features of each individual operation, such as I had prepared on the "Cæsarean Section in the United States." It was not my purpose at the time to do this myself, but to arrange for having it done by some European writer who had already manifested an interest in the work.

With this end in view, I opened a correspondence with prominent gynæcologists on the Continent, stating the defective points in the statistics presented to the profession, and giving an outline of the tabular record I have since perfected. Instead of securing some one, as I had antici-

pated, to prepare and publish the paper abroad, where the cases occurred, the offer to assist me was substituted, and I was induced, with many misgivings, to undertake the work, which has grown in interest as it has advanced; and now, when near completion, has attained a degree of perfection which, at its commencement, I should not have believed possible, with the writer and his field of operations so widely separated.

In a reply from Dr. Egidio Welponer, the assistant of Prof. Karl von Braun-Fernwald, of the Allegemeine Krankenhaus, the great general hospital of Vienna, better known to us as simply "Carl Braun,"[1] came the very kind offer to furnish me with abstracts of all the cases which he had been able to collect. To meet this unexpected offer without giving unnecessary trouble, and at the same time secure as many of the important points of each case as possible, I prepared a tabular form, such as I here present, and filled up as many of the points in thirty-one cases as my means of information would enable me to do. This I mailed to Dr. Welponer, who numbered the operations in order; supplied many of their dates; filled up a large number of vacant points, and added four more cases to the list, making thirty-five. After the return of the paper, I made a more thorough examination of the accessible and recently arrived reports, filled up the blanks still more, and then, to complete the work, opened a correspondence with those operators whose reports were incomplete.

The letters and pamphlets received enabled me to present the most complete record which has yet been prepared, and one decidedly more free from the mistakes, which may be readily detected in the best of those which have already appeared. Some of these which I shall refer to before I close, are so singular that I can only account for them by presuming that the work of research was committed into the hands of students, or beginners in the profession. All the work here presented has been done directly by Dr. Welponer or myself, and I have examined the notes of every case that was accessible, to see that errors had not been committed.

Thus much for the foundation upon which my record rests for its accuracy and reliability. I am aware that it is not perfect, as my experience teaches me that this is not a measure to be attained in any statistical work; but I have left nothing undone that appeared likely to secure a better record. Any one who has examined the statistics that have been so frequently appended to reports of Porro operations will have noticed how very unsatisfactory were the statements made. We find the last name of the operator; the name of his city or town; possibly the year of the operation; the result to the woman, and, in some few instances, the fate of the fœtus. Even the year has been sometimes erroneously given,

[1] In one European table, "Carl Brown" and "Fernwald" are credited with operations as two individuals.

a fact that I am made aware of from its having led me to place the first operation by Spaeth next to that of Porro in my review, and only twelve days later in time, when Prof. Spaeth had really the fifth case, and there was more than a year between his and the first.

What we require to know with regard to these Porro cases, in order to understand the real merit of the operation, is not simply who operated, and where, and what was the result to the woman, whether death or recovery; but all the prominent features of each, and in the order of their occurrence. By this plan we learn at once the improvement, if any, in the results attained; the character of the subject operated upon, and her fitness for enduring so dangerous an operation; the fate of her child, as well as her own; and the manner and time of her death, where such has been the termination. It is also of importance to know which were treated in hospital, and whether any preparation was made beforehand to improve the health of the woman, so as to fit her for the operation when required. All of these points I have endeavoured to present in the appended table.

It may hardly seem requisite, at this date, to explain what the Porro method of performing, or rather terminating, the Cæsarean section is; but from the questions asked me in private, I presume it may be well to say, in few words, that after the evacuation of the uterus, its neck is constricted until all hemorrhage is arrested, the organ drawn out and cut away, and the stump secured like the pedicle in ovariotomy in the lower part of the abdominal wound. The operation has in almost all instances been performed under the spray of dilute carbolic acid, and the Lister method of dressing and management strictly carried out. Drainage tubes through the Douglas cul-de-sac, and the abdominal wound, have also been employed, sometimes to the number of three or four, but in almost every case at least one through the cul-de-sac and vagina.

Without a careful examination the removal of the uterus in this manner would appear to be even a more hazardous procedure than the old operation; but experience, first with the lower animals, and then with patients in the old lying-in hospitals of Europe, has shown that the advantage lies with the new method—at least in the general run of cases. The Cæsarean operation is one thing in a hospital, and another in private practice as regards its average mortality. It is also of moderate danger when performed *very* early, and very fatal when done at a late period of labour, as shown by my American record, in which there are only 4 hospital cases in 112, proving that hospitalism had but little to do with the mortality.

Origin.—With no intention of detracting from the merit of Prof. Porro, of the University of Pavia, who will always be remembered as the successful inaugurator of this new method in Europe, I must state, to be historically correct, that he was not the first to originate the operation, either in theory from experiments on the lower animals, or practice upon the

human female. It has long been known by experiments upon gravid dogs, cats, and rabbits, that the Cæsarean section is more fatal to them than the removal of their uteri after ligation of the vagina or cervix. It is a singular fact, that to a namesake of the woman Cavallini, on whom Dr. Porro operated, is credited the first of these experiments. To Dr. Cavallini (1769) is now awarded the merit of having first recommended the ablation of the uterus after the Cæsarean section, as a less dangerous expedient than the old operation. He formed this opinion from the effects of a series of experiments, such as have since been tried with the same results by Blundell, Geser, Fogliata, Porro, and others.

I have found no repetition of the experiments of Cavallini until the time of those made by Prof. James Blundell, of London, which were first given to the world in a lecture delivered before the students of Guy's Hospital in 1828. In a paper read before the Medico-Chirurgical Society of London in 1823, before these special experiments were made, Dr. Blundell writes:—[1]

"*Extirpation of the Puerperal Uterus.*—When the Cæsarean operation is performed, or when a patient is evidently sinking after rupture of the womb, might not the whole uterus be taken away? . . . Let it be remembered, that the wound formed by the extirpation of the womb, and which might probably be much reduced in extent by drawing the parts together with a ligature, would merely take the place of a more formidable wound; that I mean formed in the womb by the Cæsarean operation; and which, by the operation here performed, would, together with the uterus, be taken completely out of the body. . . . Experiments on animals—rabbits, for example—which have very large wombs, might be of use here."

Between 1824 and 1828, in the continuance of his vivisections, Dr. Blundell tried the proposed experiments on rabbits, losing all by the Cæsarean section, and saving three out of four under the plan of ligation and ablation. The language of his lecture, and more pointed recommendation of the method of extirpation in the human female, after these experiments, will be found in the number of this Journal for October, 1879, page 507.[2] As Dr. Blundell repeatedly in his lectures, and the editions of his obstetrical work, urged the adoption of this change in the operation upon the human female, because of his confidence in its greater safety, it is somewhat remarkable, in view of the great mortality of the old operation in England, that no one ever tested the value of his suggestion in his own country. By living, however, to very advanced life, this learned obstetrical author found that his views were proved to be correct in another land.

Since the extirpating experiments of Blundell, similar ones have been tried several times by different vivisectors, who appear to have acted independently of each other. Geser, in 1862, after uterine ablation, saved two bitches out of four; Dr. Giacinto Fogliata, of the Royal University

[1] Blundell's Obstetric Medicine, 1846, p. 759.
[2] Lancet, vol. ii., 1828, p. 167.

of Pisa (Veterinary Department), in 1874, saved three non-gravid bitches out of four. Dr. Porro, in the same year, removed the uteri of three gravid rabbits, and saved them all. He did not know of the experiments of Fogliata, although published in 1875, until after his own success on the human subject. Neither had he heard of the Storer operation, and I presume, also, of the Blundell experiments, as he does not mention them in his report. He may possibly have heard of Dr. Cavallini's work, but even this is doubtful. He appears to have been influenced by the results of ovariotomy, the success of cases of uterine ablation by abdominal incision under Péan,[1] and the valuable effects of the Lister treatment in hospitals.

The first operation of removing the uterus of a parturient woman was performed in Boston, on July 21, 1869, by Prof. Horatio R. Storer (now of Newport, R. I.), on a patient three days in labour, with a dead and putrid fœtus in utero. An examination under chloroform showed that delivery through the pelvis was impossible, as it was nearly blocked up by a large tumour, leaving but an inch and a half of open space on one side, through which the head of the fœtus could be felt above the pubes. The idea of Dr. Storer in opening the abdomen was, 1. To make a reliable diagnosis. 2. To remove the tumour if possible, and bring away the fœtus afterward through the pelvis; and 3. To open and evacuate the uterus, if the tumour should be found immovable. The incision being made, the tumour was found both in utero and in the pelvis, and to be firmly attached. An exploratory incision into it showed it to be fibro-cystic, and occasioned much bleeding. Removal of the whole mass being impracticable, the uterus was opened and a mature fœtus removed. The womb not contracting, on account of its being dense and thickened from disease, the hemorrhage was alarming, and to save the woman, Dr. Storer, "with his usual self-possession, decided to remove the whole mass as far as possible, which would include the uterus, as well as the fibro-cystic tumour of the left wall." This was then done by ligating the cervix, cutting away the uterus, cauterizing the stump, putting on a clamp, and fixing the stump in the abdominal wound. The woman died in sixty-eight hours. The pelvic portion of the tumour was not removed.

Several European correspondents appear to regard this case as out of the line of Porro operations, because he operated with a view to relieve the dystocia and remove the tumour, and only as a matter of necessity decided to remove the uterus, the hemorrhage being only controllable by ligation of the cervix. Be this as it may, Dr. Storer did perform the Cæsarean operation, and afterward ligate and remove the uterus. The complication of tumours made the case very unfavourable; and the result is the common fate of almost all Cæsarean cases, undertaken because of uterine tumours. A very remarkable exception in the United States was the case under the care of Dr. Olcott, of Brooklyn, in 1874. The woman died on the fourth anniversary of her operation, from an attack of peritonitis, which was believed to have resulted from the presence of the tumour.

The case of Dr. Storer, the only one that has occurred in this country,

[1] Péan saved 17 cases out of 24, between 1869 and 1875. See Dr. Samuel Pozzi, "De la Valeur de l'Hysterotomie dans le Traitement des Tumeurs Fibreuses de l'Uterus." Paris, 1875.

does not appear at the head of the table, because it is an exclusively European record.

We now come to an examination of the cases, which I have arranged in tabular form for convenience and ready reference; taking them in order, except where several occur in the same city or hospital, when they will be considered in succession.

These abstracts and comments should be read conjointly with their corresponding minutiæ in the tabular record, as without this addition they will be found very incomplete.

CASE 1.—Operator, Dr. Edoardo Porro, Professor of Midwifery and Clinical Obstetrics in the University of Pavia. This case was a favourable one for the operation, and made still more so by a preparative medical and dietetic treatment lasting twenty-four days. The woman was a young rachitic subject, and taller, with one exception, than any of the same class in the list, some of whom will be seen in the height column to have been dwarfs of a metre or a little over it. Giulia Cavallini was a year younger than Dr. Gibson's patient in this city, and in labor a much shorter time. With the advantages presented, we should expect in private practice in the United States to save from 70 to 75 per cent. of such rachitic women under the old operation. But Dr. Porro operated in an old hospital, of which he says: "*Cavallini is the first operated upon by the Cæsarean section, who has been cured, in the Obstetric Clinic of Pavia.*" Dr. Chiara, of Milan, writes in a letter recently received, that out of 62 operations—old style—performed by Porro, Billi, Lazzati, and himself, all had proved fatal but three, which were saved by Billi out of his 37 cases. The balance, 25, under Porro, Lazzati, and Chiara, were all fatal. From this standpoint we see that the cure of Madam Cavallini was a decided improvement over the ordinary result of the old operation.

Dr. Porro had decided beforehand to operate by extirpation; gave his patient the benefit of an early operation, and used the plan of Lister to its full extent. He arrested the hemorrhage and secured the cervix by the serrenœud of Cintrat, which appears to be still the favourite constrictor in these operations on the Continent. Some have tried the écraseurs of Chassagnac and Billroth, the instrument of Maissoneuve, and elastic of Esmarch, etc.; but the wire-loop is most frequently employed, and has produced the best results.

Dr. Porro has given a very minute account of his case in a memoir of sixty pages,[1] with two full-length photographs of the woman, and two views, back and front, of the uterus, with the serrenœud of Cintrat. To produce anæsthesia required 9 minutes; the operation, 19; the sewing up, 7; and the medication, 8=43, which was 26 for the operation proper—a shorter time than the average required.

CASE 2.—Operator, Professor Giovanni Inzani, of the Royal Obstetric Institute of Parma. Seven months elapsed after the operation of Porro before the same was repeated in kind by any European. The memoir of the Pavian originator was published in October, 1876, but the work of introducing the new method advanced very slowly. Unfortunately for its advancement, the second, third, and fourth operations were performed upon subjects whose diseased or exhausted conditions rendered their cases

[1] Ann. Universali, Oct. 1876, p. 289.

at least desperate, if not altogether hopeless. Such was the state of the woman to whom Prof. Inzani was called as a consultant by her medical attendant, at a little town some twenty-three miles from Parma. The woman was pregnant with her fourth child, and had not had any difficulty with the other three; but now there was an insurmountable obstacle discovered in the form of a large tumour, believed to be malignant in character, which filled up the lower pelvis. The patient was broken down in health, and her condition made her operation one of unusual danger. After death the tumour was pronounced to be an encephaloid growth.

CASE 3.—Operator, Dr. Alfred Hegar, Professor of Obstetrics in the University of Freibourg, Germany. Woman highly albuminuric; was seized with convulsions. Operation performed; placenta removed without hemorrhage. No fluid permitted to escape into the abdominal cavity. Cervix tied with a double metallic ligature, and drawn by the serrenœud; then cut away by the écraseur. During first two days apparently doing well, except that she had an annoying cough; on third day symptoms of septic peritonitis. Passed a drainage-tube through Douglas's cul-de-sac, and much turbid fluid escaped. Died on April 1st.

CASE 4.—Operator, Dr. Geronimo Previtali, of Bergamo, Italy. The woman was believed to be almost moribund when she was taken to the hospital, having been in labour five days. Owing to her exhausted condition, she sank and died, as was anticipated.

CASE 5.—Operator, Dr. J. Spaeth, Professor of the Theory and Practice of Midwifery in the University of Vienna. This case presents several points of special interest, viz.: 1. It was the first of a series of cases that were operated upon by the medical staff of the Allegemeine Krankenhaus of Vienna. 2. It was the first non-fatal case of Cæsarean section in a hundred years, not only in the Krankenhaus, but in the whole obstetric practice of the city. 3. It was the first of three cases of malacosteon, all operated upon in the Krankenhaus within a period of three months. 4. And it was the second early operation as well as recovery.

This woman was the oldest but one in my table; had had five natural deliveries; one craniotomy after her malacosteon began; three miscarriages; and was pregnant for the tenth time. Prof. Spaeth had her under a tonic and dietetic treatment for twenty-four days before her labour came on, and he operated very soon after its commencement.

The recovery of the patient gave a fresh impetus to the "utero-ovarian amputation," and created quite a sensation in medical circles in Vienna. It prepared the way for a better future in Viennese Cæsarean operations; made obstetricians more hopeful and less timid in operating, and showed that by care, promptness, and the antiseptic system, hospital cases might be saved in the long fatal and much dreaded Cæsarean operation.

CASE 6.—By the same operator and in the same hospital. Unlike the preceding case, there was no opportunity given to prepare for the operation by medical treatment, as the woman did not enter until she had been about a day and a half in labour. This long delay exhausted the woman, caused the fœtus and placenta to become putrid, and as a consequence to poison the patient, who already exhibited evidences of septic infection. She was in her fourth pregnancy; had had two natural deliveries and one with forceps, and the fœtus in utero was giving rise, by its putrescence, to

the evolution of gas, shown by the sound on percussion. How long it had been dead does not appear, but from the advance in decomposition both of it and the placenta, it probably died prior to the commencement of labour. The failure of the operation under the circumstances would be regarded as inevitable, but for the fact that women have recovered under apparently similar conditions; as, for example, Case 9. The production of septicæmia from decomposition within the body we can much more readily comprehend, than the escape therefrom, where a fœtus has been for weeks or months in a state of advanced decay in the uterus or in an extra-uterine cyst. Such patients emaciate, have an accelerated pulse, are no doubt poisoned, but still recover health and strength after the offending cause is removed.

CASE 7.—Operator, Dr. Carl von Braun-Fernwald, Prof. of Clinical Obstetrics and Gynæcology in the University of Vienna. Case also under treatment in the Lying-in Department of the General Hospital.

Like its immediate predecessor, this case was a very unfavourable one for the operation, the woman being far advanced in, and exhausted by, malacosteon. She had given birth to six children naturally: the seventh was delivered by version, and she was now pregnant with her eighth. Her fœtus was transverse: her pelvis collapsed; and she could not walk. Labour was not protracted, but the condition of the woman favoured the result in septicæmia and death: compare with Cases 21 and 24.

Malacosteon has furnished but a small percentage of the pelvic deformities which have led to the Porro operations. Considering the diseased condition of the subjects, it is remarkable that four out of the six cases should have recovered, and that but one child was lost. English obstetrical writers claim that the disease is quite uncommon in the British isles, and still their Cæsarean record shows a list of 50 cases, against 24 of rickets, in a table of 118 operations. Six of the former and five of the latter were all that survived under the old form of operation. Rachitic subjects, except the very diminutive, are as a general rule more promising than those advanced in malacosteon. Prof. Spaeth claims that the removal of the sexual organs cured his patient (Case 5) of the bone disease, there being left at the end of a year no symptoms of the osteo-malacia.

CASE 12.—By the same operator, and in the Krankenhaus. This was the second under Carl Braun, and his first to recover. It was also the first of five operations on rachitic subjects, three of which were saved. The subject of No. 12 was a dwarf, five inches shorter than the woman on whom the late Prof. Gibson of Philadelphia twice operated with success by the old Cæsarean section, in 1835 and 1837,[1] and was in labour the same number of hours. The cervix was cut off by the écraseur of Billroth. This woman was also of the same age that Dr. Gibson's patient was at the time of the first operation; was deformed by the same disease; and their conjugata vera were the same in computation.

CASE 22.—Operator, Dr. Gustav Braun, Prof. of Midwifery for Midwives, University of Vienna. The subject was a still smaller dwarf, and nearly the same in height with the patient operated upon with success by Dr. Mills, of Richmond, Virginia, in 1856, the latter being about an inch shorter. Dr. Mills's patient was in labour only 4½ hours; that of Gustav

[1] This woman is still living.

Braun about 24 hours. The children were saved under both operations. Compare with Case 21. (See table.)

CASES 30, 32, and 34.—Operator, Carl Braun: third, fourth, and fifth cases in the Krankenhaus. The reports have not yet been published in detail. Case 30 appears to have been as long in labour as 22, but the membranes had been ruptured only half an hour. Case 32 perished, although operated upon as early as No. 12. The result was probably one of the misfortunes of utero-abdominal surgery. The height has not been given me as yet, which is an important element in estimating the early or late character of an operation. Ten hours of strong uterine pains are very exhausting to a diminutive rachitic subject, but may be well borne in a woman of the size of Case 12. No. 34 was in labour a less time than the patient of Dr. Porro, and recovered. Why of two cases under the same operator, and with apparently the same advantages, one should die and the other recover, we are not competent to decide. We may speculate as to some minor advantage in the recovered case, either constitutional or hygienic, over the other; but we are still at a loss to tell why one has a peritonitis and the other has not.

We go back in our figures, to examine a series of cases operated upon in the Saint Catharine Lying-in Hospital of Milan, chiefly under Prof. Chiara; with one by his assistant, Dr. Mangiagalli. The Milanese operations number five, with three recoveries, the same number saved, as in 62 cases, in Northern Italy, under the old operation.

CASE 8.—Operator, Dr. Domenico Chiara, Prof. of the Royal Obstetrical School of Milan. The first of the series is the shortest dwarf but two, of all those whose heights I have ascertained, and an inch and a half shorter than the most diminutive subject saved in the United States: but at the same time taller by 7½ inches than the woman (91 ctm.) saved by Dr. Mayer of Brest, France, in 1874, under the old operation.[1] Case 8 appears to have died in consequence of a mishap, the effect of vomiting, the pedicle being forcibly drawn into the abdomen, and a knuckle of bowel forced out. This is said to have given a severe shock to her system, from which she did not rally. Possibly the vomiting may have been the precursor of peritonitis. Prof. Chiara has illustrated his reports of this case, and Nos. 13 and 21, by photographic pictures taken at full length.[2] By the picture of the woman in question, it appears that she was plump, but very crooked both in spine and legs, by which her direct height was very much diminished. She was in good health at the time of the operation, and in her first labour.

In "Santa Caterina" Hospital there is an average of about four hundred obstetric cases a year, there having been six thousand from 1863 to 1878. This region of Italy has frequently been noted by travellers as the most abundant in deformities of any part of Europe: hence the number of Cæsarean operations that have been performed. Milan, Turin, and Pavia have been specially mentioned in books of travel for the number of their rachitic dwarfs. Milan is located in a rice-bearing and malarious district, and the people are subject to autumnal fevers, enlargements of the liver and spleen, pellagra, rickets, and to some extent malacosteon.

[1] Archiv. de Tocol. Sept. 1874, p. 514.

[2] Annali Universali, 1878.

CASE 13.—Operator, Prof. Chiara, and at the same hospital. Subject also rachitic, but younger, taller, and apparently in a fair condition for the operation, which was performed in good season; still she died of peritonitis, while Case 12, in many respects parallel, recovered. Case 13 was pregnant for the third time; her first child was expelled at six months, she having been caused to abort by the use of the hot-water douche; and she aborted spontaneously with the second at three months. In her anxiety to have a living child she declined having labour induced in this her third pregnancy.

CASE 21.—Same operator and hospital. This case is of great interest, as the woman recovered. Prof. Chiara has given a front and side view of this patient, showing the peculiar shortening effect of malacosteon on the body, by which the arms and lower extremities are made to appear disproportionately long. This woman was the oldest in the table, pregnant with her seventh child, and in labour about twenty-four hours. Her first four labours were natural and easy; the fourth and fifth after malacosteon existed, but still both were natural; the sixth labour was long and tedious, and required manual assistance to separate the ischia. In the seventh labour, her pelvis had become collapsed and unyielding, with the tuberosities of the ischia only separated by $\frac{2}{3}\frac{0}{2}$ of an inch. The abdominal incision was made $5\frac{1}{2}$ inches in length; the operation lasted 32 minutes; the cervix separated on the eighth day; and the patient left her bed on the thirty-fifth day.

CASE 35.—Operator, Prof. Chiara; same hospital; his fourth case. The woman was pregnant with her second child, and advanced seven and a half months when received into the institution. She was then put under medical and dietetic treatment in preparation for the operation, it being estimated that gestation would be completed about August 28. Her first child was delivered in a putrid and softened condition after craniotomy, on March 6, 1878, following which she was attacked with gangrenous vulvo-vaginitis, endometritis, and parametritis. She left the hospital on March 27, 1878, in good health, and re-entered on July 16, 1879. When examined, it was found that "the neck of the uterus was, as it were, abolished, and reduced to a hard resisting knob, in the centre of which a depression represented the inferior end of the cervical canal."

The health of the woman was good at the time of her operation, and this was performed without waiting for the pains of labour. The whole operative process occupied forty minutes. Pulse 108, and respiration 24 at commencement; pulse 50 and respiration 32 immediately after the wire loop was applied and tightened; 72 and 28 respectively, at the close of the dressing. This sudden fall of pulse, which was 100 just before, and increased frequency of respiration, must have been due to the effect of the constriction acting upon the nervous system, in the form of a temporary shock, which soon passed off. The temperature gradually fell with some slight fractional interruptions during the entire operation, from 37.6° Cent. to 36.8° There were no indications of peritonitis during recovery; the pedicle separated on the twelfth day; the patient was up on the twenty-first day, and left the hospital in good health on October 11, forty-four days from the operation. Of four operations prior to the commencement of labour, all resulted fatally but this—see records of 8, 11, and 27. Prof. Chiara saved two out of his four cases.

CASE 33.—Operator, Dr. Luigi Mangiagalli; same hospital. Dr. M. is the first assistant to Prof. Chiara, in the Royal School of Obstetrics

of Milan. The subject was a young rachitic primipara, in whom one of the chief obstacles to delivery was at the inferior strait, the tuberosities of the ischia being but 1½ inches apart. The true conjugate diameter was nearly three inches long, but much of this was unavailable on account of the form of the strait. Labour commenced a day and a half before the operation, but was no doubt inactive, as the membranes were ruptured but a short time: besides, an active uterine operation of this length will almost invariably lead to a fatal termination after the Cæsarean section in a woman of her diminutive height. Dr. Mangiagalli's operation was completed in twenty-eight minutes. This with the Chiara cases, gives three recoveries from five operations.

The following case requires a special notice, as with it originated the Müller modification; sometimes also called the "Rein and Müller method." Dr. G. Rein, of St. Petersburg, Russia, proposed, in 1877, that the uterus should be ligated to avoid all hemorrhage, before it should be opened for the removal of the fœtus. Müller added to this the turning out of the uterus from the abdominal cavity by a long incision, before the ligature, and then evacuating it, so as to avoid the risk of the entrance of its fluid contents into the abdomen; after which the operation is to be completed, as in the Porro method. The other Müller operations will be found noticed in the records of the cases in which his method was selected.

CASE 9.—Operator, Dr. P. Müller, Prof. of Midwifery in the University of Berne, Switzerland. The patient was deformed from malacosteon, and in labour with her sixth child, the pains having lasted three and a half days. She was feverish and exhausted; her child dead; the waters had been draining away for three days; there was gas in the uterus, as shown by the resonance on percussion; and her symptoms were indicative of commencing septic endometritis. The operator had intended to perform the usual Porro operation, but finding an obstacle in the collapsed state of the pelvis, and the want of any neck-like formation in the uterus, he enlarged the abdominal incision, drew out the uterus, secured the cervix, placed sponges as absorbents over the abdominal wound, opened, emptied, and then cut away the uterus. Unfavourable as this case must have been, the woman recovered. Her pulse, which was 136 before the operation, fell to 96, after the removal of the uterus with its septic contents.

By a letter recently received from Prof. Müller, I learn that the superior strait of the woman's pelvis was very much rostrated and collapsed, the pubic arch nearly closed up, and the sacrum and coccyx falciform in curve, so that no instrumental operation through the vagina was possible. The diameters of this form of pelvis do not convey any idea of the working space. They are given as follows: Distance between the iliac spines $8\frac{1}{4}$ inches, between the iliac crests $10\frac{5}{8}$, true conjugate diameter $4\frac{5}{16}$, right oblique 4 inches, and left $4\frac{5}{16}$. The patient was in bed forty-eight days after the operation, and left the hospital two weeks later. She died of heart disease on December 1, 1878, and her pelvis is now in the collection of the hospital.

CASE 10.—Operator, Dr. Adolphe Wasseige, Prof. in the University of Liége, Belgium. The notes of Cases 10 and 17 are gleaned from two pamphlets kindly sent me by the operator, giving full details of his two operations and their results. The first patient came under observation in Jan. 1878, when he made an examination to determine the possibility of bringing on

her labour prematurely. Finding much deformity of the pelvis, he postponed the delivery to term, and made arrangements to operate upon her in a building outside of the hospital, the old school of Sainte Barbe. Here she was operated on, and here she remained until her cure was complete, the carbolic spray being used in the operation, the method of Lister fully carried out, and pelvic drainage established by a tube through the vagina and Douglas's cul-de-sac. In forty days the woman was discharged, and a month later was reported as nursing her child at home in Verviers.

CASE 17.—His second operation was performed under much less favourable circumstances, and in the hospital proper, upon a dreadfully deformed dwarf, as shown by the picture given of her. She entered the hospital a few hours before the commencement of labour, and was operated upon at an earlier stage than in the preceding case, but her condition of health, and an accident of the operation by which she lost a good deal of blood, caused her case to terminate differently. As a child, she commenced to walk at eight months, and ceased to be able to do so at eight years, from which time until she was fifteen or sixteen she was obliged to recline or sit up. She did not menstruate until eighteen years old. I have given her conjugate diameter as an inch, but the condition of pelvic collapse will be better appreciated when I state that the sacro-cotyloid measurement on either side was but $\frac{11}{16}$ of an inch ($1\frac{3}{4}$ ctm.). Her pulse before the operation was 102, and temperature 102.2°. The plan of Müller was attempted, but the uterus could not be turned out of the abdomen through the incision, and the ordinary Porro operation was performed. A chain écraseur was applied to constrict the cervix, but the tissues being friable an artery was opened, and before it could be secured there was a serious loss of blood. The serrenœud of Cintrat was applied, and the operation concluded in forty-one minutes. Patient much blanched by the hemorrhage, and pulse 144 and very feeble. She died, as was much feared, before the operation.

Dr. Wasseige attributes the condition of her cervical tissues to the fact of the patient being very badly housed and fed during her period of gestation. To obviate the risk of cutting into the cervix by the constrictor, he has devised one which is described and illustrated in his second pamphlet, in which the compression is made with a band, instead of a round wire or large chain, as in most of the reported operations. Dr. Wasseige appears to have fallen into the same error with Dr. Welponer, already referred to, to the effect that the case of Dr. Storer was not of the Porro order. He says, "we exclude from the statistics the case of Stover [Storer] because the extirpation of the uterus was done with another object." If our European medical brethren will examine the original report by Dr. Bixby, they will find that the parturient state of the woman much more immediately endangered her life, and required the Cæsarean section, than the double tumour, or tumours which constituted the dystocial obstacle.

We now come to the examination of another series of cases. When Dr. Chiara performed his first operation in Milan, Dr. Tibone, of Turin, was present, and now, after an interval of five months, the latter tries the same method at home, on one of the diminutive dwarfs of Northern Italy.

CASE 14.—Operator, Dr. Domenico Tibone, Prof. of Midwifery and Clinical Obstetrics in the University of Turin. This patient entered the Maternita di Torino, six weeks before the operation, and fell in labour at eight months, when it was decided to open the abdomen by the long incision. This was made to the extent of 19 ctm. (7½ inches), the membranes punctured per vaginam, the liquor amnii drained off, the uterus turned out, as devised by Müller, and the cervix ligated by the constrictor of Maisonneuve.

Although comparatively an early operation, I cannot consider twelve hours a safe measure of time in so small a dwarf. If such subjects are to be saved, they must be operated upon as in the case of the dwarf at Brest, a woman who, although but 35$\frac{3}{16}$ inches in height, was saved with her child by a very early Cæsarean section. The strength of rachitic dwarfs is usually very soon exhausted, and a condition of physical prostration seems to favour the production of peritonitis. As in the old operation, so it will be found in the new, that recovery will follow in larger measure the early use of the knife.

The recovery in Müller's case is one of the marvels of obstetric surgery, and it is not likely to be duplicated in antecedents and results. The issue in Cæsarean cases is largely dependent upon the condition before the operation, and the care in, and manner of, performing it; but there are instances which at times defy all prognostic rules, very unfavourable cases getting well, and their opposites perishing. Still, there are general rules to guide us, and we find an average mortality in cases which are classed in anticipation as *favourable*. We should see to it, wherever possible, that this word shall cover time of operating as well as condition of woman.

CASE 23.—Operator, the same, and in the same hospital. This rachitic subject was the shortest, by a fraction, among the women who recovered after the Porro operation (No. 16 measuring nearly the same), and the same in height as Dr. Tibone's first case, No. 14, which he lost. This woman suffered with rickets until eight or ten years of age. She was in labour when she entered the hospital, but how long exactly I am not able to state; her pulse was 104, and that of the fœtus 152, which were neither of them favourable to success. In the convalescence, the patient passed through an attack of traumatic peritonitis. The sutures were removed on the fifth day, but there being considerable meteorism, and the intestines threatening to protrude, metallic sutures were applied on the sixth day. In passing the wires, the intestines, which pressed with force into the abdominal wound, were unfortunately transfixed in several places, resulting in the formation of three intestinal fistulæ, which retarded the entire healing of the wound, and she was sent for treatment to the San Giovanni Hospital.

CASE 27.—Same operator and hospital. This was the tallest of Dr. Tibone's cases; a primipara of 39, said to have been in good health at the time of the operation, and was not yet in labour when it was begun. She was of regular form except as to her pelvis, which had the usual rachitic character; and her whole skeleton was imperfectly developed. Traumatic peritonitis resulted, and death quickly followed.

CASE 28.—Operator, Dr. Giovanni Peyretti. This being also a Turin case, is placed in the same series with the preceding cases. The woman was the smallest but one, of all the European Porro subjects whose heights are recorded, and was thought to be in a favourable condition at the time the section was commenced. The abdominal incision was 5⅛ inches in length. There was no escape of fluid into the abdominal cavity. The constrictor of Cintrat was used; the abdomen was sutured with carbolized catgut, and the dressing of Lister applied, after perchloride of iron had been used upon the pedicle. Vomiting, some fever, slight hemorrhage from the pedicle, and tympanites occurred during the first week. On the eighth day she was slightly delirious, and got up to urinate. Ninth day symptoms of tetanus appeared, going on to opisthotonos. Tenth day died. Wound partially united, no signs of peritonitis.

CASE 31.—Operator, Dr. Giuseppe Berruti, Assistant Lecturer on Obstetrics, Turin. The woman was a primipara, and one of the few in Europe that have been operated upon in private practice. Her pelvis was of an osteomalacic type, and part of the superior strait was shut up. The abdominal incision was only 4¾ inches (12 ctm.) long. After removing the fœtus, the neck of the uterus was tied at its point of union with the body, by a strong silk ligature tightly drawn, and the uterus cut away. This not sufficiently controlling the vessels, a Kœberle constrictor was applied. The operation was performed as in Case 28, and also in thirty-five minutes. During a day and a half there were no unfavourable symptoms, then traumatic peritonitis set in, and continued for two days, when it began to subside. The pedicle separated on the eighth day, and the patient, with her abdomen well bandaged, sat up on the fifteenth day.

Milan and Turin have each had five Porro cases; the former saving three, and the latter two, being collectively fifty per cent., which is the average for the whole of the European cases. The Maternita of Turin has an average of 271 obstetric cases per annum; the whole, from 1863 to 1878, having been 4066. In these fifteen years there were only three Cæsarean operations, the last by the Porro method, and all were fatal. Dr. Tibone says that, thanks to improved hygienic conditions both as to streets and houses, rickets has become less frequent during the last twenty-five years in Turin, and is less deforming in results than formerly; and that obstetric cases among rachitic subjects have generally been managed in private. Hemorrhage and peritonitis have been the usual causes of death after Cæsarean operations in this section of Italy. Of the three cases in the fifteen years noted above, one died of hemorrhage, one of exhaustion, and one of peritonitis. There was one operation by laparotomy after rupture of the uterus, but the woman died.

CASE 11.—Operator, Dr. Fernando Franzolini, Surgeon-in-Chief of the Civil Hospital of Udine, Italy. This is another of the cases which were operated upon before labour began. The woman was in the hospital eleven days prior to the operation, and in a condition bordering on death at the time of its performance, being affected with broncho-tracheal catarrh. It became a question whether to operate at once, and save the life of *the fœtus*, or to wait until after death, and then open the abdomen and uterus, with scarcely a shadow of hope for *its* safety, under the manner of death. It

was decided, therefore, to operate during life, the patient being unconscious from her partially asphyxiated condition. Artificial labour had been attempted, but failed after a few slight pains; the hot-water douche, hypodermic injection of ergotine, and rupture of the amniotic sac, being all employed. Unfortunately there were twins in utero, each having its own distinct placenta; and one of these was implanted over the line of incision. This latter was the occasion of a serious loss of blood, which was checked by placing an Esmarch elastic tube twice around the cervix. The operation had an effect to somewhat improve the state of the patient; but an advance in her pulmonary complication occasioned her death. The twins were living, but were not in a condition for independent existence, having suffered from the blood-poisoning of their mother, in consequence of which they died within an hour.

CASE 15.—Operator, Dr. C. C. Th. Litzmann, Prof. of Obstetrics and Gynæcology in the University of Kiel, Germany. This case is one of peculiar interest, and may prove a valuable lesson to future operators. A short time before, Prof. Litzmann, who is a colleague of Esmarch, tried the bloodless operation of the latter in a Cæsarean operation (old style), and failed to save the patient. He then in the case under consideration adopted the new method, as modified by Müller, but with no better success. The woman was pregnant with her second child, the first having been delivered by craniotomy, and had been in labour three days. She not only had a contracted pelvis, but an occlusion of the external os uteri, probably the result of the former delivery. The operation of Litzmann was effected without hemorrhage, but lasted two hours. The fœtus was apparently dead when removed, but soon revived, which is a common feature of the Müller plan of delivery; the arrested maternal supply of blood, depriving that of the fœtus in the placenta of its oxygen, and producing during a few moments the effect of drowning.

After the death of the mother it was discovered that an error had been committed in not opening the os uteri, as the cervix having no vent, there accumulated in the canal a quantity of putrid pus, to the pressure of which the operator attributed the blood-poisoning.

CASE 16.—Operator, Dr. August Breisky, Prof. of Midwifery in the University of Prague, Austria. The woman was brought to the hospital in labour, and the operation was performed according to the plan of Müller, the incision extending from above the umbilicus down to about 1½ inches above the pubes. This was the third case in which the Müller plan was tried, and the first to save both mother and child. The Lister plan was adopted for treatment. Three drainage tubes were inserted, one through the vagina and Douglas's cul-de-sac, and two through the abdominal wound to the iliac fossæ. At the close of the operation the pulse soon fell to 84, and the woman made a good recovery. The cervix remained open, forming a fistula for forty days. The antecedents of the case have not been reported. Discharged in fifty-two days.

CASE 18.—Operator, Dr. Perolio, of Brescia, Italy. This dwarf was more deformed in pelvis than the conjugate diameter indicates, the sides of the superior strait being bent inward, constituting the form denominated *pseudo-osteomalacic*. The membranes gave way before there were any actual labour-pains. The instrument of Cintrat, and abdominal drainage, were used, and the patient was well in twenty-seven days.

CASE 19.—Operator, Dr. Hubert Riedinger, of Brünn, Austria. Woman entered the Lying-in Hospital five days before the operation. Labour

set in very actively, and she was operated on in fair season, under the antiseptic spray, and with the écraseur of Péan-Billroth. Traumatic peritonitis, resulting in abscess, followed; but the woman, after being in great danger, recovered in five months (Feb. 16).

CASE 20.—Operator, Dr. H. Fehling, of Stuttgart, Germany. The patient was a primipara, and entered the Lying-in Hospital early in the previous month. This was another instance where the pelvis, deformed by rickets, was of the malacosteon type, and nearly closed at the superior strait, the right sacro-cotyloid diameter measuring but one inch. In operating, the Esmarch band was first applied, and, after the excision, the serrenœud of Cintrat. The tissues of the cervix being weak, the pedicle tore as in Case 17, under Dr. Wasseige, and the clamp of Spencer Wells was substituted. Peritonitis (regarded as infectious) caused death on the fifth day.

CASE 24.—Operator, Dr. A. Fochier (Surgeon-in-Chief of La Charité Hospital), of Lyons, France. This is the fourth malacostean case that recovered after the Porro operation. Dr. Fochier had her under treatment in the lying-in department of La Charité for two months prior to labour, and even then her case was not regarded as very favourable. It was her first labour, a very unusual circumstance in malacosteon cases, as the deformity resulting from this disease to an extent requiring the Cæsarean section is generally found in multiparæ, and yet in this instance the pelvis, as shown by the sacro-cotyloid diameters, was in a full state of collapse. The usual impression in our country, where we have no personal experience with the disease, has been that it originated during gestation, or between pregnancies, and increased with the progressive acts of child-bearing; but here we have an advanced case with a first pregnancy. Malacosteon may also attack women already deformed by rickets, and in them the disease advances rapidly, and its results are frightfully disfiguring.

The time of Dr. Fochier's operation was only twenty-five minutes—an unusually short one for the Porro operation. The old Cæsarean section has been accomplished in five minutes; but the method of Porro has usually required from thirty-five minutes to an hour, and that of Rein and Müller about twice as long. The cicatrix, under the old operation, as a general rule, forms much earlier. In Dr. Fochier's case it was complete in thirty-five days.

CASE 25.—Operator, Dr. Paolo Coggi, of Cremona, Italy, Physician to the Lying-in Department of the Civil Hospital, where the case was under treatment. As the record has not been published, I will give it as contained in the letter of the operator.

The subject was a rachitic dwarf, as will be seen by the table; and in labour for the first time. Her pelvis appears to have been of the infantile type, or that which is known as the "generally contracted" variety, as in Case 15. The operation was performed during the first regular pains of labour, the woman being in a very favourable condition. There was no accident during the operation; which occupied a comparatively short time. Not a drop of amniotic fluid or blood escaped into the abdominal cavity, and there was, therefore, no need of peritoneal cleansing. Drainage was not made use of; constriction by the serrenœud of Cintrat, the long and

heavy handle of which was fixed to the left hip; and the method of Lister was fully carried out.

The fœtus was well formed, alive, weighed about 7½ pounds; occipito-mental diameter 5$\frac{5}{16}$ inches; bi-parietal, 4$\frac{1}{8}$ inches.

No unfavourable symptom after operation; pulse 76, respiration 22, temperature 98.6. The same condition continued for four days. On the fifth day there were evidences of localized peritonitis around the pedicle; this began to extend, and caused the death of the woman on the ninth day. The abdominal wound was 5½ inches in length, and united by the first intention.

The stump or pedicle had formed no adhesions, and was in part retracted within the abdominal cavity, a portion at the inferior angle of the wound being retained by a fragment of uterine tissue held in the handle of the serrenœud.

"The result of the autopsy has convinced me that the lamentable disaster was occasioned immediately by the re-entrance into the abdomen of a portion of the stump through the failure of union with the parietes, and that this was interfered with by the involuntary movements, produced by the serrenœud. I am persuaded that this inconvenience could be avoided by the use of a small light serrenœud, with a movable handle like that of Kœberle, and a strong needle applied below the metallic handle to include the abdominal parietes. Given the excellent condition of my patient, instead of a discomfiture we should have recorded a victory."

Dr. Coggi appears to have experienced an unusual difficulty with the pedicle, which being partly freed from the constrictor and drawn in, must have discharged a portion of pus internally, thus lighting up the peritonitis which proved fatal.

CASE 26.—Operator, Dr. S. Tarnier, Surgeon-in-Chief to La Maternité, Paris. The subject was a primipara, having a fibrous tumour filling the pelvis, and was operated upon by Prof. Tarnier, at Neuilly, in a maison de santé, after a protracted labour, and when apparently poisoned by a putrid fœtus, evolving gas in utero. Labour began on Feb. 17, and the membranes soon ruptured; some slight action in the uterus, but soon ceased. Same repeated for the three following days. The fœtal heart-sounds disappeared on the 21st; slight chills, vomiting, escape of fetid liquid on 22d and 23d; pulse 120, when operation was performed. The plan of Müller was adopted; uterus in a state of commencing decomposition; fœtus putrid; tumour immovable. Died of septic poisoning. Case very much resembles that of Prof. Storer, in 1869.

CASE 29.—Same operator, but in the Maternité Hospital of Paris. Labour also protracted, and in a primipara. Woman had pains on the 15th and 17th; membranes ruptured on 18th; pains violent in the back on the 19th; entered the hospital on the 20th. No fœtal pulsations on arrival. Porro method selected; incision about 6¼ inches; putrid fœtus removed. Wound cicatrized in three months, but up and about seven weeks before this. The woman recovered, notwithstanding the length of her labour, and her unfavourable condition before the operation. This was the first Cæsarean operation in Paris, which did not end fatally, for more than ninety years, during which period over fifty operations were performed.

CASE 36.—Operator, Dr. J. Lucas-Championniére, at the same hospital. Woman rachitic; was taken with the disease in infancy, and did not walk, except for a short period, until she was six. Was of a marked

rachitic appearance, but in good health, and entered the hospital three weeks before her labour. Pains began on Nov. 19, and she was operated upon on the same day, under the spray, and Lister's dressing. The operation occupied forty-five minutes in performance. Scarcely any fever resulted, and the pedicle fell on Dec. 2.

I was under the impression until quite recently, from a statement made abroad, that in one instance the cervix uteri had been ligated and dropped into the abdominal cavity; but a careful examination of the reports shows that, in all the cases, the plan of securing the cervix in the abdominal wound was adopted.

Of the Müller operations, two recovered and three died, one of the latter being very unfavourable. Spencer Wells believes, from his extensive experience in ovariotomy, that the risk of peritonitis increases with the length of the abdominal wound, and that incisions above the umbilicus are more likely to excite it than below. This would make the Müller method one of greater risk than the Porro. If the fluid contents of the uterus are drained off, the organ may be made to pass through a comparatively small incision, as in Case 14, where it was 7½ inches long.

General Summary.—As far as I have been enabled to ascertain, with any degree of certainty, there have been 41 Porro operations in Europe. I have given but 36 of these in the arranged table, for the reason that the other five have not yet been published, and the reports which we have of them are of but little value in their present incompleteness.

Dr. Previtali, of Bergamo, who performed the fourth Porro operation in order of time, has recently stated[1] that he had since it performed the same twice, making for him three cases; one on December 30, 1878, and the other on May 3, 1879. The results of the second and third I have not yet ascertained. I had hoped to have heard from him this month (January), but have not. As these operations are entirely unknown to Prof. Chiara, of Milan,[2] I presume they have not been successful. His first case was published by Dr. Perolio, of Brescia, two years after he operated.

Two operations have been claimed for the city of Moscow, one for Prof. Oscar Prevôt, a corresponding member of the London Obstetrical Society; "woman saved;" the name of the other operator I have not ascertained, his patient is reported to have died.

Two additional operations are claimed by Dr. J. Lucas-Championniére, of Paris, making him the performer of three, with two recoveries.

Prof. Valtorta, of Venice, has recently operated in the Lying-in-Hospital, of which he is the director. The child lived, but the fate of the woman has not yet been ascertained.

The multiple operators (these claims being correct) are, therefore, Carl

[1] On the authority of Dr. Pinard, of Paris.

[2] As shown by a letter recently received in answer to one of inquiry concerning the cases in question.

Braun, 5; Chiara, 4; Previtali, 3 (1?); Tibone, 3; Championniére, 3; Spaeth, 2; Wasseige, 2; and Tarnier, 2; making 24. Of the 22 cases in which the results are recorded, 11 were successful.

Italy still claims the largest number of operations, 19 (17?); Austria has had 10; France, 6; Germany, 3; Belgium, 2; Russia, 2;[1] and Switzerland, 1; equalling 43.

The 36 cases in the table being arranged strictly in order of date, it will be seen that, of the first 18, 7 were saved; and of the second 18, 11 recovered. This improvement is only partly due to increase of skill. In the first 18, there were 9 subjects whose condition was unfavourable at the time of operation, and of these but 1 recovered. The other 9 were regarded as favourable, and of them, 6 recovered and 3 died. Five of the 9 unfavourable cases were in conditions which made their operations almost necessarily hopeless. Of the second 18, 14 were classed as favourable, of which 8 recovered, and 6 died; 3 were regarded as "not very favourable," but all recovered; 1 was very unfavourable, and died; and 1 died whose condition at the time of the operation is not stated.

The length of labour before the operation has had an influence over the result, but not nearly so marked, as is shown by my statistics, in the old Cæsarean operation in the United States. Where the women were actually in labour, and were operated upon by the Porro method at a period not later than 12 hours from its commencement, there were 7 saved out of 12. Where in labour from 2 hours up to 24 (including the twelve-hour enumeration just given), there were 13 saved out of 24. Where labour lasted from 36 hours to 7 days, the condition was such that 5 out of 8 died.

If we exclude the 6 who evidently died in consequence of diseased conditions existing prior to the operation, we have 30 cases whose fate rested upon the effect of the knife and the skill in the after-treatment, without any special reference to the length of labour; and of these, 18, or 60 per cent., recovered. This is the proper way to measure the absolute mortality of the operation in coming to a decision as to its relative merits when contrasted with craniotomy and cephalotripsy. If women are to be operated upon in a semi-moribund state, in order that their children may be saved alive, it is not exactly fair to set down their cases as evidence of the danger of the operation. Examined in all its details, in different countries, and under different circumstances, I have formed the opinion that the Porro Cæsarean operation, performed under the carbolic spray, and followed by proper drainage and the Lister treatment, will be found successful to the woman in about one-half of all the cases of pelvic deformity requiring its performance that are brought for relief to lying-in hospitals. What it will accomplish in private practice, or in the United

[1] These cases have been called in question, but, as far as I have been able to ascertain, they are authentic.

States, where but one Cæsarean case in twenty-eight has been in hospital, I am not prepared to say.

The result to the children. As long delay endangers the life of the child, so the reverse results in its being delivered alive. In no one of the Porro operations was craniotomy attempted, to the destruction of the fœtus; hence the remarkable number saved. Of the 37 children, 33 were removed alive, from 32 women; and 4 were found dead. How long the 33 survived we are not informed; in the case of the twins, I learned from Dr. Franzolini that they did not live an hour. In the 4 cases in which the fœtus was found dead, labour had existed, respectively, 5 days (in 2), 3½ days, and 7 days. This is in very decided contrast with the result of the old operation in the United States. Under the last 36 operations, 17 children were removed living, and 19 dead. The next preceding 36, 16 living, against 20 dead; and the 36 prior to that, 18 each. Under all the Cæsarean operations of our country, there have been found 55 children dead, to 45 living, when the uterus was opened. This general result is quite as decidedly in contrast with that which has attended the *timely operations* in the United States, in which the proportion of children found dead, to those removed alive, has been as one to eight. *Delay* and *experimental craniotomy*, with, in a few instances, *version*, have been the causes of the great majority of the deaths in our Cæsarean record, both to mothers and children; remotely it may be to the first, but directly to the second.

Compared with the 36 Porro operations recorded in my arranged table, the last 36 Cæsarean operations of all classes in the United States make but a sad show, with their 7 recoveries, and 29 deaths, in 12 years. Even Great Britain, with her far greater mortality in the whole average, as compared with us, saved 11 women out of her last 36 cases; and 23 children were delivered alive, against our 17.

There has been, of latter years, in our country, a very decided falling off in the management, and consequent saving, of cases of extreme pelvic deformity. I have fully accounted for this in a former paper,[1] and only refer to it now in connection with the practical application of the present article to our own unfortunate case. There are several alternatives that present themselves to us for consideration and future advantage, viz.: 1. Shall we endeavour to secure, by the dissemination of knowledge, an early Cæsarean operation in all cases where delivery *per vias naturales* is impossible, or is highly dangerous to life, so as to obtain for the women the great advantages of a timely delivery in saving their and their children's lives? 2. Failing to do this, shall we adopt the Porro modification, and thus in a measure obviate the effect of delay upon the uterine tissues, by removing the organ, and substituting for a dangerous intra-abdominal wound, with its disposition to gap, an external and visible one?

[1] Am. Journ. Med. Sci., January, 1879.

3. For the better management of deformed women, who are in almost every instance poor, would it not be advisable, in case of the adoption of the Porro method, to have them treated in hospital, especially in all of our cities? And, 4. Is there any hope that the Porro method, if introduced, will have the effect to secure the subject against the present dangers of long delay, and experimental expedients with instruments, resulting in failure and fœtal death?

It is very clear to my mind, from an examination of our past record, that there would be little for us to gain by the Porro method in private practice, if we could induce all the midwives and accoucheurs having cases of deformity to call in at once a competent operator, that the Cæsarean section, if requisite, might be performed before the child dies or is sacrificed, and the case rendered more dangerous by prolonged uterine action than it is proved to be in the first few hours of labour. But we cannot do this, with the amount of ignorance that is generally at the bottom of the bad management of these desperate cases of dystocia, in their early hours, or it may be days.

From the results of numerous experiments on the lower animals, it is apparent that the Porro method, *per se*, is less dangerous than the old Cæsarean section. This being the fact, we ought to have quite as good success with the new plan here as they have had abroad, provided we can secure in the private houses of the poor as good care and management as they have had in their hospitals. Our subjects, although poor, are generally much better clothed and fed than those of the old world; and the results of early Cæsarean operations upon them have been generally much less mortal than we find to have been the case according to European statistical records. We have, therefore, much to expect from the Porro operation in our large cities, and under skilful management, certainly so, when compared with the results of the last twelve years under the old system.

The main objection to the Porro method is that it entirely unsexes the woman, not only rendering her barren, but in some degree unfeminine. To this it may be answered, that rachitic subjects requiring the Cæsarean section for delivery would be in a much safer position for the future if rendered incapable of any longer begetting children. True, we could have no more Reybold cases, with two children and six grandchildren; but this is seldom possible, and, considering the fearful risk, by no means desirable. Women have certainly had the Cæsarean operation performed upon them as many as four times with success, and claims have been made of six and seven times, but they have not been satisfactorily established. The question of future risk will lie between the physicians and the woman to be operated upon. In the old world a very large proportion of the subjects of the Porro operation, especially of the rachitic dwarfs, have been unmarried; those affected with malacosteon having been generally married multiparæ. In our country, the white Cæsarean subjects have been in large proportion married women; of the blacks, who

were chiefly slaves, I cannot speak definitely, as but little account was taken of their social state, their cases being usually headed by their first name. In all probability, as they were mostly young and rachitic, they were unmarried as a general rule. In the future, we shall have chiefly to deal with the cases of white women, the Cæsarean cases among the blacks having greatly declined since the establishment of their freedom, not that the occasions for the operation do not exist, but that it is seldom performed when required. This will be seen by the following comparison. Of the last 36 operations, beginning with 1861, 26 were performed upon white subjects, and 10 on blacks. Of 36 immediately prior to 1861, 21 were blacks, and 15 whites. Notwithstanding this change and the war, the singular fact presents itself that there has been a steady increase in the whole number of operations during the last three decades, viz., from 1850 to 1860, 24 operations; 1860 to 1870, 29; 1870 to 1880, 28. In the first of these decades there were 16 blacks to 8 whites; in the second, 15 blacks to 14 whites; and in the third, 5 blacks to 23 whites. The whole number of the third decade (28) as given will probably be increased by one or two cases when all are received. We may say, then, with some degree of certainty, that there are three Cæsarean operations, on an average, performed in the United States every year. In the last decade there have been also six subjects on whom the operation of laparo-elytrotomy was performed in preference to the Cæsarean section; these were all white. We have then to provide for the delivery of thirty or more women between this and 1890, by either the old Cæsarean section, the Porro modification, or the substitute in laparo-elytrotomy. Under the present system of delay, we save one case in five; under early operations, we might save three out of four or five; under the Porro method, we may save one-half or more, and under laparo-elytrotomy, there have been saved four out of six in New York.

I do not believe that the number of Cæsarean operations in any country nearly represents the whole number of cases in which the use of the knife is an absolute necessity. Many women die undelivered for want of proper assistance, and some are not operated upon, because of the general belief that death will follow, even if they are thus delivered. What is requisite is a mode of operation which shall offer a fair hope of recovery, and which, in consequence, can be urged upon the patient when she begins to realize the fact that she must die in labour if not relieved. The physician must have faith in the method proposed, and be able to recommend it from its past successes. In countries where the Porro system has been adopted, it has had the effect to increase the confidence of the operator, to secure a larger proportion of early operations, and to save alive nearly all of the children. These are important considerations in view of the question to be shortly answered: *Shall we adopt the Porro method of operating in the United States?*

What becomes of the pedicle? Theoretically the forcing of the cervix uteri from its natural position, and dragging it with the vagina to form an attachment to the abdominal wall above the symphysis pubis, would appear to be a very serious objection to the plan of procedure that has been universally adopted; but, practically, the objection is found to have but a moderate degree of realization, as the parts usually adapt themselves to their new relations. It must be borne in mind that where the collapse of the pubis is such as to require the operation, the uterus is unusually high up, with the os either above the pubes or carried back toward the spine. The bladder is also higher than normal, the urethra elongated, and the symphysis pubis shorter; the pelvis is also generally carried backward, so that the lowest part of the abdominal wall in the unimpregnated woman is brought somewhat nearer to the plane of the superior strait; all of which favour the new relations produced by the cervico-abdominal union. After a time, as Dr. Porro found in his case, the attachment is converted into a long, thin pedicle, and the woman may, as his patient was able to do, walk, jump, or dance, without inconvenience or the sense of pain.

It is not uncommon after the old operation, in the case of a second, to find the uterus adherent to the abdomen as the effect of a local traumatic peritonitis. This is the case with Mrs. Reybold of this city, and she has been always conscious of some unusual cause of tenderness in the region of the cicatrix ever since her first operation in 1835. The entire removal of the organ, by reason of the diminished weight, and the subsequent elongation and thinning of the pedicle, promise to give less inconvenience than she even now experiences in the form of tenderness to the touch.

Those read in ovariotomy will remember that cases are upon record where owing to the shortness of the pedicle the clamp has been so applied as to open the corresponding cornu of the uterus after the fall of the included portion, leaving a utero-abdominal fistula recognizable at the next menstrual period. Ordinarily, the pedicle elongates, and women after the operation may bear children without any serious difficulty. In some very rare instances, a short pedicle may prove a serious inconvenience in gestation, and a source of danger in parturition. Although this is the case, it constitutes no objection to the plan of treating the cut cervix as an external wound, by incorporating it with the lower commissure of the abdominal incision.

Several plans, all of which in my estimation tend to complicate the case and increase its dangers, have been proposed, by which this union is to be avoided, viz. :—

1. To securely ligate the cervix, and drop it into the pelvic cavity, trusting to drainage to remove any discharge that may form.

2. To invert the uterus after its evacuation and constrict and remove it by the vagina.

3. To open the vagina close to the cervix, and bring the ligated stump into the passage.

The first is believed to be much more dangerous for various reasons than the external treatment of the stump. The second could only be done after a full dilatation of the cervix, and not at the early period when it is the most safe to operate. If the cervix was first ligated, it is possible that it might be turned and the wire-loop applied through the vagina higher up, and the first constricted part cut away. This would require that there should be a long and relaxed cervix, for it must be recollected that in inversio uteri after delivery, the whole neck is very rarely everted. We must also bear in mind, that suppuration within the vagina is not nearly so safe as it is external to the abdomen, where purulent absorption is much less likely to occur, and especially under the dressing of Lister. The third plan has the additional danger of hemorrhage from opening the vagina. Paquelin's knife might be used, but all these complications of the original method only add to the danger.

The great improvement in the Porro method I conceive to lie in two points, viz.: 1. The wound originally within the abdomen is treated virtually without the body, where it can be observed and dressed to the best advantage. 2. There is no bleeding or gaping uterine wound; no lochial discharge; no escape of fluids into the abdominal cavity from the uterus; and no uterine sinuses to absorb noxious matters, set up phlebitis, or metritis. These are certainly great advantages, and only to be fully attained by the abdominal ablation of Porro entirely carried out.

No.	Date.	Name of operator.	Locality.	Hospital, or private patient.	Age.	Cause of difficulty.	Result to woman.	Result to child.	Height of woman.	Conjugate diam.
1	May 21, 1876	Prof. Edoardo Porro.	Pavia, Italy.	Hospital.	25	Rickets.	Recovered.	Living.	4 ft. 10½ in.	1 9/16 in.
2	Jan. 3, 1877	Prof. Giovanni Inzani.	23 miles fr'm Parma, Italy.	Private house.	32	Encephal'd tumour of pelvis.	Died.	"	.....	.....
3	Mar. 28, "	Prof. Alfred Hegar.	Freibourg, Germany.	Hospital.	32	Kyphoscoliosis.	"	"	4 ft. 2½ in.	32 "
4	April 25, "	Dr. Geronimo Previtali.	Bergamo, Italy.	"	?	?	"	Dead.	?	?
5	June 22, "	Prof. J. Spaeth	Vienna.	"	40	Malacosteon.	Recovered.	Living.	?	?
6	Sept. 3, "	Prof. J. Spaeth	Vienna.	"	29	"	Died.	"	4 " 7½ "	3½ " R. sac.-cot. 1½ L. 3½
7	Sept. 5, "	Prof. Carl Braun.	Vienna.	"	40	"	"	"	4 " 8½ "	R. sac.-cot. 1½ L. 1½
8	Dec. 16, "	Prof. Domenico Chiara.	Milan, Italy.	"	37	Rickets.	"	"	3 " 7½ "	4½ in. rostrate
9	Feb. 4, 1878	Prof. P. Müller.	Berne, Switz.	"	37	Malacosteon.	Recovered.	Dead.	4 " 11 "	2 in.
10	April 14, "	Prof. Adolphe Wasseige.	Liége, Belgium.	École de Ste. Barbe.	39	Rickets.	"	Living.	4 " 1½ "	

When the accompanying table had advanced to the thirty-fifth case inclusive, I found Dr. Pinard's set of abstracts, and a tabular record, in his Porro article, contained in the *Annales de Gynecologie* for Dec. 1879. This is the first and only attempt that I have seen to arrange the cases in the order of their occurrence, and to give the results to both child and mother. The table is defective in that it gives too little on which the reader may found an opinion; but this is in a measure compensated for in the abstracts of cases. I was glad to find in looking over his list that I had every case that was reliable, except my thirty-sixth, which he had just received by private communication, and that I had in addition Cases 32 and 34, which he had not discovered.

In a third paper, Dr. Pinard, through Dr. Chiara, of Milan, corrects one of his errors in ascribing a case to Dr. Maternita, of Turin. This record first appeared in an Italian paper by Berruti, which abounds in errors, as "*Maternita; Torino, one case, died,*" and in some way became Dr. Maternita in the transcription. As he had all the cases from the said hospital, the error added one to his list of deaths, which had had no existence. I find it absolutely essential to correctness to make my own searches instead of intrusting the work to students.

Those who have seen the Pinard table will have noticed that it contains also two Russian cases, credited to Drs. Prevost and X——, of Moscow, with one death and one recovery, which I have also left out, as the other particulars are all wanting, and the result would not be changed if this statement made last summer by a Russian medical visitor in Paris should

	Time in labour before operation.	Cause of death in woman.	Condition of woman at time of operation.	Special notes.	References.
1	6 hours 51 min.	R.	Favourable.	Was 24 days under care in hospital before operation.	Annali Universali di Med. e Chirurg., Milan, 1876, p. 289.
2	?	Peritonitis.	Exhausted by disease.	Died on the 4th day.	Case not published.
3	4 days.	Septic peritonitis.	Nephritis and eclampsia	.....	Centralblatt für Gynækol., 1879, No. 11, Dorff.
4	5 days.	Exhaustion in 30 hours.	Exhausted by long labour.	Brought to hospital in an almost dying condition.	Perolio (Pamphlet), Brescia, 1879.
5	2 or 3 hours.	R.	Favourable.	Tenth pregnancy; 24 days under preparation.	Wiener Med. Wochenschrift, 1878.
6	About 36 hours.	Septicæmia 8th day.	Symptoms of septic poisoning.	.....	Wiener Med. Wochenschrift, 1878.
7	15 hours	Septic peritonitis.	Exhausted by malacosteon.	8th labour; died on the 5th day.	Lo Sperimentale, Florence, 1879. Welponer.
8	Labour not commenced.	Shock from drawing in of pedicle and protrusion of bowel.	Favourable.	Pedicle torn loose by vomiting.	Annali Universali, 1878, p. 394.
9	3½ days.	R.	Fever and indications of septic endometritis; gas in utero.	6th pregnancy; Müller's modification.	Centralblatt für Gynækol., March 2, 1878, No. 5.
10	18 hours.	R.	Favourable.	Pulse 94 after operation.	Ann. Soc. Med. Chirurg. de Liège, 1879, xviii. 17–82.

No.	Date.	Name of operator.	Locality.	Hospital, or private patient.	Age.	Cause of difficulty.	Result to woman.	Result to child.	Height of woman.	Conjugate dia.
11	April 22, 1877	Dr. Fernando Franzolini.	Udine, Italy.	Civil hospital.	35	Anasarca and dyspnœa.	Died.	Twins, alive, but died within an hour	.....	.....
12	May 10, "	Prof. Carl Braun.	Vienna, Austria.	Hospital.	26	Rickets.	Recovered.	Living.	4 ft. 1½ in.	2 in.
13	May 22, "	Prof. Domenico Chiara.	Milan, Italy.	"	23	"	Died.	"	4 " 3 3/16 "	2¼ "
14	May 27, "	Prof. Domenico Tibone.	Turin, Italy.	"	27	"	"	"	3 " 8½ "	2¼ "
15	June 14, "	Prof. C. C. Th. Litzmann.	Kiel, Germany.	"	29	Generally contracted pelvis.	"	"	4 " 6¾ "	3¼ "
16	July 9, "	Prof. August Breisky.	Prague, Austria.	"	32	Rickets.	Recovered.	"	4 " 8½ "	2½ "
17	Aug. 3, "	Prof. Adolphe Wasseige.	Liege, Belgium.	"	21	"	Died.	"	3 " 3¾ "	1 "
18	Aug. 23, "	Dr. Perolio.	Brescia, Italy.	"	25	"	Recovered.	"	3 " 10½ "	2½ "
19	Sept. 16, "	Dr. Hubert Riedinger.	Brünn, Austria.	"	33	"	"	"	4 " 6¾ "	2¾ "
20	Oct. 7, "	Dr. H. Fehling.	Stuttgart, Germany.	"	30	Kyphoscoliosis.	Died.	"	4 " 4 "	1½ "
21	Oct. 19, "	Prof. Domenico Chiara.	Milan, Italy.	"	43	Malacosteon.	Recovered.	"	4 " 5 "	.....
22	Dec. 13, "	Prof. Gustav Braun.	Vienna, Austria.	"	30	Rickets.	Died.	"	3 " 10 "	2½ in.
23	Jan. 17, 1879	Prof. Domenico Tibone.	Turin, Italy.	"	30	"	Recovered.	"	3 " 8½ "	2 "
24	Feb. 2, "	Dr. A. Fochier.	Lyons, France.	"	33	Malacosteon.	"	"	4 " 5 "	L. sac. cot. 1½ R. 1½
25	Feb. 11, "	Dr. Paolo Coggi.	Cremona, Italy.	"	30	Rickets.	Died.	"	4 " 2¾ "	2½ "
26	Feb. 24, "	Prof. S. Tarnier.	Neuilly, France.	Maison de Santé.	33	Fibrous pelvic tumour.	"	Dead.	.....	.....
27	Mar. 1, "	Prof. Domenico Tibone.	Turin, Italy.	Hospital.	39	Rickets.	"	Living.	4 ft. 4 in.	1½ in.
28	Mar. 20, "	Dr. Giovanni Peyretti.	Turin, Italy.	Hospital.	32	Rickets.	Died.	Living.	3 " 7 "	2½ "
29	Mar. 20, "	Prof. S. Tarnier.	Paris, France.	"	36	"	Recovered	Dead.	4 " ¼ "	2¾ "
30	April 2, "	Prof. Carl Braun.	Vienna, Austria.	"	25	"	"	Living.	?	2¾ "
31	May 16, "	Prof. Giuseppe Berruti.	Turin, Italy.	Private house.	32	"	"	"	4 " 4 "	1½ "
32	May 25, "	Prof. Carl Braun.	Vienna, Austria.	Hospital.	23	"	Died.	"	4 "	2 "
33	June 19, "	Dr. Luigi Mangiagalli.	Milan, Italy.	"	24	"	Recovered.	"	4 " 8¾ "	Free space 1½–2 in.
34	June 20, "	Prof. Carl Braun.	Vienna, Austria.	"	?	"	"	"	?	?
35	Aug. 28, "	Prof. Domenico Chiara.	Milan, Italy.	"	35	"	"	"	4 " 4 "	2½ "
36	Nov. 19, "	Dr. J. Lucas-Championniére.	Paris, France.	"	26	"	"	"	4 " ¾ "	3½ "

	Time in labour before operation.	Cause of death in woman.	Condition of woman at time of operation.	Special notes.	References.
	Labour not commenced.	Broncho-pulmonary œdema.	Exhausted and almost moribund.	Died in 36 hours; induction of labor attempted.	Giornale Veneto de Scienze Mediche, Feb. 1879, p. 118.
	10 to 12 hours.	R.	Favourable.	.....	Lo Sperimentale, Florence, 1879. Welponer.
	About 12 hours.	Septic peritonitis.	Favourable.	Died on the 4th day; uterus opened and excised with Paquelin's knife.	Annali Universali, Milan, 1878, p. 408.
	" " "	Septic peritonitis.	Pulse 96 before, 86 after.	Müller's modification. Died in 40 hours.	Ann. di Ostetricia, Milan, 1879. Tibone.
	3 days.	Septic peritonitis, sixth day; pus found in shut cervix.	Febrile; external os closed.	Müller's modification.	Centralblatt für Gynækol., 1879, iii. 289–295.
	As soon as waters broke.	R.	Favourable.	Müller's modification.	Archiv. für Gynækol., xiv. Liepzig, 1879, 102–120.
	12 hours.	Anæmia and peritonitis.	Very unfavourable.	Died in 46 hours; blood and clots in peritoneum; severe hemorrhage in operation.	Ann. Soc. Med. Chirurg. de Liège. Supra.
8	15 hours.	R.	Favourable.	.....	Perolio's Pamphlet. Supra.
9	11 hours.	R.	Favourable.	.....	Wiener Med. Wochen., 1879, 20–21.
10	Evening to 10 A.M.	Septicæmia.	Favourable.	Died on the 5th day.	Centralblatt fur Gynækol., 1878. Fehling.
11	About 24 hours.	R.	Favourable.	.....	Annali Universali, 1878, p. 420.
12	" " "	Peritonitis.	Favourable.	Died in 2½ days.	Wiener Med. Wochen., 1879, 12, 13, 15, 16.
13	Entered in labour; membranes not broken.	R.	Pulse 104, fœtal 152.	.....	Ann. di Ostetricia, Ginec. e Ped., 1879, pp. 129–148.
14	Active labour 6 hours.	R.	Not very favourable.	2 months under preparation in hospital	Archives de Tocologie, Paris, Nov. 1879, p. 675.
15	Pains only fairly begun.	Peritonitis.	Excellent.	Died on 9th day.	Communicated by the operator, Feb. 1880.
16	7 days, interruptedly.	Septicæmia.	Chills, fever, fetid discharge, fœtus putrid, gas in utero.	Müller's modification. Died in 3 days.	Annales de Gynæcologie, Aug. 1879, p. 81.
17	At term, but not labour.	Peritonitis.	Favourable.	Died in 36 hours.	Annales de Gynæcologie, Dec. 1879.
18	15 hours.	Tetanus 10th day.	Favourable.	Vomiting, fever, and tympanites preceded the tetanus; no peritonitis.	Taglio Cesarea, etc., Turin, 1879. Peyretti.
29	5 days irregularly, waters broken for 3 days.	R.	Not favourable.	Fœtus putrid.	Annales de Gynæcologie, Supra.
30	24 hours, waters broken ½ hour.	R.	Favourable.	.....	Communicated by Dr. Welponer. Vienna.
31	About 12 hours.	R.	Favourable.	First labour; left sacro-cotyloid diam. collapsed.	L'Independente, Turin, 1879.
32	About 10 hours.	Peritonitis.	Favourable.	.....	Communicated by Dr. Welponer. Vienna.
33	1½ days, waters broken a few hours.	R.	Favourable.	.....	Annali di Ostetricia, Sept. 1879.
34	About 6 hours.	R.	Favourable.	8th case and 4th cure in the Vienna Hosp.	Communicated by Dr. Welponer. Vienna.
35	At term, but before labour.	R.	Favourable.	Six weeks in preparation.	Annali di Ostetricia, Oct. 1879, p. 573.
36	3 P.M. of day after labour began.	R.	Favourable.	.....	Annales de Gynæcologie, Dec. 1879, p. 445.

Women died, 18; recovered, 18. Children living, 33; dead, 4.

prove to be correct. This reduces the European list of Dr. Pinard to thirty-four. In a letter dated from Vienna, Nov. 26, 1879, in reply to a question from me, Dr. Welponer writes, "the case of Prevôt (Moscow) is not at all known here." I wrote to Moscow on the receipt of this, and am also in search of other cases, which should have been reported to me before this time.

Dr. Fancourt Barnes in the number of the *British Medical Journal* for January, 1880, appears to think the Porro record fails to make as good a showing as the more recent Cæsarean operations on the Continent. Will these latter bear the same persevering search as has been made by a number of Europeans and myself, and make a better record than now appears in my table, with 12 recoveries and 8 deaths in the last 20, and 18 children delivered alive? Drs. Tarnier, Fochier, Pinard, Welponer, Chiara, and Wasseige appear to think the Porro method much less mortal. In private practice on the Continent, and with the advantages of operating early, possibly one-half of the cases might be saved under the old system, or even more. I know they can be in the United States, but then comes in that *sine qua non*, that so rarely attainable *early*, reached with us *in* about one case out of four or five. Out of such we may save as many as six or seven in ten; but then what of the great balance?

Causes of death.—The Porro method reduces the proportion of deaths by shock and exhaustion, and almost entirely avoids the risk by secondary hemorrhage, which, when it does occur, is easily arrested by the perchloride of iron, or tightening the ligature. The causes of death are generally traumatic, or septo-traumatic peritonitis, and septicæmia without peritoneal inflammation. Thus we find 6 deaths from peritonitis, 5 from *septic* peritonitis, and 3 from septicæmia. The remaining deaths are one each from shock, exhaustion, broncho-pulmonary catarrh, and tetanus *without* peritonitis, a very rare cause of death in temperate latitudes.

Hospital and private cases.—In the regularly established hospitals there were 32 operations: 1, in a maison de santé; 1, in an old school-house, but under hospital direction; and 2, in private houses. One of the private patients died, having a malignant disease as an additional source of danger. The question of result in private practice chiefly concerns us, and can only be solved by an experimental experience at home. To fully appreciate what has been accomplished in these old hospitals of Europe, we should bear in mind that many of them have been regarded as little better than pest-houses, where hospitalism has abounded. Most of the Italian buildings were old convents, and are not well adapted to secure surgical success. This is shown by the results of ovariotomy, which are much behind the proportions of England and our own country, although improving of late. Of seven operations in which both ovaries were removed but one case recovered, and that was operated on by Dr. Franzolini last year, who saved four ovariotomy cases in five during 1879.

713 LOCUST STREET, PHILADELPHIA, February, 1880.