MONOGRAPH.

ART. XI.—*A Statistical Inquiry into the Causes, Symptoms, Pathology, and Treatment of Rupture of the Uterus.* By JAMES D. TRASK, A.M., M.D., Brooklyn, New York. Read before the Brooklyn Medical Association, Oct. 14th, 1847.

THE principal object in undertaking the examination of this subject after the plan adopted in the following paper, was that of determining, if possible, the most successful course of treatment of rupture of the womb, when accompanied by certain conditions which embarrass delivery, and for our conduct under which we have now no definite guide.

At the present day, we imagine that there are few, if any, who would advocate the course formerly pursued, of abandoning all cases of rupture to nature. For many years the profession in England and in this country, influenced by the high authority of Dr. William Hunter, and afterwards by that of Dr. Denman, carefully abstained from any attempt at delivery, as calculated only to increase the patient's suffering, and to diminish her chance of recovery.

This opinion and practice prevailed, notwithstanding several successful cases of delivery in France and Germany, until the year 1784, when Dr. Douglas resorted to artificial delivery, and his patient recovered. Since his time, the universal judgment of the profession appears to be, that delivery, when practicable, should in all cases be resorted to. When a favourable condition of the soft parts, and a proper correspondence between the head and the pelvis will allow of the introduction of the hand, and delivery by version, all authorities agree in recommending it. But when obstacles to a speedy and easy delivery exist, as from contraction of the edge of the rent, after the escape of the fœtus into the peritoneal cavity, or from an undilated os uteri, or from a contraction of the pelvis, or partial closure of the vagina, the rule of practice is by no means determined, and great diversity of opinions exists as to the proper course to be pursued. In each of these cases, we are advised by different authorities to opposite lines of conduct.

Of rupture occurring during pregnancy, *Burns*, p. 266, after discountenancing forced dilatation of the os, and preferring to it the Cæsarean section, adds, "but this ought not to be performed, unless we can thereby save the child, or the patient has reached an advanced period of pregnancy." "To leave the case to nature, is most likely to be successful, especially when the rupture happens in the early months." Of rupture during parturition, at page 478, he remarks, "when the os uteri is rigid, and very little dilated before the accident happens, and cannot be opened without extreme irritation, or when the uterus is spasmodically and violently contracted between the rent and the os uteri, I consider attempts to deliver as adding to the danger. In such cases, and in deformity of the pelvis, we must perform the Cæsarean section or leave the case to nature." "If called early, while the child is yet alive, before the abdominal viscera are irritated by the presence of the fœtus, we are warranted to extract the child by a small

incision;" and even after many hours have elapsed, he thinks gastrotomy by a small incision offers a better chance than a delivery through the rent, though he does not venture an opinion on the relative chances of gastrotomy and non-interference.

Merriman, in his *Synopsis*, (James' edition, p. 151,) says, "if some hours had elapsed after the parts had given way, or if there were a difficulty in passing the hand on account of contraction of the uterus, it would then perhaps be more prudent to leave the event to nature."

Velpeau, in *Arch. Gén. de Méd.*, tom. iii. 4th series, considers it improper to recur to extreme surgical means, until all attempts to return the child into the uterus, whether it has escaped either partially or wholly from it into the abdominal cavity, have failed.

Dewees says, when the child has escaped into the abdomen, "the delivery, *per vias naturales*, may be either difficult or impossible, even in a well-formed pelvis;" "the only chance in this case is, the immediate performance of gastrotomy; should a contracted pelvis complicate the case, the latter operation is the only alternative."

F. Ramsbotham (*Process of Parturition*), remarks, "feeling as I do, that to leave the child in the cavity of the belly is almost certain death to the mother, I should seriously entertain the question whether the parietes of the abdomen should be divided and the child extracted by that means, or whether the patient should be abandoned to the chance of what nature might effect; and the answer must depend entirely on the circumstances of the individual case. If she were in tolerably good spirits, if she had not suffered so great a shock as usual from the accident, particularly if, after explaining to her what had occurred, she were anxious for the operation to be performed, I should have no hesitation in undertaking it. But if I found her sinking, if the powers of life were ebbing fast, and particularly if thirty or forty minutes had elapsed since the rupture, and the movements of the fœtus had quite ceased, I should by no means sanction the incision, because of the painful nature of the operation, and because I should presume it would avail nothing, and might probably hasten her death."

Dr. Davis (*Obstetric Medicine*), merely says, "inasmuch as laceration of the womb is not an essentially mortal accident, such services (delivery) must unfortunately be sometimes undertaken, and therefore ought to be judiciously executed." "We should interfere without loss of time when the circumstances might appear urgent and desperate, and abstain from such interference when the nature of the symptoms might promise a probable successful issue without it."

Jacquemier (*Man. des Accouch.*, tom. ii. p. 300), says, "when the contraction of the rent or of the neck, which cannot be overcome with advantage, in case it remains rigid or imperfectly dilated, will not allow the hand to penetrate the cavity of the peritoneum, or when the pelvis is contracted to the degree of rendering the extraction of the fœtus uncertain even after diminishing the volume of the head, there remain no other resources than gastrotomy, or leaving the whole to nature." Gastrotomy, he says, offers chances of recovery less unfavourable than those of abandonment, especially if the operation be performed before symptoms of inflammation present themselves.

Dr. Robert Lee, in his late work, p. 436, advises resort to perforation when the head presents; and that when the child has passed through the rent into the abdomen, an attempt should be made without delay, to deliver by grasping the feet. "If a considerable time has elapsed after the acci-

dent, and the uterus has contracted so closely that the hand cannot be passed through the orifice and the rent, the best practice would be to leave the case to nature. Some have recommended gastrotomy under these circumstances; but the child is already dead, and the mother could hardly be expected to survive after such an operation." If the fœtus has escaped into the peritoneal cavity, the patient, he says, may recover without gastrotomy.

Colombat (*Amer. edition*, p. 236), says, "if the child have not passed entirely into the abdominal cavity, we should always endeavour to terminate labour by the natural passages; but in the contrary case, recourse must be had to gastrotomy, because this extreme means offers some chance of safety to the mother, and especially to the child, which would indubitably perish unless we should act with great promptitude."

"But what is to be done," inquires Dr. Blundell, "where the fœtus is in the abdominal cavity and cannot be reached, the child being inaccessible in consequence of the contraction of the aperture? Why, if there seemed to be a disposition to rally a little, I should feel inclined to try palliatives, if these were indicated, and I should leave the patient mainly to the natural resources." "But what if the child should escape into the peritoneal sac? and if, further, the symptoms, being most alarming, there should appear to be no hope for the woman in her natural resources? Why, in such cases, it would be for sober consideration, whether it might be advisable to have recourse to abdominal incision, provided the patient would heartily consent." The success of one case referred to by him, he thinks, offers encouragement, but he inquires in a note, does it "belong to an anomaly or a general principle?"

Dr. Collins, in his "*Practical Treatise*," is decidedly in favour of perforating the head when it presents and does not recede. "When the child has escaped out of the uterus, it is now the general practice, and undoubtedly the best, to introduce the hand through the lacerated parts into the cavity of the abdomen, and bring down the feet." "In cases where laceration has occurred previous to the os uteri being dilated, it is thought the best chance of recovery would be to open the parietes of the abdomen, cut into the uterus, and so extract the child." This, he thinks, can scarce ever occur except as the result of external violence.

Dr. James Hamilton (*Pract. Observ.*, p. 111), says, "if, from the state of the passages, the infant cannot be drawn forward through the usual apertures, the parietes of the abdomen should be divided."

Churchill (*Amer. edit.*, p. 372), says, "in some cases of ruptured uterus, when delivery is imperative, but impracticable, *per vias naturales*, the Cæsarean section has been proposed. It appears to me the additional risk from the operation, renders its propriety very questionable."

Among these, it will be seen that there is a great variety of sentiment as well as contrariety. Thus Blundell and Davis would not attempt delivery so long as there appeared to be any chance of recovery undelivered. Lee and Merriman would abandon the woman unconditionally when the rent has become diminished by contraction. Burns and Ramsbotham would be rather disposed, under these circumstances, to practise gastrotomy early, the former by a "small" incision. Blundell would wait until there should be no chance of recovery if left alone. Velpeau would try every other mode before resorting to gastrotomy. Dewees, on the contrary, says the only chance is in its immediate performance. Churchill considers its propriety very questionable. Jacquemier would perform gastrotomy where there should be so great contraction as to render it doubtful whether the fœtus

could be extracted after perforation. From the tenor of Dewees we infer that he considers it expedient in contractions of a less degree than what would absolutely prevent delivery *per vias naturales*.

These directions are given, for the most part, by those who are regarded as of standard authority; and the countenance of either would be considered a full justification for following the course recommended by him; but where there is so great disagreement as to the proper course, it is evident that they cannot be regarded as equally safe guides.

There is, then, no established rule of practice under the circumstances to which we allude. By men of equally high reputation we are advised, to abandon to nature, and to practise gastrotomy, in cases of rupture and escape of the fœtus; and when, from a contraction of the pelvis, or an undilatable os uteri, or contraction of the vagina, serious obstacles are presented to speedy delivery, some advise the removal by the natural passages of the fœtus, mutilated, while others affirm that the abdominal section affords the patient the best chance of recovery.

Since neither of these opinions can be referred to as of controlling authority, were it not for the acknowledged great fatality of the accident, under any course of management, he who practised the more heroic course would be censured by those who have taken their rule of practice from Merriman, Blundell, Davis and Lee; and the disciples of the latter charged with culpable neglect, by those who believe in the propriety of active interference.

The difference in individual opinions may arise from a mere partial examination of the subject, or from prejudice in favour of or against particular operations under any circumstances; and especially from the result of cases in which each may have happened to be personally concerned. A successful case of gastrotomy would be pretty certain to induce a repetition and recommendation of that practice under like circumstances, while an unsuccessful termination would probably discourage from a similar attempt in future.

Although rupture of the uterus is comparatively a rare accident, the determination of the practice to be pursued under all conditions of its occurrence, is a matter of the highest practical importance. If the chance for the unfortunate patient's recovery is at the best small, it surely is a matter of great moment, under circumstances of peculiar difficulty, to know what course presents the greatest probability of a favourable issue. In other words, it is our duty to inquire, which places the woman in the most favourable condition for recovery, when the fœtus has escaped into the abdomen, and the uterus is contracted—the abandonment of the patient to the resources of nature, or delivery by gastrotomy? And when, from any cause, such a disproportion exists between the fœtus and the maternal passages, as to render delivery *per vias naturales* difficult, does the prompt removal of the fœtus, by an operation itself severe, but still of very short duration, and which allows the patient almost at once to rally, or the tedious, painful, and often long protracted procedure of dragging it, mutilated, through the natural passages, afford the best chance of immediate security, and place her in the best situation for ultimate restoration to health?

Rupture of the womb is undoubtedly one of the most appalling accidents that can complicate labour. Interference must be judicious; delay may compromise the patient's existence, and improper interference may hasten the fatal end. Probably the accoucheur is never called to act under circumstances in which he feels more the need of the support afforded by well established principles of action; not only as a relief for the anxiety by

which he is oppressed, but that he may be secure from the charge of rashness on the one side, and of incapacity and inertness on the other.* It is true, that in the instances just spoken of, in a medico-legal point of view, either course of conduct is perfectly justifiable, in the present absence of unequivocal authority for one or the other; but, nevertheless, it must be admitted, that this fact is but a proof that the principles of practice should, if possible, be determined. Especially is it desirable that we should be acquainted with every circumstance that may materially affect the issue, if what F. Ramsbotham states is generally true, where he says, p. 425, "I have seldom known a case in which the uterus ruptured, where the attendant was not more or less blamed."

Such principles can only be discovered by ascertaining the collective experience of the profession at large; and this can be obtained only, by a careful comparison of the cases reported by authors on midwifery, and of such as form contributions to periodical medical literature. The great design of these contributions is, or should be, the recording of isolated facts, which, taken by themselves, may be entertaining from their unusual character, and perhaps instructive from the practical lessons they convey, but whose highest value appears only when they are taken collectively. Grouped and collated, they serve as data from which principles of practice may be determined, so soon as they have accumulated sufficiently to render such deductions safe. To be fully adapted to this important end, every case should be reported with a fullness of detail, whenever it is possible, which shall leave no essential point unnoticed. The more complete the narration of its particulars, the more available is it for the advancement of accurate information. This consideration seems not to be kept sufficiently in view by those who publish cases; and a large proportion of the histories of ruptured uterus leave many important points unnoticed. Some furnish but one or two particulars, and a large number of cases must be collected to furnish anything like a proper number of observations upon any one point. This is, however, the only mode that we have of acquiring the general history and results of the accident we are treating of, and we trust that notwithstanding its imperfections, it may lead to important conclusions. In some instances, moreover, we are aware that it is impossible to obtain all the particulars essential to a complete history.

We are not ignorant of the difficulties attending an examination of the subject in the manner proposed. So many conditions come in to modify the results, as constitution, circumstances in life, &c., that scarce any two cases admit of a fair comparison in all respects; nevertheless, we have sought to note the prominent conditions that might influence the result, and as far as possible make allowance for them.

In pursuance of our design, of ascertaining what the experience of the profession at large has shown to be the most successful course in the management of rupture of the uterus, we have examined nearly all the treatises in our language upon midwifery, diseases of women, &c., and the large collection of foreign and domestic journals in the New York Hospital Library. The monographs of Douglas, Ingleby, and Duparque, the collections of Perfect and Baudelocque, and a volume published by Dr. Dewees, of observations on particular subjects, we have been unable to obtain access to; this is to be regretted, as they would have furnished additional cases. Our grateful acknowledgments are due to the liberality of Profs. W. Chan-

* See report of a discussion upon a case in which gastrotomy was performed, in *Lond. Lancet*, 1828-9, vol. i. p. 310.

ning, of Boston, C. D. Meigs, of Philadelphia, and G. S. Bedford, of New York, who occupy distinguished positions as teachers and practitioners of midwifery, and who have kindly placed at our disposal histories of cases of rupture never before published, which their extensive experience has brought under their observation; and also to other gentlemen who have aided us by cases, and the use of their libraries.

In making the collection from Journals and authors, there has been constant necessity of guarding against recording the same case more than once, since it is not unusual to find the same quoted in several journals, in part in full, in part abbreviated; thus rendering it often difficult to be identified. Part are quoted at second hand, the originals not being accessible.

These cases were analyzed and tabulated under the heads of *Age, Health, and Condition—Character of Previous Labour—Nature of the Labour, and its Duration—Time from Rupture to Delivery—Mode of Delivery—Time occupied in Delivery, and whether difficult or not—Hernia of the Bowels, &c., accompanying it—Time from Rupture to Death or to Recovery—Post-mortem Appearances—Presumed Cause of Rupture.*

In this way, by casting the eye up and down the column, a complete view was presented of all that the whole series furnish under a given head, and an opportunity was afforded of comparing cases of the accident, occurring under great varieties of circumstance.

The abstracts thus obtained, have been compared with the histories that furnished them, twice, and in several instances oftener.

We have mentioned sources from which cases could have been obtained, to which we have not had access; there are probably others reported in the Continental journals of Europe, and perhaps in the journals of this country, which have not come under our notice; but from the frequency of quotations of cases of interest, probably not a large number have been omitted. The number collected is considerably larger than has, to our knowledge, been before brought together, being over three hundred. In consequence of the inconvenience of large tables, the analysis of each case has been copied in the form of a brief but continuous history. This abstract is published in order to present a series of cases that should exhibit the different phases which this accident may assume, as its phenomena are made to differ by conditions peculiar to each case. A much greater impression is made upon the mind by the perusal of several cases presented in succession, than by any general description, however extended it may be, or any mere statement of the proportion of instances in which given symptoms occur. Again, as the object of this inquiry is the truth, if our inferences are incorrect, the mistake may be readily pointed out. The cases being gathered from a great variety of sources, it is hardly to be supposed that the pains would be taken to recur to the original account, and many of them would be inaccessible to a large portion of our readers, if merely referred to.

We have arranged these cases, so as to bring together by themselves those occurring during gestation, and those met with during parturition. This distinction is made rather as a matter of convenience, than with reference to any essential differences in the accident as occurring under these two conditions. The rupture itself, during pregnancy, is more usually the first of the train of morbid symptoms, whereas in parturition, it usually succeeds labour pains of longer or shorter duration; and yet this is by no means universal. As exhibiting the general features of the accident when occurring during pregnancy, these cases have been grouped together; but

inasmuch as in several instances rupture has occurred when labour has come on, or been artificially induced, before the full period of gestation, this distinction could not in all cases be regarded, and has not been rigidly adhered to. We have numbered each individual case, even though it was merely referred to in the original from which it was copied; several, for example, merely state that the woman died undelivered. This statement, in *so far as it goes*, is as valuable as a more elaborate account, and such are numbered for subsequent reference.

I.—*Cases of Recovery from Rupture occurring during Gestation.*

Case I.—At the sixth month of pregnancy violent pains occurred, without any previous unusual symptoms—sudden vomiting, faintness and sense of distension of the abdomen—gastrotomy two hours after the accident. Recovered in fourteen days.—*Lond. Med. Gaz.*, vol. i. p. 101, from *Repert. Méd. Chir. di Torino.*

Case II.—A healthy peasant, æt. 35—mother of four. About seven and a half month, suffered a severe blow on the abdomen, and felt a severe tearing pain. Fœtus could be felt in the abdomen—child had ceased to live—usual alarming symptoms of rupture absent. After several days part of a putrid fœtus escaped *per vaginam*, and part was extracted, as there were well marked symptoms of metritis. After a few days the rest escaped through an opening in the abdomen five inches in diameter. Menses returned in less than two months.—*Brit. and For. Med. Rev.*, vol. v. p. 581, from *Nægelé in Neue Zeitschrift für Geburtskunde.*

Case III.—Æt. 35—when, as she supposed, five months gone, seized with uterine contractions and abdominal tenderness. Six weeks before this, after violent pumping, felt a strange sensation in the abdomen, with faintness, and did not recover strength. The tenderness continued three or four days with sharp pain; soon the fœtus could be felt in the peritoneal cavity after an attack of hemorrhage. Ten days after this a fœtus of about seven months was expelled. The placenta had partly escaped through a rent in the upper and back part of the left side of the uterus. Another fœtus could still be felt in the abdomen. After a few months she remained feeble.—*Dr. Randall, Lond. Med. Gaz.*, vol. xxix. p. 45.

Case IV.—Had undergone Cæsarean section fourteen months before. At the seventh month labour-pains came on, and symptoms of rupture, and child passed into the abdominal cavity. Between the fifteenth and twentieth day after, the cicatrix of the abdomen gave way, and a putrified fœtus escaped. Recovered.—*Brit. and For. Med. Rev.*, 1844, p. 537, from *L'Expérience*, Nov. 1843.

Case V.—Æt. 28—deformed by rickets; had been delivered by Cæsarean section. At fourth month of her next pregnancy an ulcerated spot appeared on the abdomen near the cicatrix, which, during two months, increased—a slight cracking was heard, the abdominal parietes gave way, and the fœtus escaped into the world. The direction of the rent of the uterus was unascertained, that of the abdomen was transverse. Within three months the menses returned.—*Edin. Med. and Surg. Journ.*, 1845, vol. i. p. 515, from *Allegem. Repert.*, 1844. *Dr. Præl.*

Case VI.—Æt. 36—ninth pregnancy; fell from her bed in the second month, and afterward suffered great disorder in the uterine region. Severe constitutional symptoms appeared until the tenth month, when an abscess opened in the umbilical region. The opening was enlarged, and then the fœtus extracted piecemeal. Recovery rapid; rupture probably occurred at the second month.—*Dr. Salemi*, from *Journ. de Progrès*, vol. iii., in the *N. Am. Med. and Surg. Journ.*, vol. iii. p. 252.

Case VII.—Æt. 24—unmarried; full habit; seventh month. Violent griping pains existed for three days in the abdomen, and the membranes were found ruptured. Extremely violent and distressing pains came on; the os tender and undilated. After intolerable agony, the child was expelled with great force; putrid. The posterior and inferior segment of the uterus was torn off, attached by less than two inches in front. The intestines filled the brim of the pelvis. The intestines were returned, and the lip of the cervix replaced. Condition extremely dangerous for many days, discharging immense quantities of dark offensive fluids

from the vagina. Seven months afterwards the vagina was blocked up by a very hard, insensible substance, and her health delicate.—*Mr. Wood, Lond. Med. Repos.*, vol. xv. p. 450.

Case VIII.—Nothing peculiar in the pregnancy. At seventh month seized with violent hemorrhage and slight pain, which continued and increased, and next day she was delivered by version, the shoulder presenting. On removing the placenta, the uterus was found ruptured at the posterior and inferior parts; and there was hernia of the intestines through the rent. Recovered in three weeks, and had another child.—*Mem. Med. Soc. Lond.*, in *Edin. Pract.*, vol. v. p. 584.

Case IX.—Æt. 20. In the ninth month, a sudden fainting fit and severe pain in the abdomen. Fœtus discharged through a fistulous opening in the abdomen. Recovered.—*Lond. and Edin. Month. Journ.*, 1842, from *Gaz. Méd.*, 1841.

Case X.—Rupture in fourth month; terminated by suppuration at the navel, and excrements discharged at the opening for some time.—*Burns' Midwif.*, p. 264, from *Dr. Drake*, in *Phil. Trans.*, vol. xiv. p. 121.

Case XI.—A washerwoman at Brent—rupture from a fall in seventh month—fœtus ultimately expelled at the navel.—*Ibid.*, from *Mém. Acad. Science*, 1709.

Case XII.—Sixth month; fall; rupture; immediate fainting; discharge from the vagina; child expelled *per anum.*—*Ibid.*, from *Mém. Acad. Sci.*, 1706, *Guillerm.*

II. Cases of Rupture before the Termination of the full period of Gestation, which did not Recover.

Case XIII.—Æt. 26—third pregnancy; nothing unusual in previous labours. Awakened in the morning by severe pain about the umbilicus, succeeded by vomiting, unaccompanied by pain. Died in eighteen hours after rupture.

Post-mortem.—Cavity of abdomen filled with blood; rupture at the fundus, through which the fœtus had escaped.—*Mr. Ilott, Lond. Med. Repos.*, vol. vii. p. 375.

Case XIV.—Æt. 43—twelfth pregnancy; corpulent, but active; of perfect make. Without any regular labour-pains, she suddenly had two very violent—the os hard, undilated and high up; peritonitis supervened. On thirteenth day a putrid fœtus was "extracted," after which she gained for a few days, but sunk on the twenty-fifth day from rupture.

Post-mortem.—The fœtus had escaped into the cavity of the peritoneum, and a sac had been formed around it.—*Lond. Med. Repos.*, vol. xxi. p. 327, from *Transacts. of Apothecaries.*

Case XV.—At the sixth month seized with strong pains, lasting three or four hours; motions of the fœtus ceased—death after several hours.

Post-mortem.—The fœtus swimming in blood, in the midst of the intestines—bifid uterus—rent in one division.—*Dict. des Sci. Méd.*, vol. xlix., from *Anatomie de Dionis.*

Case XVI.—At the fourth month symptoms of rupture occurred. After this she menstruated, and four months after the rupture died.

Post-mortem.—A rupture closed and cicatrized on the internal surface, but still open toward the abdomen; a fœtus was found in the abdomen.—*Phil. Med. Journ.*, vol. i. p. 80, from *Journ. de Med.*, 1780.

Case XVII.—At seventh month, after being jammed by a carriage against a wall, had at once violent pain and flooding. She languished for about five months, and died.

Post-mortem.—Evidences of great inflammation in the abdomen. Uterus natural, except a rent posteriorly which had not healed; fœtus in the peritoneal cavity, putrid.—*Ibid.* from *ibid.*

Case XVIII.—Æt. 20—married a few months; tolerable health; habitual dysmenorrhœa. After an excursion at time of quickening, seized with vomiting and syncope, and died in less than one hour.

Post-mortem.—A rent five inches long in the anterior part of the uterus from the cervix; the fœtus without the uterus surrounded by coagula; the uterus covered with dark-coloured spots, and easily torn, and both ovaries diseased. Rupture

supposed to be owing to the movements of the fœtus.—*Mr. Else, Lond. Med. Gaz.*, vol. ii. p. 400.

Case XIX.—Æt. 25—second pregnancy at fifth month; had some pain and uneasiness in the abdomen and vomited once, collapse ensued, and in a few hours she died.

Post-mortem.—A large quantity of blood in the abdomen; a rent in the superior and posterior wall of the womb, one and a half inches long; the fœtus in the peritoneal cavity; the cervix healthy; the os closed; the body of the uterus "rather thinner and much softer than natural."—*Mr. Nunn, Lond. Med. Gaz.*, vol. xxi. p. 1030.

Case XX.—Æt. 32—mother of eight; near full time had a fright, causing her to turn quickly, when she was seized with sudden pain in the back, extending to the abdomen, with faintness and palpitation. Eight days after, the same symptoms were renewed, and she died three-fourths of an hour after the birth of a full-grown child.

Post-mortem.—A large amount of blood in the peritoneal cavity; the uterus not contracted; hydatids in the right ovary; two long and one short rent through the peritoneal coats of the uterus.—*Mr. White, Dub. Med. Journ.*, vol. v. p. 324.

Case XXI.—Æt. 24—at fifth month, second pregnancy, slight hemorrhage came on with pains; these recurring often, she was much reduced, and the back and feet could be felt through the abdominal walls. After a few weeks, violent pains came on; os scarce dilated; ergot given; sank exhausted.

Post-mortem.—Fœtus escaped through a longitudinal rent in the right side of the uterus, and near the cervix a second rent not through the peritoneum; the head and placenta remaining in the uterus. A great quantity of fluid, blood, coagula, &c., in the cavity. The structure of the womb rather softened; the fœtus apparently of six and a half months.—*Brit. and For. Med. Rev.*, vol. vi. p. 539, from *Gaz. Méd.*, 1837.

Case XXII.—Æt. 26—had one child, and three miscarriages. At two and a half months, while waltzing, after taking a dinner, and cold bath, she felt all at once a cracking in the abdomen, and became faint almost immediately. Most alarming symptoms rapidly succeeded; abdomen became swollen and painful, and perfect collapse ensued—no hemorrhage—neck of the uterus natural. It was believed to be rupture of the liver; two colleagues afterwards called it acute peritonitis—was leeched; died about thirty hours after rupture.

Post-mortem.—A great quantity of blood in the peritoneal cavity; at the fundus was a considerable rent of a circular form, two inches in diameter; the uterine tissue healthy, except about the rent, where it was evidently softened, and the torn surface rough and unequal—the ovum in the peritoneal cavity.—*MM. Moulin et Guibert, Arch. Gén.*, 1825, p. 382.

Case XXIII.—Æt. 25—robust—at commencement of the seventh month aborted, in consequence of a rupture of the womb and the posterior wall of the bladder, into which the fœtus escaped; some bones passed away, and at the end of two months, she died of gangrene.

Post-mortem.—The uterus and bladder united by false membranes.—*Arch. Gén.*, 1828, p. 109, from *Memor. d. Math. e Phis. d. Ac. d. Sc. d. Lisboa*, vol. ii. *Dr. G. de Lousa Ferras.*

Case XXIV.—Æt. 27—fourth pregnancy; after much fatigue, had pain in her left side, followed by nausea, lasting some days, and febrile symptoms. In a little over three months seized by an unsupportable pain in the side—a tumour felt in the belly—general agitation followed by syncope and collapse—death.

Post-mortem.—Much blood in the peritoneal cavity, and a fœtus of about the fourth month. Uterus somewhat flattened, and an irregular rent, still bleeding, nearer the longitudinal axis than the Fallopian tube and ovary, which could not be found. Death from hemorrhage.—*Phil. Med. and Phys. Journ.*, vol. vii. p. 419, from *Mem. dell' I. R. Institut. del Regn. Lombard.*

Case XXV.—Mother of several. At fifth month, after a long walk, felt a sudden and severe pain, "as if something had given way within her;" tearing sensation continued; supposed to be colic. Died after several hours.

Post-mortem.—At least four quarts of blood in the peritoneal cavity, and the fœtus and unbroken secundines. A transverse rent from one Fallopian tube to the other; the os impervious. "There was no extenuation at any point of the uterus, nor any appearance of disease."—*Dr. Harrison, Am. Journ. Med. Sc.*, vol. xv. p. 371.

Case XXVI.—Æt. 28—good health; first pregnancy: at sixth month, while reaching over a flour barrel, felt something give way, and had pain in the abdomen, where she rested against the barrel, which continued. Ten hours after this she had labour pains; the os partly dilated, and in four hours delivery took place; placenta separated by the hand with difficulty; child alive. Died ninety-eight hours after delivery.

Post-mortem.—Fœtid gas escaped from the abdomen; uterus torn at the left extremity of the fundus, above and very near the Fallopian tube; the rent of the peritoneum not over three-fourths of an inch, that of the uterine substance greater. The lining of the uterus elsewhere looked well. *Ibid.*, 1845, p. 177, from *Trans. Coll. Phys. of Philad.*, 1844. *Dr. Bond.*

Case XXVII.—Had flooded in a former pregnancy. Had been tolerably well, when at the seventh month, she had a violent pain in the right side, different from what she had before felt; the pains and hemorrhage had been inconsiderable. Died in four hours.

Post-mortem —The fœtus enclosed in its membranes escaped into the abdomen. —*Ramsbotham's Pract. Observs. Case* 84.

Case XXVIII.—First pregnancy; fourth month, suddenly seized with sickness and vomiting, supposed to be owing to having eaten mackerel. Five hours afterwards her pulse was scarcely felt; her countenance pallid and distressed; hands clammy and cold; pain in the belly; no external flooding, but exhibited symptoms "of loss of blood or of lead poisoning." Died six hours after rupture.

Post-mortem.—Uterus rent in the left side; ovum escaped entire; several pounds of coagula in the abdomen.—*Ib. Case* 85.

Case XXIX.—Æt. 36—tenth labour; at about the fifth month, os beginning to dilate; pains feeble; ergot given with no effect. After twelve hours, the pulse became weak, and she was faint. Immediately delivered by the crotchet of a putrid child. Sank on the seventh day.

Post-mortem.—Adhesions of intestines; ovaries soft, and mottled with black; peritoneum raised from the left side of the uterus by coagula, forming a large black tumour; the ragged remains of the anterior part of the cervix seen, which was softened and lacerated; the body of the uterus had lost its elasticity.—*Dr. Murphy, Dub. Journ. Med.*, vol. xvii. p. 218.

Case XXX.—Æt. 33—fifth pregnancy; at fourth month, had rupture from a fit of passion, and subsequent violent exertion. Died fourteen hours after supposed rupture, of hemorrhage.—*Lond. Lancet*, 1828–29, vol. i. p. 33, from *Gaz. de Santé*, 1824.

Case XXXI.—Mother of six. At beginning of the eighth month, seized with abdominal pains and bilious vomiting; in ten hours watery discharge, with coagula, from the vagina, and eight hours after, was delivered of twins, by natural efforts. Died about ten hours, from supposed rupture.

Post-mortem.—Some ecchymosis of anterior part, and several transverse rents more or less convex toward the fundus, through the peritoneal coat only, from one and a half to two inches long, as if made by a pen-knife, and one three inches long, and two inches broad.—*Mr. Partridge, in Med. Chir. Trans.*, vol. ix. p. 72, from *Churchill's Dis. Fem.*

Case XXXII.—Æt. 36—tenth pregnancy; fifth month; pains feeble from the first; os the size of a shilling, relaxed; ergot did not increase their strength. Pulse being quick and feeble, os relaxed; head perforated; fœtus putrid; inflammation set in; death on ninth day.

Post-mortem.—Great peritonitis; sero-purulent fluid in the abdomen; a rent in the cervix in front, confined to the muscular substance.—*Dr. Collins' Midwifery*, p. 138.

Case XXXIII.—General good health; former labours favourable: sixth child. At seven and a half months, while in the act of stooping, she exclaimed, "My

dear, something has given way in my stomach; did you hear it break?" In one hour was in a state of collapse. Died immediately after the extraction of a dead fœtus.

Post-mortem.—A rent from fundus to cervix, posteriorly. No disease apparent in its texture; no cause for the rupture, unless a very slight attenuation of the portion lying in contact with several vertebræ.—*Merriman's Synopsis, Appendix*, p. 268.

Case XXXIV.—At fifth month, a retroverted womb filled the pelvic cavity; the fundus burst, and the fœtus escaped through the anus. Died. *Lond. Med. Repos.*, vol. xix. p. 207, from *Phil. Trans.*, vol. vii. p. 432.

Case XXXV.—Æt. 44—mother of twelve; labours always difficult, and premature delivery four times for contracted pelvis. At sixth month, membranes artificially ruptured; thirty hours after, labour came on; arm presented; after delay, delivered by turning; condition good. Twenty-four hours after, had a livid, anxious countenance, great pain, vomiting, and almost imperceptible pulse. Died thirty-six hours after delivery.

Post-mortem.—Extensive rent of anterior wall through the cervix, and body and bladder. Substance of the womb thick and pulpy, "evidently the seat of chronic inflammation."—*Mr. Favell, Prov. Med. Journ.*, 1845, p. 117.

Case XXXVI.—Rupture caused by forcible attempts to dilate the os uteri in an arm presentation at the seventh month. Longitudinal rent of the neck; result not stated.—*Dict. des Sc. Méd.*, vol. xlix., from *Baudelocque.*

Case XXXVII.—Æt. 17—between third and fourth month, suddenly seized with colicky pains, and soon died.

Post-mortem.—Abdominal cavity filled with blood, in which was the fœtus. Rent in the right side, from fundus near to the neck. The walls of the right side extremely thin, seeming to be little else than peritoneum, and very friable; the left natural.—*Buffalo Med. Journ.*, 1846, from *Am. Journ. Med. Sci.*, Jan. 1847.

Case XXXVIII.—Fell at the eighth month; first pregnancy; waters escaped; in thirty-six hours pains very strong; os dilated to the size of a shilling, and very rigid; breech presenting. During an examination, felt the cervix tear to the left; result not stated.—*Dr. Thompson*, in *Monthly Journ.*, 1847.

III.—Cases of Recovery from Rupture at the full term of Pregnancy.

Case XXXIX.—A healthy negress, æt. 18—first child; os undilated; head pressing violently on the perinæum. Uterus rent from the os, for six inches, toward the fundus; child expelled at the same time. Recovered, and had another child.—*Lond. Med. Gaz.*, vol. iii. p. 219.

Case XL.—Fœtus expelled through the anus; patient recovered in seven days.—*Lond. Med. Gaz.*, vol. i. p. 101, from *Repert. Med. Chir. di Torini.*

Case XLI.—Æt. 32—mother of two or three; pelvis contracted; had journeyed two hundred miles on foot; presentation natural; labour rapid; head low; birth soon expected. "A gush took place;" the head suddenly retreated, and pains ceased entirely. Complained of a constant "tearing" pain; laboured breathing; dark-coloured vomiting. The os was *undilated;* a rent in the right side of the body, running from a point at the right side of the cervix toward the fundus; the fœtus in the abdomen. The feet were seized, the head being assisted by the lever, after failure of application of forceps, about four hours after rupture. Over two hours hard labour in getting the head through the pelvis. Was well in three weeks.—*Mr. Macintyre, Lond. Med. Gaz.*, vol. vii. p. 9.

Case XLII.—Æt. 36—slight contraction of the superior strait; previous labours tedious, but safe. Strong labour; fully dilated os; head pressing on the perinæum. During a strong pain, a sudden scream and an exclamation that something had burst. Head receded. Great anxiety; irregular pulse; hiccup; dark-coloured vomiting. Between one and two hours after the rupture, delivery by the feet; very easily accomplished, the uterus affording no resistance; the fœtus lay in the abdomen. Recovered.—*Mr. Parkinson, Lond. Med. Gaz.*, vol. vii. p. 174.

Case XLIII.—Æt. 28—third labour; strong and healthy. Two months previous

had a fall, and afterward complained of pain in right iliac region. Very severe labour; breech presentation; rupture after the breech and half the trunk had passed the vulva. Delivered, after some delay, by traction on the trunk, with some difficulty; placenta artificially removed, part left behind: a good deal of hemorrhage; hernia of the intestines. Left her bed for the first time in about two months.—*Mr. Currie, ibid.*, vol. xvii. p. 854.

Case XLIV.—Æt. 25—mother of two children; shoulder presentation; first seen after rupture; version was impracticable; thorax perforated; delivered with little difficulty. Extensive rent behind at the junction of the cervix. Discharged cured in twenty-three days.—*Dr. Collins*, in *Dub. Med. Trans.*, and in *Treatise.*

Case XLV.—Æt. 30—sixth child; had been in labour seven hours; pains brisk; rupture occurred unexpectedly, when child was about being expelled. Perforator and crotchet at once employed; the uterus strongly assisted the expulsion. Very extensive rent posteriorly, and hernia of the intestines. Discharged on thirty-second day, cured. Afterward had two children; with the first, premature labour induced.—*Ibid.*

Case XLVI.—A rent in the cervix, vagina, and perinæum, caused by dragging with forceps a horribly mutilated fœtus through a pelvis which was "ascertained to be too narrow to admit the transit of a living fœtus." She "escaped" with these lacerations.—*Reported by Dr. Campbell, Lond. Lancet*, 1828–29, vol. i. p. 34.

Case XLVII.—Æt. 36—mother of several; previous labours easy; pains moderate at first, and suddenly, after about five hours, bearing down almost entirely ceased. From one to two hours after rupture, the pulse was rapid and indistinct; countenance anxious; excruciating pain in the abdomen, and a slight oozing of blood, *per vaginam*. Prompt delivery resolved on; head at the brim of the pelvis; after a fruitless trial of long forceps for one half hour, they slipped. The perforator then used, and the fœtus found hydrocephalic; delivery at once finished; two pounds of coagula removed. A rent from the cervix, posteriorly up into the body of the womb, as far as the finger could reach; great prostration followed, but she recovered.—*Dr. Campbell, Edin. Med. and Surg. Journ.*, 1828, p. 328.

Case XLVIII.—A stout young woman; rupture in severe labour, which lasted thirty hours. Nearly four feet of intestines protruded through the rent, and sloughed off on the sixth day; fæces voided *per vaginam* for two years, when they took the natural channel. Eighteen months after this she conceived, and had a living child.—*Lancet*, 1828–29, vol. i. p. 35, from *Dr. McKeever's work.*

Case XLIX. (*a*).—Operated on twice successfully by gastrotomy, after rupture and escape of the fœtus. The second time the fœtus lived half an hour after its extraction.—*Ibid.*, from *Pathol. Chirurg.*, vol. ii.

Case L.—Æt. 33—feeble; fourth pregnancy; fell two weeks before labour. A transverse rupture of the fundus took place; fœtus escaped. Gastrotomy twelve hours after rupture; child dead. Liquor amnii and blood in the abdomen, the intestines inflamed. Cured in about one month.—*Quart. Journ.*, 1819–20, p. 226, from *M. Bernard, &c.*, in *Journ. Compl. de Dict. des Sc. Méd.*, 1819.

Case LI.—Æt. 30—very weak; partial prolapsus. First stage natural, contractions very powerful; os dilated to half an inch, and the head in the pelvic cavity, when suddenly, during a pain, the lower part of the uterus prolapsed. A large, fleshy, cylindrical mass, six inches long, and two and a half in diameter, occupied the vagina. The head being engaged in the inferior strait, the os dilated to an inch, the forceps were applied, and the cylinder began to burst; forceps withdrawn; child expelled. The rent did not seem to pass through the uterine walls; uterus was returned into the pelvis. Recovered.—*Lond. Lancet*, 1828–29, vol. i. p. 647, from *Siebold, Journ. für Geburtsk.*

Case LII.—Æt. 20—in ninth month; suddenly fainted, and had intense pain in the abdomen, with very strong movements of the fœtus, for twenty-four hours. Pains in the hypogastric region continued intense for four weeks. Fœtus discharged piecemeal through the abdomen and the vagina; recovered after several months.—*Lancet*, 1841–42, vol. i. p. 97, from *M. Richter*, in *Austrian Med. Week! Writ.*

Case LIII.—Previous labours favourable but the last, all the children living.

Pains had ceased for some time; patient pallid, and looked very ill; no hemorrhage; head had somewhat receded; child could be felt in the abdomen: shock of the rupture less than usual; delivered by forceps without the least difficulty. A large rent in left side, with hernia of the bowels. Recovered.—*Dr. Murphy, Dub. Med. Journ.*, vol. xv. p. 489.

Case LIV.—Was suddenly alarmed by report of a pistol, and felt an extraordinary sensation. A few hours afterwards, voided blood in her urine. Twenty-eight hours after, profuse hemorrhage came on; the os being undilated. About thirty-two hours after rupture a horizontal rent in the posterior parietes of the uterus being ascertained, she was delivered by version. Recovered in a few weeks. Good constitution, and her mind was particularly tranquil. *Dr. Ingleby, Lond. Lancet*, 1839–40, vol. i. p. 635.

Case LV.—Æt. 24—infirmary patient; low stature; deformity of extremities; about 12 hours after the beginning of labour rupture took place, the os being the size of a crown-piece, after violent pains, which were succeeded by excruciating pain in the belly. Fœtus escaped into the abdomen. About 15 hours after rupture, delivery by turning and perforation. Rent along the whole course of the right side, including the cervix. Well in about two months.—*Mr. Powell, in Med. Chir. Trans.*, vol. xii. p. 528.

Case LVI.—Æt. 29—delicate; mother of three; the last labour tedious; pelvis under average; pains strong and frequent; os dilated. Within twenty-four hours from the first of the labour, a most violent pain came on, succeeded at once by vomiting and exhaustion, and pains gradually ceased. About three hours after rupture, there being constant pain, extreme tenderness and prostration, the perforator was tried; the head retreated; version and perforation behind the ear; nates and trunk delivered not without considerable difficulty; hernia of the bowels. In seven weeks was about the house, and afterward menstruated regularly.—*Mr. Birch, Med. Chir. Trans.*, vol. xiii. p. 361.

Case LVII.—Æt. 40—stout, healthy, well made; mother of nine; the last labour protracted, with sloughing of the vagina and bladder; pains sharp, severe and quick; rupture about seven hours after labour begun. The os was adherent to the vagina under the pubis, and near the size of a crown-piece, and undilatable. Had a pain as if "a sword had been thrust through her;" profuse hemorrhage; pains ceased. Between one and two hours after rupture, the os was incised, and version performed, and perforation behind the ear. A rent of three inches across the posterior wall; the edges extremely thin; well in about one month.—*Dr. Smith, ibid.*, p. 373.

Case LVIII.—Æt. 32—mother of six; always had difficult labour: pelvis narrow. At full time pains strong; waters discharged; labour progressed slowly. After a while the head was easily reached; pains gone; limbs of the fœtus obscurely felt in the abdomen; fœtal heart inaudible: face flushed; eyes bright; great thirst; vomiting and frequent cough; increased heat of skin; clammy sweat; pulse 95, hard and full. After eight hours more, symptoms the same; the pulse 100; the fœtus easily felt through the abdominal walls; the head risen above the brim and beyond reach. Gastrotomy; child dead. In six weeks perfectly cured.—*Ranking's Abstract*, vol. ii. No. 1, from *La Nouv. Encyclo. Sci. Med.*, Jan. 1846, p. 70. *Dr. Kuhne de Thever.*

Case LIX.—Æt. 24—fœtus required extraction by version. After removal of the placenta a rupture of the womb discovered, with hernia of the bowels; bowels returned, and kept up by a sponge. Recovery.—*Ibid.*, from *Caspar's Wöchenschr.*, 1845.

Case LX.—Æt. 38; mother of six; suffered severe pain in the lower part of the abdomen for last six months. Labour favourable for twelve hours, then sudden prostration; head receded when forceps applied; delivered by crotchet; rent at anterior part of the cervix. Well in one month.—*Dr. Mitchell, Dub. Med. Journ.*, vol. xxii. 1843, p. 339.

Case LXI.—Gastrotomy three hours after rupture: menstruated in six months afterward.—*Brit. and For. Rev.*, 1844, from *Bulletin de l'Acad. Roy. de Méd.*, Sept. 1843.

Case LXII.—Æt. 44—mother of five; ninth month. Labour commenced; while standing up became faint, and vomited; had a sense of laceration, and a feeling as if there were two children in the abdomen; abdomen swelled; vomiting continued; breathing irregular; os undilated. Two hours after rupture, gastrotomy performed; child extracted alive. Recovered in forty days.—*Dr. Frank, Omodei Annali, Gennajo*, 1825, in *Anderson's Quart. Journ.*, vol. ii. p. 661.

Case LXIII.—Æt. 33—eleventh child; has projection of the sacrum; the antero-posterior diameter of the brim being from two and a half to three inches. Ergot was given as in former labours; pains became violent; rupture when in labour ten hours; hemorrhage; the pains at once ceased. Turning about nine hours after rupture; the head assisted by the crotchet; the child and placenta were in the abdomen; the fundus contracted, and the body flaccid. Rent on the right side extending over in front obliquely to the left, of about three inches. Recovered in four weeks.—*Dr. Hendrie, Am. Journ. Med. Sci.*, vol. vi. p. 35.

Case LXIV.—Fourth pregnancy; at full term; after thirty hours of frequent and strong pains, she experienced an extraordinary sensation, and delivery did not take place, although the pains continued. Two months after this the fœtus escaped through several ulcerations in the walls of the abdomen, and after some months was well.—*Dict. des Sci. Méd.*, vol. xlix. p. 240, from *Hist. de la Soc. Roy. de Méd. Journ.*, i. p. 308.

Case LXV.—Rupture; delivery by version; recovery, and subsequently became pregnant.—*Ibid.*, p. 245, from *Dr. Douglas.*

Case LXVI.—Rupture; delivery by version; rent felt by the hand employed. Recovered.—*Ibid.*, from *Gaz. de Méd.* for 1778.

Case LXVII.—Rupture caused by a violent blow over the uterus; the child lay in the left side of the abdomen, and was "extracted." Recovered, and had another child.—*Ibid.*, p. 245, from *Commentaries of Leipsic.*

Cases LXVIII., LXIX.—At the commencement of labour rupture took place; everything announced the escape of the fœtus into the peritoneal cavity. She had suffered a very severe pain, and felt something tear; the fœtus mounted high in the belly and moved actively. After a while the motions ceased, and soon a sensation of all pains; prominence of the belly very manifest. The womb was separated in great part from the vagina, and hernia of the bowels; no hemorrhage or other unfavourable symptom; child and placenta extracted with facility. The abdomen swelled on the second or third day; some vomiting; lochia scanty. Recovered. Two years afterward rupture occurred again; the head had not escaped from the pelvis; delivered by forceps. Recovered—both children dead.—*Ibid.*, from *Duncan's Annals*, 1798.

Case LXX.—A woman of Toulouse had rupture during the pains of a very tedious labour. Fœtus passed into the abdomen, and remained for twenty-five years. After her death the fœtus found invested in false membranes, and *the rent by which it had escaped was distinctly visible.*—*Ibid.*, p. 247, from *Buyle.*

Case LXXI (*a*).—Womb ruptured towards the end of labour, and the fœtus passed into the abdomen. The bones passed away *per anum.* Recovered.—*Ibid.*, from *Mem. Acad. Sci*, 1720.

Case LXXII.—About twenty-two years after its supposed escape into the abdomen, the fœtus escaped *per anum.*—*Ibid.*, from *Percival.*

Case LXXIII.—Rupture and escape of the fœtus into the abdomen. Became pregnant a second time, extra uterine, at the end of seven years, during which time the fœtus was in the abdomen. At the end of twenty-one years she began to void the bones of both *per vaginam;* the discharge continued during eighteen years.—*Ibid*, from *Underwood.*

Cases LXXIV., LXXV., LXXVI., LXXVII.—Bartholeu cites two cases in which the fœtus escaped by ulcerations in the abdomen, and two by the intestines, of which three recovered.—*Ibid.*

Case LXXVIII.—Thérèse Allard had rupture, October, 1776, and four months after, the child was removed by a great incision, she being in great danger from the effects of putrefaction.—*Ibid.*

Case LXXIX.—Perceiving a faintness succeed a violent movement, when a long time in labour, the surgeon, on examining, could no longer feel the fœtus. Gastrotomy; mother and child saved.—*Ibid.*, p. 249, from *Mem. de la Soc. Roy. de Méd.*

Case LXXX.—Wife of a carman; child escaped into the peritoneal cavity; preparations made for gastrotomy, but it was resolved first to attempt delivery by the natural passages. The flaccidity of the lips of the rent, and the favourable position of the feet, permitted delivery, which was accomplished with as great facility as usual.—*Ibid.*, p. 253. *MM. Gardien, Desseaux, &c.*

Case LXXXI.—Third labour; at full term. On the escape of the waters the os was scarcely opened; pains came on; head presented. In a few hours everything promised speedy delivery, when she complained of a singularly acute pain of but short continuance, in the superior and lateral part of the abdomen, after which the fœtus and placenta escaped. Gastrotomy at once practised, and occupied only four minutes; the child was dead; considerable blood in the *bas ventre;* recovery favourable; cure complete on the thirtieth day.—*Heister's Surg.*, tom. v., from *M. Thibault*, in *Journ. de Méd.*, 1768.

Cases LXXXII., LXXXIII.—Wife of a vine-dresser; rupture and gastrotomy at the end of eighteen hours; child dead; a gangrenous abscess formed in the hypogastric region; but she was at work in the field in six weeks. At the end of nine years again pregnant, and had rupture of the womb, the fœtus escaping entirely into the abdomen. Gastrotomy again, only waiting for the administration of the sacrament, two hours or more. Infant gave signs of life for half an hour after the operation. The woman subsequently had a child naturally.—*Dict. des Sc. Méd*, xlix. p. 255, from *M. Lambron, Observ. Communiquée à l'Acad. de Chirurg.*

Case LXXXIV.—Mr. Dumay resorted to gastrotomy in a case of rupture, and on the thirtieth day the wound was the size of a two sous piece.—*Ibid.*, from *Baudelocque, Recherches sur l'Operation Césarienne*, p. 38.

Case LXXXV.—A poor woman fell from a cart, in consequence of which the uterus was ruptured, and the child passed into the peritoneal cavity; bones of the pelvis so *mashed* as not to allow of delivery. Gastrotomy was performed. Recovered. *Dewees' Essay*, in *Phil. Med. and Phys. Journ.*, vol. i. p. 77, from *MS. Lectures of J. Hamilton.*

Case LXXXVI.—Had several children; full time; labour slow at first, but pains became more violent, and during one, felt something crack within her. Pains ceased; became faint; pulse intermittent. Apparently quite torn; she was delivered; the child small, *very healthy and lively.* One side of the uterus burst so wide as to admit the hand.—*Ibid.*, from *Burton's Syst. Midwif.*, p. 110.

Case LXXXVII.—Æt. 21—at full term had very violent pains continuing three weeks. About six months after, she discharged from a small rent at the navel, near four gallons of water, with some "fleshy strings and small bones." The opening was dilated, and the bones of two fœtuses extracted; menstruated two months after, and was pregnant five months after, and six times since.—*Ib.*, p. 82, from *Med. Comment., Amer. edit.*, vol. i. p. 103. *Dr. Bell.*

Case LXXXVIII.—Exostosis of the pelvis; rupture; gastrotomy; mother and child saved.—*M. Castelli, Archives Gén.*, vol. lxiii., 1845, from *Repert. Acad. Roy. de Méd.*

Case LXXXIX.—Æt. 38—mother of three; previous labours severe. Deformed pelvis from too great inclination of the superior strait. Pains came on upon the 27th, waters broke on the 28th, and os dilated on the 29th; no signs of danger; sudden indefinable sensation in the abdomen, with change of its form, and the fœtal limbs could be felt. Expulsive pains ceased; collapse; some hemorrhage. Turning easily done, the head being assisted by the forceps; rent felt by the hand during version. Recovered in a month.—*Gaz. Méd.*, 1845, p. 311, *M. Colson.*

Case XC.—Æt. 37—mother of seven; two labours tedious; the rest natural; sacrum prominent. Five months before fell back in a chair, but was well after it. Pains very frequent and strong, and after twelve hours, membranes were artificially ruptured. In a very strong pain she had a peculiar feeling in the abdomen, and suddenly cried out that something had burst within her; collapse

ensued. Turning immediately, the head being assisted by the lever. Rent transverse; an internal abscess burst *per anum*, and she recovered. Fifteen months after, again confined.—*Edin. Med. and Surg. Journ., July*, 1833, p. 72. *John Dunn.*

Case XCI.—Æt. 30—mother of six still-born; each labour long and painful; children born alive; diameter of brim scarce three inches. Great œdema of anterior lip of uterus; belly prominent; for eighteen hours the pains were of little strength; then excessive cramps came on, and vomiting, the head being at the brim. Labour lasted thirty-five hours. Fearing rupture, the head was perforated; delivery occupied two hours. A rent of two to three inches in the posterior part of the neck, apparently not involving the peritoneum. Recovered.—*Mr. Robertson, Ibid.*, for 1834, p. 51.

Case XCII.—Æt. 35—eighth pregnancy; previous labours hard; pelvis "under the standard dimensions." After six hours' labour, the pains having become very severe, rupture took place; there were hemorrhage, extreme tenderness, sense of sinking, and hurried breathing; fœtus and placenta escaped into the abdomen through a rent in the left side, somewhat behind. Delivered by version. Recovered, and became pregnant.—*Ibid*, from *Mr. Stephens.*

Case XCIII.—Æt. 28—brim not over three inches in its short diameter; had been in labour forty hours; pains incessant; great suffering; perforation; the base of the skull with some difficulty drawn into the pelvis; cervix ruptured posteriorly for two inches, both longitudinally and transverse. Was well in eight weeks.—*Ibid.*, p. 55.

Case XCIV.—Æt. 37—small; antero-posterior diameter of brim two and three-fourths inches; first delivery was by perforation. After twelve hours of continued strong pains, the os dilating well, the pains ceased suddenly; had a sense of stabbing in the belly, which lost its form; the head retreated; no alarming symptoms at the time. Next day, the skin was cold; pulse feeble, 85 to 90; intestines felt at the brim; placenta and membranes and fœtus in the peritoneal cavity. Twenty-three hours after rupture, gastrotomy performed; occupied not over five minutes; expressed herself much relieved at once. A longitudinal rent of the left side. In one month menstruation was established.—*Arch. Gén.*, vol. xxxviii. p. 506, from *Allgem. Med. Zeitung*, 1833. *Dr. Molitor.*

Case XCV.—Æt. 35—healthy; eleventh child. After several hours, the os dilated; head pressing on the perinæum; had acute pains; became restless and anxious; cold sweats; nausea; and violent liquid purging. After some time, the head found receded; rupture not discovered till it was considered too late for delivery. During a few weeks the fœtus passed partly by the vagina, and partly removed by an incision in the abdomen. In about ten weeks perfectly well.—*Lond. Med. Repos.*, vol. viii. p. 110. *Mr. Brock.*

Case XCVI.—Æt. 22—second child; full time; previous labours of great suffering, and instrumental. Pains powerful and frequent; no dilatation; had been so for several hours. Suddenly the fœtus was forced through the anus, and fell on the floor. Rent through the posterior part of the uterus into the rectum; the os a firm cartilaginous ring. Recovered.—*Ibid.*, vol. xix. p. 206. *Mr. Gaitskill.*

Case XCVII.—Æt. 33—pelvis roomy; after considerable bodily exertion, membranes suddenly burst, and two days after labour came on. After twelve hours more, the head low in the pelvis, suddenly cried out something had burst, followed at once by hemorrhage and vomiting and excessive pain, with cessation of uterine contractions; the head receded. Forceps applied after seven hours, and slipped, and the fœtus escaped into the abdomen; version was effected with some delay; rallied immediately after delivery: rent transverse above the pubis. Recovered. —*Hamilton's Select Cases, Edin.*, 1795, p. 138. (Since Hamilton, in his *Pract. Observations*, in 1836, remarks that he had met with but one instance of recovery, this case must be the one quoted by Dewees, in the essay *sup. cit.* from Hamilton's MS. lectures, where he says it was "a case in which almost every circumstance was unfavourable," for, on bringing the child through the lacerated parts, he felt it tear more; she had children afterwards.)

Case XCVIII.—Æt. 36—primipara; pains very strong, and increasing for the

first seventeen hours; os partially dilated; head in the pelvis, but not progressing; seized with excruciating pain, gave a loud shriek, and fell asleep. Awakened after a quarter of an hour, with brown vomiting, and was plainly sinking. At once delivered by forceps in a short time; child saved; well in three weeks.—*Mr. Haden, Trans. Soc. Lond., for Med. and Chir. Improvement*, vol. i. p. 184.

Case XCIX.—Æt. 39—strong and healthy, but lately weakened by peripneumonia; pelvis narrow; fifth labour; after the escape of the waters, was very restless and irritable, with great anxiety for a few hours. During the last pain felt something slip out of its place. Vomiting ensued and quick pulse; duration of labour presumed less than six hours. In apparently less than three hours, the perforator was used; it slipped, and version resorted to, followed by perforation. Got well.—*Lond. Med. and Phys. Journ.*, vol. xix.

Case C.—Mother of seven; when one hour in labour she gave a piercing cry; pain in the right side; face pallid and sunken; pulse depressed; head retreated; turning easy; hernia of the bowels. Cured in fifteen days.—*Dubois*, from *Chailly, Amer. Trans.*, p. 267.

Case CI.—Arm presentation; rupture; turning accomplished with great difficulty; hernia of the bowels; extensive rupture of the cervix. Recovered.—*Burn's Midwifery*, p. 480, from *Trans. Phys. Dub.*, vol. ii. p. 15.

Case CII.—Contracted pelvis; rupture; child escaped; uterus contracted; turning; a large transverse rent opposite the bladder. Recovered in a few weeks.—*Castle's Blundell*, p. 704.

Case CIII.—Robust; became pregnant after a fracture of the pelvis, producing contraction; rupture; gastrotomy; only the muscular substance was torn: the peritoneum divided by the scalpel. About work in two or three weeks.—*Mr. Barlow*, in *ibid.*, p. 705.

Case CIV.—Primipara; delivered by craniotomy after a very lingering labour; placenta adherent, and on introducing the hand seven and a half hours after, it passed through a rent in the back of the vagina or cervix into the abdomen; placenta separated; a very fœtid discharge; eventually recovered.—*Ramsbotham's Process of Parturition, note* to p. 421.

Case CV.—Eight days after rupture, the fœtus was sought for in the abdomen, through a rent at a point between the neck and the body of the uterus; it was small, flabby, extensible, but complete; gas escaped with noise and at intervals; moderate fever lasted some days, but the peritonitis diminished; a mucous discharge, and pains about the kidneys continued. Entered the hospital July 6th, the tenth day of labour, and left cured on the 15th.—*Mad. Lachapelle.* See *Man. des Accouch. etc., par J. Jacquemier*, tom. ii. p. 299.

Case CVI.—Æt. 36—in labour thirty-nine hours, with a very rigid os; pains intensely violent; felt something snap, and a noise heard by an attendant; pains suddenly ceased; collapse; delivered by the vectis. Among the coagula, the portion of the uterus containing the os, and an irregular part of the cervix surrounding it, were found. For three weeks a continuous cavity between the uterus and vagina. Recovered.—*Med. Chir. Trans.*, vol. ii. *Mr. Scott.*

Case CVII.—Sixth child; labour of seven hours; ten hours after delivery, two-thirds of the labia of the os protruded from the vulva: this was separated by torsion, and the whole filled the cervix. Recovered.—*Dr. Kennedy, Dub. Journ.*, vol. xvi. p. 154.

Case CVIII.—Primipara; labour tedious from congested and undilated os; pelvis rather under-sized; posterior lip separated, and was removed. Recovery tedious. —*Ibid.*

Case CIX.—Os undilatable, after many hours of labour, after a violent pain, the circle of the cervix was torn off, and the head expelled.—*Mr. Carmichael, Ibid.*, p. 54.

Case CX.—Antero-posterior diameter of the pelvis somewhat contracted. In two labours delivered by forceps; in the third she felt something give way, and version was resorted to: eventually the trunk was removed, and gastrotomy practised, in order to remove the child's head. A slight rent was found in the

uterus; this was enlarged, and the head delivered. Recovered. For further particulars see case CCLI.—*Am. Journ. Med. Sci.*, Oct. 1843, p. 365, reported by *Dr. Bowman.*

Case CXI.—After two or three days of pain, the os uteri considerably dilated, and labour progressing, when two or three gallons of water escaped. After this she suffered extremely; belly swollen and painful; pulse quick and feeble, &c. After several hours ergot was given, with no effect. After some hours these symptoms were relieved, and the head could be felt in the abdomen. On the twelfth day offensive discharges from the vagina; fourteen months afterward was feeble, in bad health, and discharged bones, &c., *per vaginam.* At the end of about seventeen months a fistulous opening found in the abdomen; at the end of twenty-one months the bones of the cranium, &c., removed by an incision. At the end of two years was quite well.—*Dr. Toy, ibid.*, vol. vi. p. 33.

Case CXII.—Æt. 37—good health and constitution; mother of seven; waters escaped for forty-eight hours; pains short and violent; after an attempt to return the hand, which descended by the head, the womb ruptured; extreme prostration; head receded. Forceps tried and failed; then version; feet and breech in the belly; rent transverse to the right, four or five inches long. Recovered; and in five weeks was about the house.—*Dr. Guernsey, N. Y. Annalist*, Oct. 1846, p. 37.

Case CXIII.—Æt. about 30—mother of several; dangerous hemorrhage; os the size of a crown-piece, and very thin. "When stretching the os, which felt thin and rigid like a piece of parchment, the woman shrunk from the side of the bed, which obliged me to dilate with more force than I intended," when the os was felt to tear at the side, and allow the hand to pass; delivered; child lived. Recovered.—*Smellie's Works*, vol iii. p. 139.

Case CXIV.—Distorted pelvis; second child; after the birth of the child, the vagina found torn from the right side of the os for two or three fingers' breadth, and the os a little torn. Recovered; delivered again, and a large gap or chasm then detected at the side of the os.—*Ibid.*, p. 383.

Case CXV.—After pains, which continued during three days, two loud cracks were heard, as if the rafters had broken, and the belly was rent from near the navel obliquely downward; child and placenta expelled through it; the intestines seen. Recovered.—*A. Monroe, Sen.*, in *New Edin. Essays*, vol. ii. p. 338, in *Dub. Med. Journ.*, vol. xxvi. p. 492.

Case CXVI.—Æt. 32—second child; never had any uterine disease: when in labour twenty-two hours, during a strong pain, felt something suddenly give way within her, seeming as if her bowels had been torn. A calm succeeded; two hours after, pulse small and thready; respiration slow and regular; acute pain in the belly, and a sense of a rolling, crushing weight there; limbs of the fœtus easily felt, and grasped through the parietes; strength failing, she was, after a little over two hours, delivered by forceps; child lived a few minutes. A rent in the fundus admitted the hand; hernia of the bowels; a knuckle of the gut was reduced the second day. Recovered.—*Dr. Robiquet*, in *Annales de la Soc. de Méd. de Gand.*, quoted from *Journ. de Méd. et Chirurg.*, July 1846, in *Am. Journ. Med. Sci.*, April, 1847.

Case CXVII.—Four years after rupture a gangrenous abscess formed, which was opened, and a part of the fœtus withdrawn, part having been already evacuated by the bowels.—*Dict. des Sci. Méd.*, vol. xlix., *by Cornac of Vienna.*

IV. Cases of Rupture at Full Term proving fatal.

Case CXVIII.—Contracted pelvis; in three labours perforation required. At about the seventh and a half month, fifth pregnancy; delivery brought on by piercing the membranes; rupture; head escaped into the abdomen; turning and perforation behind the ear. Died.—*Lond. Med. Gaz.*, vol. iii. p. 32. *Mr. Doubleday.*

Case. CXIX.—Æt. 43—eleventh child; contracted pelvis; previous labours severe and dangerous. Pains unusually severe; in a terrible pain the uterus burst, and a sound was heard by the attendants. Died in two hours.

Post-mortem.—Rent from cervix to fundus.—*Ibid.*, vol. v. p. 522. *Mr. Spackman.*

Case CXX.—Æt. 28—fifth child; membranes ruptured; head presented; faint pain and cramp in the side. Died in less than one hour from the rupture, undelivered.

Post-mortem.—Two quarts of bloody serum in the pelvis; head firmly impacted; parietes of the uterus remarkably thin at the rupture.—*Ibid.*, vol. viii. p. 304. *Dr. Smith.*

Case CXXI.—Æt. 40—eleventh child; for two weeks had severe pain in the lower part of the abdomen, with tendency to sickness; pains tolerably strong; duration eight or nine hours; no physician called for an hour and a half after rupture. Died undelivered in less than two hours.

Post-mortem.—Two rents; that portion of the uterus thinner than the rest, and evidently in a morbid condition; patches of lymph between the peritoneum and muscular fibres; fœtus within the uterus.—*Ibid.*, vol. xxii. p. 375. *Mr. Reid.*

Case CXXII.—Æt. 32—stout and healthy, and had five children. Had a favourable labour; the head nearly resting on the perinæum. On the discharge of the waters the pains ceased, and delivery was soon required; but no positive signs of rupture, or premonitory symptoms; forceps tried and failed; delivered in a few minutes by perforation, somewhat less than two hours after rupture. Died about two hours after rupture.

Post-mortem.—Two pounds of dark coagula in the abdomen; a longitudinal rent of four inches in the posterior part; coats of the uterus healthy, but destitute of blood.—*Ibid.*, vol. xxvi. p. 347. *Dr. John Jackson.*

Case CXXIII.—Æt. 21—healthy looking; former labours easy; pelvis sufficiently roomy; os dilated; pains lively, not violent; face to the pubis; waters escaped; head gradually advancing, and a prospect of a safe delivery; a sudden scream, and complaint of a peculiar excruciating pain; pains soon ceased; rupture evident; duration of labour about ten hours; perforation at once; delivered with little difficulty. Died eleven days from rupture.

Post-mortem.—Rent two and a half inches in the anterior part; inner surface of the womb mottled by greenish patches; uterus thinned at the place of the rent. Presumed cause of rupture, partial atrophy of the uterus.—*Dub. Med. Journ.*, vol. vii. p. 209. *Dr. Murphy.*

Case CXXIV.—Æt. 36—delicate; eleventh labour; seven premature, three alive; pelvis undersized, but not irregular; no unusual sharpness of the brim. Labour at first natural; three hours and more before rupture, the pains became weak; an hour and a half after the escape of the waters, a sudden lancinating pain, "as if a sword had passed through her groin." Rupture soon evident; head between the ischia; duration of labour about nine hours. Forceps tried and failed; perforator; child slowly removed; the uterus assisting the breech and lower extremities. Died on the eighth day.

Post-mortem.—A transverse rent of three inches in the anterior part of the womb; "no morbid lesion to explain the accident." Death caused by the hemorrhage. —*Ibid.*, p. 211.

Case CXXV.—Had one living and one still-born child; sacrum prominent; antero-posterior diameter of the brim not over three and a half inches. Strong, steady pains after the escape of the waters; head fixed at the brim, and the uterus felt hard as if spasmodically contracted; felt something give way, and pains became mere spasms; no discharge from the vagina. Delivered by crotchet, apparently soon, "with much difficulty," "the uterus affording no assistance." Did not recover from the shock. Died thirty hours after delivery. Duration of labour fourteen hours.

Post-mortem.—A circular opening in the cervix opposite the sacral promontory; and a patch reaching into the body of the womb, much thinned.—*Ibid.*, p. 213.

Case CXXVI.—Æt. 36—tenth labour; five still-born; ischia closer than natural; antero-posterior of the brim four and a half inches. The os soft—head almost arrested between the ischia during four hours before symptoms of exhaustion required delivery—duration of the labour not over twelve hours. Crotchet—child large—the uterus assisting the body and legs—uterus well contracted. Sank and died in apparently less than thirty hours.

Post-mortem.—Some shreds of lymph partly adherent, and part swimming in bloody serum about the cervix. A circular opening posteriorly, near the size of a half crown; cervix thin, not softened; body of the uterus had a soft doughy feel; no unusual prominence of the sacrum.—*Ibid.*, p. 214.

Case CXXVII.—Æt. 30—fifth child; face presentation; natural labour and delivery; rupture unsuspected. Died of peritonitis on the sixth day.

Post-mortem.—Blood and serum in the abdomen; peritoneum of the uterus thickened; rent of three inches in the left side, exposing a cavity in the fibrous structure of the uterus communicating with the lining membrane, by three openings—coagula around and within it.—*Ibid.*, p. 219.

Case CXXVIII.—Æt. 26—sixth child; the first delivered by the crotchet: the third, forced delivery; the second, fourth and fifth, natural. Antero-posterior diameter of the brim three and a half inches. Labour strong; os nearly fully dilated; head resting on the pubis; without any sudden exclamation or complaint, the pains went off; pulse became weak; countenance anxious; respiration laboured; dark-coloured vomiting. Perforation at once; the uterus assisting the body and limbs. Died of peritonitis on the third day.

Post-mortem.—Intestines, and peritoneum of the uterus, highly vascular. Rent in the peritoneum of two and a half inches in the anterior part of the cervix, where was softening, and a cavity in the substance opening through the rent into the abdomen; at the rent the peritoneum raised, and lying loose between the womb and bladder; fundus soft and doughy; fibrous structure easily peeled off.—*Ibid.*, p. 220.

Case CXXIX.—Æt. 30—first child. Delivery required by her situation when admitted. Died twenty-four hours after delivery.

Post-mortem.—Uterus rent at the anterior part of the cervix close to the vagina, in a portion which was of a dusky green, and softened—of which there was a broad patch embracing the entire thickness of the walls. The peritoneum was raised in one place by coagula beneath.—*Ibid.*, p. 221.

Case CXXX.—When in labour some hours, a powerful dose of ergot was given by a midwife without regard to the os, which was extremely rigid. Uterine action was most violent; after some time prostration ensued, and she very soon expired.

Post-mortem.—A large transverse rent posteriorly, and at the neck; the fœtus and a few ounces of blood in the abdomen.—*Lond. Med. Gaz.*, vol. xxvii. p. 372. *Mr. Coward.*

Case CXXXI.—Æt. 40—not very strong; tenth pregnancy; repeated losses of blood from placenta prævia. When the child was half-delivered by version, the uterus ruptured. Duration of labour about twenty-four hours; died soon. No post-mortem, but the uterus was as thin as paper.—*Lond. Lancet*, 1827–8, vol. ii. p. 110.

Case CXXXII.—Delivered by natural efforts; child born alive. Patient died from flooding.

Post-mortem.—A longitudinal rent in the side. *Dr. Blundell.*—*Lond. Lancet*, 1828–9, vol. ii. p. 384.

Cases CXXXIII., CXXXIV., CXXXV.—One died thirty-six hours after rupture, with a laceration in the posterior part of a hand's breadth. The second died at the end of thirty-eight hours. The third died in less than twelve hours; the child escaped into the belly; rent in front.—*Ibid.*

Case CXXXVI.—Pelvis greatly distorted; Doctor found she had bled profusely; was restless; had weak intermitting pulse; no vomiting; uterus extremely relaxed; the child in the abdomen. Turning; considerable difficulty in extricating the shoulders and head. Survived delivery but a few minutes.—*Lond. Lancet*, 1831–2, vol. i. p. 830. *Mr. Wisbey.*

Case CXXXVII.—Exostosis of one of the pelvic bones; hydrocephalic fœtus; labour had been suffered to continue for many hours. Rupture; died without any attempt to extract the fœtus.

Post-mortem.—Several rents; an extensive one in the body, through which the

whole fœtus, except the head, had escaped.—*Dr. Campbell. Lond. Lancet*, 1828–9, vol. i. p. 35.

Case CXXXVIII.—Third labour; narrow pelvis. Duration of labour thirty-three hours; lived nine hours after rupture; died undelivered.

Post-mortem.—Very extensive rent in the anterior part of the body of the womb, through which almost the whole of a pretty large male fœtus had passed; the fundus well contracted; head impacted firmly.—*Ibid.*, p. 35.

Case CXXXIX.—Fifth pregnancy; full time; had dull and continued pain in the abdomen; waters escaped, and uterine action was very much abated. At the end of three hours, gave three ordinary doses of ergot; action increased in a small degree for one and a half hours, when the vectis was used, but failed; fœtus then considered hydrocephalic; head suddenly receded, and pains at once ceased; sinking came on; rupture had taken place, and the fœtus had escaped into the belly, and could be felt there. Apparently soon, the uterus was found permanently contracted, admitting but two fingers; patient exhausted, and but few hopes could be entertained of recovery. Gastrotomy—this occupied thirty seconds, without the loss of a teaspoonful of blood; patient expressed herself greatly relieved, and passed a good night. Died eight hours after delivery.

Post-mortem.—Uterus healthy, except near the laceration in the posterior wall, where it was completely altered and softened in its texture, owing to chronic inflammation; fœtal head of monstrous size.—*Mr. Lord*, in *Lond. Lancet*, 1828–9, vol. p. 310.

Case CXL.—After violent pain in the bowels, uterine pains suddenly ceased, and the fœtus was felt beneath the integuments. Rupture from natural effort of the womb; pulse quickened; less anxiety of face than was to be expected. Turning, over six hours afterwards; fœtus entirely in the abdomen. Died about eighteen hours after rupture.

Post-mortem.—Intestines glued with lymph, and a layer formed for isolating the fœtus.—*Mr. Spilsbury. Lond. Lancet*, 1834–5, vol. i. p. 125.

Case CXLI.—Strong and healthy; æt. 32; tenth pregnancy; sacrum very prominent. After being five hours in regular active labour, pains suddenly ceased for twelve hours. Midwife gave ergot, and in a few hours pains returned, and the woman suddenly exclaimed that something had burst; hernia of the bowels; fœtus "too high up" to be delivered by the feet, and was brought down by the blunt hook; died in a few hours after delivery.

Post-mortem.—Uterus healthy; muscular fibre very firm; rent posterior from the fundus to the os.—*Lond. Lancet*, 1836–7, vol. i. p. 824. *Mr. Hooper.*

Case CXLII.—Æt. 30—robust; pelvis well formed; had one living child. Had been in labour four days without symptoms of rupture or peritonitis. After blood-letting, "we endeavoured to apply the forceps the whole afternoon, but without effect." Died undelivered about five days from the commencement of labor.—*Mr. Blythman. Lond. Lancet*, 1841–2, vol. i. p. 29.

Case CXLIII.—Æt. 36—robust and healthy; labours always severe and lingering, but not instrumental. After being several hours in favourable labour, pains increasing, and the head descending, during an ordinary pain, the countenance changed; felt a sense of suffocation; pulse quick and tremulous. After one hour the head had not receded, but the fœtus was felt through the parietes. On attempting to perforate, the head receded; version, over an hour after rupture; delivery "soon accomplished." Rent in anterior part. Died thirty-four hours after delivery.—*Mr. Tovey. Ibid.*, p. 321.

Case CXLIV.—Mother of eleven; pains lasted for sixteen hours, when she was delivered by a midwife, by turning of a living child. During the operation she gave a loud scream, and fatal syncope came on at once after delivery. Died in two hours.

Post-mortem.—Rent in right side through muscular coat only.—*Mr. Hancorn. Ibid.*, p. 796.

Case CXLV.—Died undelivered, after a most protracted labour, the head floating at the brim like a cork in water.—*Dr. Ingleby. Lond. Lancet*, 1839–40, vol. i. p. 634.

Case CXLVI.—Somewhat contracted brim. Died undelivered.—*Ibid.*

Case CXLVII.—Transverse presentation; child escaped into the abdomen; delivery by version. Died.—*Ibid.*

Cases CXLVIII., CXLIX.—Transverse presentations. Died.—*Ibid.*

Case CL.—Slightly contracted brim; impaction; crotchet within an hour; sloughing of the passages; died after some weeks.—*Ibid.*

Case. CLI.—Æt. 36—sixth labour; once delivered by perforation; great projection of the sacrum; pubis narrow; crista sharp; antero-posterior diameter of the brim, three and one-sixteenth inch; the lateral diameter, three and one-half inch. Sixty hours after the escape of the waters, the pains having been apparently of ordinary severity; the head not descending; craniotomy was talked of; an hour and a half after this, the pains entirely ceased; head retreated beyond reach, and the child was plainly felt in the abdomen. The uterus was well contracted; the rent was in the vagina; vomiting; pulse 130; severe suffering and tenderness; she felt the child move in the bowels at the supposed time of rupture. Four hours after rupture, exhaustion, death-like; "presently" she rallied, and gastrotomy was performed; not over half an ounce of blood lost from the integuments; but a quart or more escaped from the abdomen; was better than before the operation. Died after two days from exhaustion.

Post-mortem.—Spinal curvature. No peritonitis, except lymph in the line of incision; uterus perfectly healthy; vagina extensively torn anteriorly, and separated from the uterus by a rent of four and a half inches. Child very large.—*Ibid.* p. 637.

Case CLII.—Extensive rent in the vagina; the hand easily passed into the peritoneal cavity; was supposed nearly recovered, when on the twenty-sixth day from delivery, she suddenly died from hemorrhage.—*Dr. Collins' Treatise,* note to p. 127.

Case CLIII.—Æt. 25—first labour; waters escaped in twelve hours; pains brisk, but not violent. In nineteen hours the pains ceased; face pale and ghastly; limbs cold; constant yellow-vomiting; head very low. Perforation at once; much exertion required to deliver the head and even the shoulders. A most extensive rent posteriorly at the junction of the uterus and vagina; hernia of the intestines. Died after twenty-five days.

Post-mortem.—Rent nearly healed, but two openings into a psoas abscess on each side, of which she probably died.—*Ibid.*, p. 129.

Case CLIV.—Æt. 36—first pregnancy. Died on the fourteenth day.

Post-mortem.—Extensive peritonitis; rent at the posterior part of the vagina, at the junction of the uterus.—*Ibid.*, p. 133.

Case CLV.—Æt. 21—third child; head large and firmly ossified. Duration of labour, nine hours; pains not of unusual violence, suddenly ceased; pulse became rapid and feeble; countenance expressive of greatest distress; belly could not bear a touch: frequent vomiting; head low down; face to the pubis; delivery at once by crotchet; extensive rent of the vagina anteriorly. Died on the eleventh day.

Post-mortem.—Extensive adhesions; parts near the uterus and the inner surface of the bladder, of a dirty green (from blood). A transverse fissure in the cervix anteriorly of two and a half to three inches, filled up by partially organized lymph; no gangrene; a large quantity of clots, with some fluid blood in abdomen.—*Ibid.* p. 133.

Case CLVI.—Æt. 36—eleventh child; seven premature; after nine hours natural labour, had a sudden acute pain in the left iliac region, when the pain ceased; pulse began to sink; belly very tender; frequent vomiting; distressed countenance; head on the perinæum. Forceps at once; head could not be moved; perforation, and considerable force required; the uterus acted a little at the last. A most extensive rent at the junction of the vagina and womb; placenta among the bowels; a large quantity of fluid and clotted blood removed. Died on the tenth day.

Post-mortem.—A large amount of coagula; immediate cause of death was hemorrhage; slight peritonitis.—*Ibid.*, p. 129.

Case CLVII.—Æt. 16—first child; labour of four hours; natural delivery. Died on third day.

Post-mortem.—Extensive rent in front, through the muscular substance; sinuses under the peritoneum all around the cervix, and ulcerations of the vagina from syphilis.—*Ibid.*, p. 142.

Case CLVIII.—Æt. 32—fifth pregnancy; labour of forty-eight hours, not very severe; natural delivery; death on the fifth day from violent hemorrhage.

Post-mortem.—Loss of muscular substance of the size of a shilling, opposite the sacral promontory; the peritoneum being entire.—*Ibid.*, p. 143.

Case CLIX.—Æt. 27—sixth labour; labour of one hour; natural delivery; exhaustion came on from hemorrhage. Died on the fourth day.

Post-mortem.—Rent at the junction of the uterus and vagina; muscular substance of uterus much thinned.—*Ibid.*, p. 144.

Case CLX.—Æt. 25—in labour two and a half days; pains brisk; head low; puerperal convulsions; perforation. Died seven hours after delivery.

Post-mortem.—Extensive rent in the muscular substance of the womb, and softening from syphilis.—*Ibid.*, p. 104.

Case CLXI.—Æt. 28—first labour; hydrocephalic fœtus. In labour over twenty-four hours; convulsive, sudden exhaustion; perforation; died on fifth-day.

Post-mortem.—A large rent in front and lateral part of the vagina, and psoas abscess.—*Ibid.*, p. 104.

Case CLXII.—Æt. 26—second labour; firm bands obstructing the vagina; after three days' labour, convulsions set in; delivery natural.

Post-mortem.—Extensive peritonitis; rent in the vagina at its juncture with the uterus, opposite the sacral promontory, admitting two fingers; extensive effusion into the peritoneal cavity.—*Ibid.*, p. 106.

Case CLXIII.—Æt. 35—third labour; pains very strong, but no sign of danger; perforation two hours after pains ceased, and exhaustion appeared. Died on third day. Extensive rent in front at the junction of the vagina and cervix.—*Ibid.*, p. 144.

Case CLXIV.—Æt. 32—fourth pregnancy; died on second day.—*Ibid.*, p. 144.

Case CLXV.—Æt. 30—second labour; narrow outlet; labour of six hours; pains suddenly ceased; cramps; extreme tenderness; vomiting; and debility; perforation three hours afterwards; shoulders delivered with considerable difficulty. Rent in front, and to the left, between the vagina and cervix; died on the second day.—*Ibid.*, p. 144.

Case CLXVI.—Æt. 28—second child; first delivery forced; outlet narrow; labour of twelve hours; pains moderate; membranes broke; rupture soon evident; head low down; perforation extensive; rent in front, at the junction of the vagina and cervix, running into the uterus; died on second day.—*Ibid.*, p. 145.

Case CLXVII.—Æt. 30—sixth pregnancy; labour of forty-four hours; pains trifling; began to sink without any signs of rupture. Head, at the brim, out of reach of forceps; perforator used; delivery speedy. Hemorrhage reduced her much; died on the third day.

Post-mortem.—A small rent of the vagina behind, near to the cervix, opposite the sacral promontory; severe peritonitis.—*Ibid.*, p. 146.

Case CLXVIII.—Æt. 34—sixth labour; duration of labour eight hours; breech presentation; child expelled forcibly; succeeded by alarming flooding; no sign of rupture, but extreme exhaustion; died in thirty hours.

Post-mortem.—Inner coat of vagina and os torn considerably behind, and one small rent in the peritoneal coat not corresponding to the other; peritonitis.—*Ibid.*, p. 146.

Case CLXIX.—Æt. 33—third labour; contracted pelvis; force delivered before; labour of four hours; pains very feeble and ceased suddenly; sinking; version and perforation behind the ear; died in twenty-five hours.

Post-mortem.—Uterus almost torn from the vagina.—*Ibid.*, p. 147.

Case CLXX.—Æt. 28—second labour; vagina obstructed by a firm band; had been much injured by instruments in a previous labour; labour of nine hours;

very strong pains; the band was divided toward the rectum by a bistoury; rupture in four hours after; perforation. Died in twenty-four hours. Extensive opening formed between the vagina and rectum, probably in an old cicatrix.—*Ibid.*, p. 147.

Case CLXXI.—Æt. 24—second labour; pains feeble; head low; began to sink; labour lasted thirty-six hours; perforation at once; died in seventeen hours.

Post-mortem—A rent of two inches in front, in the muscular substance; a quantity of bloody fluid in the belly; peritonitis.—*Ibid.*, p. 148.

Case CLXXII.—Æt. 30—second child; antero-posterior diameter of the brim scarce three and a half inches; force delivered before; labour of thirty-six hours; pains feeble; but the child advanced; sudden alarming debility; perforation at once; died in fourteen hours.

Post-mortem.—An opening admitting the finger at the junction of the cervix behind, and a rent of the muscular substance in front.—*Ibid.*, p. 148.

Case CLXXIII.—Æt. 30—first child; severe labour; its duration unknown; head low; perforation; died in fourteen hours.

Post-mortem.—Extensive peritonitis; rent in the muscular substance near the vagina; blood beneath the peritoneum.—*Ibid.*, p. 49.

Case CLXXIV.—Æt. 30—eleventh labour; pelvis roomy; labour brisk for five hours; pains suddenly ceased; this followed by other signs of rupture; head low; forceps tried; the head receded; version; some exertion required to remove the head; died in ten hours.—*Ibid.*, p. 149.

Case CLXXV.—Æt. 26—first labour; extreme deformity of the pelvis; antero-posterior diameter two and a half inches; labour of thirty hours; elbow presentation; wedged into the pelvis; version inadmissible; pains brisk; thorax perforated; "breech brought down with immense difficulty, requiring most laborious exertion for two and a half hours;" died in four hours.

Post-mortem.—A considerable rent at the junction of the cervix and vagina.—*Ibid.*, p. 149.

Case CLXXVI.—Æt. 35—first labour; child and secundines in the abdomen; twelve hours after rupture, version; died in sixteen hours from rupture.—*Ibid.*

Case CLXXVII.—Æt. 27—third labour; pelvis considerably under size; active labour of five hours; head low down; perforation; died in four hours; rent posteriorly, "at the usual place."—*Ibid.*, p. 150.

Case CLXXVIII.—Æt. 26—fifth pregnancy; os partly dilated; most profuse hemorrhage, for which delivered by version; died in two hours.

Post-mortem.—A rent through the os, probably caused by version though by no means forced.—*Ibid.*, p. 64.

Case CLXXIX.—Æt. 30—fifth child; twenty-four hours in labour; pains from slow became more forcible; had cramps for some time before in the right side; pains suddenly ceased; prostration; forceps failed; perforation; extensive rent in the muscular substance in front, at the junction of the cervix and vagina; died almost before delivery finished.—*Ibid.*, p. 150.

Case CLXXX.—Æt. 40—fourth pregnancy; delivered by version for profuse hemorrhage; a rent found at the cervix in front, and to the right; died soon.—*Ibid.*, p. 55.

Case CLXXXI.—Æt. 36—ninth labour; shoulder presentation; had hemorrhage for five or six hours; version; much loss of blood; death soon; rupture of two inches in front through the muscular part.—*Ibid.*, p. 46.

Case CLXXXII.—Æt. 37—sixth labour; pains at no time strong; head advancing slowly; sudden cessation of pain; extreme debility, &c.; labour of forty hours; perforation at once; died almost instantly.

Post-mortem.—A rent of the muscular substance in the "usual place;" cervix not thicker than strong brown paper.—*Ibid.*, p. 151.

Case CLXXXIII.—Mother of three; injured in the abdomen by her husband, six weeks before labour, and not well since; pains severe; suddenly ceased; rupture suspected about twenty hours after, when the uterus was firmly

contracted, and the fœtus in the abdomen, out of reach; allowed to remain undelivered as affording the best chance; died thirty-six hours after rupture.

Post-mortem.—Uterus seemed perfectly healthy; rupture from cervix to fundus. —*Dr. Blicke. Ryan's Journ.*, vol. ix. p. 123.

Case CLXXXIV.—Æt. 35—had four living; rupture occurred while drawing at a well; os found dilated; feeble pains came on; head descended; delivered by the forceps of a very large male child about six hours after the accident. Apparent transverse rupture of the muscular substance at the neck; died in twenty hours.—*Dr. Adams. Lond. and Edin. Month.*, 1844.

Case CLXXXV.—Æt. 30—had several children; had been in labour several days; os the size of a dollar; pains at first strong, growing weaker; died undelivered.

Post-mortem.—An immense flow of blood; rent from cervix to fundus posteriorly, where the tissues were not thicker than pasteboard; at other parts three and a quarter or four inches thick.—*Med. Chir. Rev.*, vol. xxv. *Dr. Wombert.*

Case CLXXXVI.—Æt. 38—mother of four dead children. In a previous labour the uterus was perceived to be thickened, and apparently diseased. Pains very strong; os fully dilated; natural presentation; promising case; pains suddenly ceased, with a rumbling in the belly. Rupture after six hours' labour; fœtus receded *immediately* after; the os tincæ was firmly contracted, with a margin of placenta presenting. Died in forty-two hours after rupture, undelivered.

Post-mortem—Rent in right side, which was much thinned; the left thickened: the whole uterus diseased—*Ryan's Journ.*, vol. ix. p. 288, from *N. Amer. Archives of Med. and Surg. Sci. Dr. Duncan.*

Case CLXXXVII.—Æt. 25—stout; mother of three dead children; two footlings. Rupture five hours from the beginning of labour; os fully dilated; pains powerful, quick and expulsive; pains ceased; suffering in the right side; vomiting and depression; forceps tried and then the perforator. Died twenty-nine hours after rupture.

Post-mortem.—Uterus rather flabby, and universally of a pinkish red, not removed by sponging. A longitudinal rent to the right, behind. At the seat of laceration the tissues soft and easily torn.—*Guy's Hosp. Reps.*, vol. vi. p. 72.

Case CLXXXVIII.—Strong; borne three living children; labours lingering and very painful; linea ileo pectinea exceedingly sharp; pains extremely severe; rupture after labour of ten and a half hours. Complained of a sense of cracking and a cramp; pains suddenly ceased; great prostration; fœtus passed into the abdomen; perforation at once; delivered after some difficulty, the uterus assisting; bones of the cranium highly ossified; died fifteen hours after rupture.—*Ibid.*, p. 73.

Case CLXXXIX.—Æt. 36—had six living children; labours difficult, the fifth instrumental; small pelvis; pains severe and constant; head slightly descended. Twenty-four hours after the beginning of labour, was seized by an attendant and violently jolted up and down during a pain, to facilitate the labour; immediately afterwards pain declined; vomiting and depression. Perforation after six or eight hours; placenta in the abdomen, and its removal difficult. Died about forty hours after rupture. Womb rent through three-fourths of the posterior part and cervix.—*Ibid.*, p. 78.

Case CXC.—Æt. 25—had two still-born, labours instrumental; pelvis small. Pains strong; about twenty-seven hours from the first, had a sense of suffocation; pulse rose; pains gradually ceased; some hemorrhage; head did not recede; died about eight weeks.

Post-mortem.—Rent in posterior part of the cervix and vagina not healed.—*Mr. Birch, Med.-Chir. Trans.*, vol. xiii. p. 358.

Case CXCI.—Mother of eleven; had a blow on the belly; went her full time; labour tedious; restless for twenty-four hours. After rest, procured by opium, strong pains came; delivery soon expected; pains suddenly ceased, and she said the child had slipped into the belly. Died in a few minutes, undelivered. —*Bard's Midwifery*, from *Med. and Phys. Journ.*, vol. xiii. p. 234.

Case CXCII.—Second labour; first delivery by perforation; contracted pelvis; premature labour induced; pains active; case favourable; rupture sudden

perforation in about an hour after. Died in about two hours. Rent transverse, opposite the sacrum.—*Ramsbotham's Pract. Observ., Case LXXVII.*

Case CXCIII.—Æt. 30—seventh labour; good pelvis; pains strong and short; os the size of a crown-piece; pains abated, then ceased. Died in a few hours, undelivered.

Post-mortem.—Rent from cervix to fundus on the right side; child escaped excepting the head; fœtus hydrocephalic.—*Ibid., Case LXXVIII.*

Case CXCIV.—Stout; fourth labour; previous labours tedious; duration of labour about twelve hours; labour slow; pains suddenly ceased; prostration, &c. Vectis and the forceps had been tried; head impacted, and delivered with great difficulty in two to three hours after rupture. Died in about thirty-six hours.—*Ibid., Case LXXIX.*

Case CXCV.—Had several living; labour of nine hours' duration, more or less; very favourable; os dilating; sudden spasm-like pain; vomiting and depression; pains gradually ceased; head receded; beyond reach of the finger; turning easy. Died in about seventy-two hours—*Ibid., Case LXXX.*

Case CXCVI.—Æt. 40—seventh child; all the former still-born; deformed pelvis; head perforated when the os equalled a half-crown; one hour after this, rupture took place. Died soon.

Post-mortem.—Transverse rent above the pubes, through the muscular coat and through the peritoneum at one point.—*Ibid., Case LXXXI.*

Case CXCVII.—Second child; antero-posterior diameter of the brim two and a half inches; common labour; perforation about to be made when rupture suddenly took place; cramps in the belly; head receded; turning and perforation behind the ear at once. Died in about twenty-four hours.

Post-mortem.—A large rent opposite the sacral promontory, which was a sharp ridge.—*Ibid., Case LXXXII.*

Case CXCVIII.—Shoulder presentation; rupture had taken place before delivery by version. Died in a few hours.—*Ibid., Case LXXXIII.*

Case CXCIX.—Seventh labour; tedious; no alarming symptoms during labour, but gradually sank (undelivered?) in about twelve hours.

Post-mortem.—Rent of several inches in the peritoneal coat of the back and side; the fleshy portion not implicated—*Ibid., Case LXXXVI.*

Case CC.—Æt. 30—second child; deformed pelvis; labour going on well; head descending; sudden, severe pain in the belly; pains ceased; great prostration; perforation; delivered not without some difficulty; died about forty-eight hours after; duration of labour about forty-eight hours.

Post-mortem.—Rent in the posterior part of the vagina, not involving the cervix. *Ibid., Case LXXXVII.*

Case CCI.—Æt. 35—had several children; pains pretty frequent and severe; after an increase of these attended by severe pain; head well descended; uterus ceased acting and collapse after about twelve hours' labour. Died two hours after.

Post-mortem.—A large quantity of blood in the abdomen; rent at the junction of the body and cervix; around the rent it was thin, tender and very dark. *Dr. Coffin, New. Eng. Journ.*, vol. iii. p. 114.

Case CCII.—Very large and plethoric; labour tedious, and suffering disproportionate to the uterine action; sudden rupture seven hours after escape of the waters; head receded. Died in two and a half days, undelivered.

Post-mortem.—Uterus very firm and two inches thick; a longitudinal rent admitting three fingers. *Ibid.*, p. 115.

Case. CCIII.—Æt. 35—good health; borne several; at full time fell upon the ice and struck her abdomen, causing her to feel that she was split open; repeated syncopes; incessant vomiting; cold surface; death-like aspect during twenty-four hours; os undilated; occasional pain and extreme tenderness of belly; seventy-two hours after rupture, symptoms no better; os still undilated; artificial dilatation commenced, a "process so obstinately resisted by the unyielding state of the parts as to require from four to five hours to effect a delivery of the child." Child large; profuse hemorrhage, from the uterus not contracting; firm adhesion in part, of the placenta to the uterus. Died on the sixth day from rupture.

Post-mortem.—Gangrenous patches on the walls of the abdomen; fetid gas escaped; a full sized fœtus among the bowels; rent in the superior part in front; very little blood "in the cavities," but a quantity of serous fluid.—*Dr. Hyde. Bost. Med. and Surg. Journ., Jan.* 1842, p. 377.

Case CCIV.—At full term, considerable pain in the belly; after some convulsive movements, fœtus assumed a transverse position in the lower part of the abdomen, and ceased to move. Some days afterward, new pains, and the placenta was extracted; afterward, occasional hemorrhages; the blood becoming putrid; fever and alarming symptoms. Died forty-eight days after rupture.

Post-mortem.—Womb torn in front; fœtus among the intestines; uterus, &c., putrilaginous.—*Dict. des Sci. Med.*, vol. xlix. p. 241, from "*Mélanges de Chirurg.*, tom. ii. p. 295. *M. Saucerotte.*"

Case CCV.—Sixth pregnancy; was awakened from sleep by a cramp in the abdomen; severe pains with vomiting; waters escaped; womb acted violently; os dilating; arm presentation; apparently without warming the fœtus escaped into the abdomen; delivered soon but no relief followed; symptoms of strangulated hernia succeeded; died in twenty-two or twenty-four hours from the first pains.

Post-mortem.—All the viscera gangrenous, and strangulation of the bowels in the rent; rent in the posterior and lateral superior part.—*Ibid.*, p. 243, from *M. Percy in Observs. Acad. de Chirurg.* 1783.

Case CCVI.—Æt. 36—fifth child; labours long and severe; the first followed by chronic cystitis, but for years she had been free from disease. Labour regular from the first and everything was well. After seventeen hours' labour, the waters escaped, after which she had four pains and they then ceased. Child could be felt in the abdomen; rupture suspected, but there were *no symptoms, no pain or sinking or motion of the child.* Ergot was given and in about five hours, pulse rather weak and sinking; an attempt was made with forceps, then with the lever. The child suddenly escaped into the abdomen; profuse hemorrhage and syncope when the hand was introduced. Died about twenty-one hours after rupture.

Post-mortem.—Extensive rent from the fundus to the bladder; parietes of the uterus thin as paper; and at the insertion of the Fallopian tubes was transparent and frail as cobweb; bladder scirrhous and in parts two and a half inches thick. Pressure of this scirrhous mass probably caused the thinning.—*Phil. Med. and Phys. Journ.*, vol. iii. p. 422.

Case CCVII.—Æt. 34—delivered in the first by forceps; in the second by version: antero-posterior diameter of the brim not over three inches. Os dilated; waters escaped; pains strong; no descent; prolapsus funis. After five hours labour, version attempted; the head was arrested; forceps applied; these failing, perforation; great difficulty experienced in turning and delivery. Metritis followed. Died on the twenty-eighth day.

Post-mortem.—Rent of the whole of the right side of the neck.—*Desormeaux. Archives Gén.*, vol. ii. 1823, p. 77.

Case CCVIII.—Æt. 30—first labour; good pelvis; very rigid os. On escape of the waters, after several hours of severe labour, blood escaped, and death followed soon from hemorrhage.

Post-mortem.—A longitudinal rent at the posterior and lateral part; the child in the abdomen, and much blood. Walls at the place of rupture evidently thinned; the neck remarkably thick and hard, almost scirrhous.—*M. Guibert. Arch. Gén.* vol. ix. 1825, p. 390.

Case CCIX.—Æt. 34—fifth pregnancy: had great anteversion of the womb, so that it hung over the thighs. When in labour five hours, just as the finger reached the fundus of the vagina, cried out she was killed, and fainted at once; pains ceased; waters at the same time escaped with blood; child escaped into the peritoneal cavity; feet felt, seized and dragged through the rent; child born asphyxiated, was recovered but died soon. Died.

Post-mortem.—The whole posterior part torn from the vagina; a semicircle of four or five inches, the edges of the rent rough.—*M. Moulin. Arch. Gén*, 1825, p. 391.

Case CCX.—Well formed; borne several. At the seventh month, after a walk,

had hemorrhage and was very weak and ailing for two months. At full time pains came on but soon went off; os undilated. After several days a fœtid discharge with bones of part of the fœtus escaped by the vagina; this continued and for several months she had a prospect of recovery. Motion of a carriage during a ride induced inflammation, which soon proved fatal.

Post-mortem.—A small rent of the cervix in front through which the *debris* of the fœtus had escaped; remainder of the fœtus in a membranous sac disconnected from the abdomen.—*Dr. Sims. Med. Facts*, vol. viii. p. 150.

Case CCXI.—Thirteenth labour; had an enormous tumour of the spleen extending near to the pubes. Suffered a good deal in pregnancy; especially in the latter days; pains very strong; three days after escape of the waters felt a cracking in the womb, and began to bleed; duration of labour five days; died undelivered.

Post-mortem.—Fundus completely torn through; the enormous spleen compressed the womb.—*Ibid.*, vol. xxxvii. p. 262, from "*Il Filiatro Sebezio*, 1825."

Case CCXII.—Pains moderate and regular; after gradually declining for some time, ceased. Three and a half hours after this her face was pale, rather anxious; pulse 160, small; belly very tender; head low under the pubis. Forceps applied but the head could not be moved, even with a third blade; the limbs at this time felt in the abdomen; turning now resorted to, and the mother died during delivery; rupture on the left side.—*Dr. Griscom. New York Journ. Med. &c.*, 1844, vol. ii. p. 333.

Case CCXIII.—Æt. 28—third child; os dilated; pains during two hours became intense; no descent of the head. About nine hours from the first of labour, pains suddenly ceased and a colicky pain remained. Nothing but this to indicate rupture, and nineteen hours afterward, ergot was given without effect; four hours afterward, dark vomiting and tenderness of the belly; turning about twenty-five hours from probable time of rupture: done with considerable difficulty; hemorrhage to about six ounces; hernia of the bowels; died three hours after delivery.

Post-mortem.—A pint of bloody fluid; womb, contracted; a transverse rent in front half across the os and a short one of the os; two small exostoses of the pubes. —*Dr. Wagstaff. Ibid.*, p. 381.

Case CCXIV.—Tenth labour; previous labours easy. About seven and a half hours after the escape of the waters, she felt a slight acute pain in the belly and she said; "feel what a strange lump is in my side!"—the head had receded; turning soon after, with perforation behind the ear; child hydrocephalic; rent through the whole extent of the left side; died in twenty-three hours.—*Dr. Fahnestock. Ibid.*, p. 383.

Case CCXV.—Contracted brim from prominence of the sacrum. Labour remarkable for violent pains, the suffering having been excessive for six hours, the pains ceased; collapse ensued; membranes were broken, and os dilated; rupture twelve hours after commencement of labour; forceps applied but failed; perforation; died on the third day.

Post-mortem—Rent to the left and behind.—*Mr. Roberton*, in *Edin. Med. and Surg. Journ.*, July, 1834.

Case CCXVI—Æt. 30—delicate; second labour; the first difficult; the antero-posterior diameter of the brim diminished by projection of the sacrum. After thirteen hours had a sharp pain in the lower part of the belly, followed by vomiting and syncope; head on the perinæum; condition hopeless; considerable flooding; craniotomy.

Post-mortem—Rent in the vagina behind, into the body of the uterus.—*Ibid.*

Case CCXVII.—Æt. 37—eleventh labour; brim narrow, from exostosis of the pubis: labour very long; prolapsus funis; os dilated; head filling the hollow of the pelvis. After twelve hours of labour, died suddenly without appreciable cause, undelivered.

Post-mortem.—In the left and front a rent of two inches in an ecchymosed part; foot of the fœtus, enveloped in the bag of membranes, thrust through it; several pounds of blood lost.—*Ibid.*

Case CCXVIII.—Æt. 28—sixth labour; four still-born; one a forceps case; brim

narrowed by prominence of the sacrum; labour but little painful: at the end of six hours, all at once a sharp pain came on; immediate hemorrhage, and collapse directly followed. On attempting to perforate, the head retreated; version; head delivered with much difficulty; died on the second day.

Post-mortem.—Rent from cervix to fundus.—*Ibid.*

Case CCXIX.—Æt. 44—fifth labour; four first very difficult, but not instrumental; sacrum prominent, and exostosis of pubis. After seventeen hours, labour pains became very violent; in two hours, excessively painful cramps in the belly, then vomiting and cessation of pains forthwith. Two hours afterward, version; the fœtus almost entirely out of the womb; head extracted with much difficulty. Died on the third day.

Post-mortem.—A transverse rent of the neck, involving the bladder.—*Ibid.*

Case CCXX.—Æt. 29—narrow pelvis; rupture after a labour of ten hours; rent to the right in front. Delivered between two and three hours after rupture. Termination unknown.—*Ibid.*

Case CCXXI.—Æt. 26—stout and healthy; fourth labour; former labours severe and protracted; slightly contracted pelvis. After severe suffering for several hours, the head being unusually large, and considerably advanced in the pelvis, during a severe pain had a sense of something giving way; the head receded; hemorrhage followed; faint and restless; nausea, but no vomiting; pale, and had distress in the belly. One hour afterward, no presentation to be felt; state alarming; pulse rapid and feeble; great restlessness and anxiety. Gastrotomy, occupied but a few minutes; felt much relieved; suffered less than in former labours, and began to rally; the membranous bag was found unbroken; considerable blood among the intestines; female child of eleven pounds. Patient improved until the eighth day, when she gradually sank.

Post-mortem.—A dark brown ragged opening, chiefly in the posterior wall of the vagina, and extending through a small portion of the cervix; also a considerable transverse rent at junction of cervix and vagina: edges of the rent irregular, dark brown, but free from gangrene.—*Prov. Med. Journ.*, 1845, p. 549. *William Jackson.*

Case CCXXII.—Æt. 20—primipara; good health. After eight hours' labour, os nearly dilated; waters escaped; doing well; her attendant gave a dose of ergot; pains were increased; head receded; she was found exhausted, and a shoulder presented; version. Died in a few days.—*Ibid.*, 1842, p. 278, from *Journ. Pract. Med. de Montpelier. M. Delmas.*

Case CCXXIII.—A negress, æt. 35—mother of several; always suffered before and after labour. Suddenly seized with uterine pains, which went off suddenly, and were followed by fainting, hemorrhage, and nausea; os admitted the little finger; was bled, and ergot given; os dilated by force about fourteen hours after; turning. Died in about seventeen hours from rupture.

Post-mortem.—Extensive rent posteriorly; uterus unusually soft; traces of inflammation of mucous surface at different periods; peritoneum had "erysipelatous discolouration."—*Ibid.*, 1844, p. 250. *Dr. Arnold, of Jamaica.*

Case CCXXIV.—Æt. 30—seventh labour; had griping pains in the abdomen for several days. Pains during the first eight hours, irregular and spasmodic; small doses of ergot given; os well dilated; ergot again. After eleven hours of labour, had violent cutting pain, most excruciating, with a loud report which awakened the doctor. Great bearing down pains for a few moments, followed by a cessation of pain for several hours. Delivered after several hours, by repeated application of the forceps. Died in thirty hours.

Post-mortem.—Rent posteriorly; with hernia of the bowels.—*Dr. Gill, Ibid.*, 1841, p. 208.

Case CCXXV.—Æt. 38—very fat; had seven children, and two abortions; labours always severe and slow; abdomen pendulous; os dilated; pains powerful but "abdominal;" head low. About nine hours after rupture of the membranes, had a very severe pain, and the uterus ceased acting for three hours, when symptoms of great prostration came on, and a rent could be felt. About three hours from rupture, version; the head assisted by the blunt hook; the child and secundines

in the abdomen, with hernia of the bowels. Delivery effected with great difficulty. Died in about three and a half days.

Post-mortem.—Upper part of the vagina at the junction with the uterus, lacerated posteriorly for one-half its circumference.—*Mr. Elkington. Ib.*, 1844, p. 372.

Case CCXXVI.—Second pregnancy; pains severe after rupture of the membranes. After twelve hours' labour, green vomiting came on, followed in a few hours by convulsions; forceps failed; version effected with difficulty. Death.

Post-mortem.—A rent of uterus and vagina admitting the fist; hernia of the bowels.—*Lond. Med. Repos.*, vols. xii. and xiii. p. 159, from *Bullet. Med.*, 1819.

Case CCXXVII.—Æt. 26—fourth labour; antero-posterior diameter of the brim three inches; never required artificial aid. During forty-eight hours had slight grinding pains, which went off; during the next twelve hours pains strong and frequent; os dilated. In two to three hours more, bilious vomiting; pulse quick; this was preceded by a sound of a snap, a remission of the pains, and an exclamation that all was over! Between four and five hours after this, version and perforation behind the ear; it was easily accomplished, the fœtus being small. Died between five and six days from rupture.

Post-mortem.—A rent of four to five inches in the right side; hernia of the bowels: edges of the rent and inner surface gangrenous.—*Mr. Holmstead. Ibid.*, vol. xxii. p. 209.

Case CCXXVIII.—An unusually prominent sacrum; pains very slight, and subsided entirely after the escape of the waters; the os dilated; presentation natural. There had been no vomiting, scream, or other sign of rupture, and ten hours after the cessation of pain she was only a little restless, and respiration a little hurried. Ergot given without any effect. Death.

Post-mortem.—A rent in front, in the direction of the linea ileo pectinea, which was not sharp, two-thirds across the uterus. It was of extraordinary thinness.—*Ibid.*, vol. xxiii. p. 520, from *Philada. Journ., No.* 17. *Dr. Broyles.*

Case CCXXIX.—Rupture of the whole parenchyma without implicating the peritoneal covering, from manual violence. Hemorrhage came on in twenty minutes; died soon from flooding.—*Davis' Obstet. Med.*, p. 751.

Case CCXXX.—Subject to uterine hydatids; waters escaped when the os was only equal to a half crown; pains gradually increased for several hours, and entirely ceased; no alarming symptoms. Six weeks after this, portions of the fœtus began to be discharged from an abscess near the navel, and from the vagina. Died after two months.

Post-mortem.—Small intestines communicated with the uterus by four apertures. *Mr. Windsor, of Manchester,* in *ibid.*, p. 756.

Case CCXXXI.—Æt. 40—first child; rickety; pelvis very narrow; after severe pains for several days, membranes unbroken, felt something tear in her abdomen. Perforation; there was no great flooding; no vomiting, nor convulsions. Died in ten or twelve hours.

Post-mortem.—Rent at the fundus admitting the hand; hernia of the bowels.—*Smellie's Cases*, vol. iii. p. 385.

Case CCXXXII.—Arm presentation; midwife endeavoured three times to turn, while the patient was struggling to prevent her, and during pains; after uninterrupted pains of twenty-four hours, the hand protruded; very soon after she became suddenly easy; ceased to cry and almost at once vomited; face cold; breathing nearly stopped. Turning; died in three hours. A circular rent of the size of a sixpence in the cervix between the fœtal shoulder and the pubis.—*Ashwell's Parturition*, p. 316.

Case CCXXXIII.—Pains feeble and at long intervals for a few hours; alarming symptoms followed upon slight hemorrhage, and the pains ceased; respiration laboured. Died

Post-mortem. Rent posterior; uterus sloughy, thin, and livid near it.—*Gooch's Midwifery*, p. 251.

Case CCXXXIV.—Fourth labour; pelvis narrow; corpulent. Pains very strong, with a tearing sensation in the back in the intervals of pain; head at the brim, but did not advance; much coffee-coloured water escaped on rupture of the mem-

branes; when in labour over eight hours, the head receded, and a "ripping" sensation in the abdomen; version; fœtus after a while delivered as far as the hips and allowed to remain. Rent posterior, half way up to the fundus.—*Edin. Pract. Med.*, vol. v. p. 490.

Case CCXXXV.—Second child; the first a forceps case. Pains for thirty hours, of unusual severity; os completely dilated; pains suddenly ceased; slight hemorrhage; immediate vomiting of dark green; excessive prostration; difficult breathing; extreme anxiety; pulse extremely rapid and feeble. In fifteen hours no part of the fœtus could be felt *per vaginam;* form of abdomen changed, and extremely tender; child's limbs distinctly felt; a coil of intestines in the womb, and a large rent in the left side; was in a better state than at the time of the accident; no pain except on pressure; fissure in the womb, so contracted as not to admit the finger. Gastrotomy nineteen hours after rupture; a large quantity of bloody fluid in the abdomen, and the placenta; intestines much inflamed; child large; not half an ounce of blood lost in the operation, and was comfortable after it. Died sixteen hours after the operation, and thirty-five after the rupture.—*Dr. Delafield. N. York Med. Journ.*, vol. vii. p. 351.

Case CCXXXVI.—Frightened the first day of labour; eight days after it began she had no pains, and was extremely low; chin presentation; version; dead child; hernia of the bowels. Died six hours after delivery.—*Smellie's Cases*, vol. iii. p. 386.

Case CCXXXVII.—After eleven or twelve hours of very long and severe pains, had a terrible movement of the fœtus and fainted. Pains ceased; the belly was hard, tender, and painful; incessant vomiting, &c.; head at the brim; version after twelve hours, with little difficulty; the child's limbs among the intestines. Rent in the fundus. Died in three days.—*La Motte* (1726), p. 463.

Case CCXXXVIII.—Tenth pregnancy; strong and hearty; pains lively and frequent; waters escaped; arm presentation. Pains severe for only one and a half or two hours, then gradually became feeble until six hours from the first of labour. child in the abdominal cavity; version, without difficulty. Died in four days.

Post-mortem.—The rent admitted the tip of the little finger.—*Ibid.*, p. 464.

Case CCXXXIX.—Primipara; after three days of labour, patient and midwife both heard something burst within her; her abdomen was of an altered form; the head impacted. Died while the doctor was gone for his instruments.

Post-mortem.—Uterus tympanitic and emphysematous on the left side where the peritoneum was separated. 'Substance of the womb one-eighth of an inch thick and tore like writing paper; rent posterior, from the os towards the left.—*Med. Rev. and Mag.*, vol. i., "from *Duncan's Annals*, 1798."

Case CCXL.—Ninth child; twins twice; all natural. Pains had been very strong and ceased; had anxiety, pain in the belly, &c. Delivered; mode not stated. Died three minutes after delivery; hernia of the bowels; rent anterior from the os upwards.—*Ibid.*

Case CCXLI.—Æt. 38—first labor; progress tedious; head impacted; delivery natural. Died on third day.

Post-mortem.—Rent of two and a half inches in the right side from the fundus to the cervix; no mark of gangrene.—*Ibid.*, vol iii., from *Med. Facts and Observs.*, vol. viii.

Case CCXLII.—Æt. 36—fourth labour; arm presentation; after "utmost efforts at delivery," died undelivered. Duration thirteen hours.

Post-mortem.—Rent in the left side; extremity of rent black, thin and putrid; the inferior part preternaturally thickened to equal three fingers; remainder healthy.—*Heister's Observs.*, No. 516.

Case CCXLIII.—Had borne several; labour not far advanced; vomiting came on; became pulseless; clammy perspiration; cold extremities; child felt through the parietes of the abdomen. Died in about three hours undelivered.—*Dr. Bedford's Notes to his Translat. of Chailly*, p. 268.

Case CCXLIV.—Had borne several; head descending; somewhere about three hours from the beginning of labour, a snap was heard; immediate vomiting and collapse; very soon delivered by forceps. Died in about ten hours.—*Ibid.*

Case CCXLV.—Was in labour eighteen hours; ergot had been given, and version attempted afterwards. Died undelivered, in about two hours after the presumed rupture.

Post-mortem.—A rent of six inches in the left lateral wall.—*Ibid.*, p. 228.

Case CCXLVI.—Delivery by natural effort; placenta retained by spasmodic contraction; died.—*Burns's, op.*, p. 5, 475.

Case CCXLVII.—Head resting on the perineum and head receded. Delivered; mode not stated. Died.—*Ibid.*, from *Douglas' Essay*, p. 50.

Case CCXLVIII.—Second child; the first a craniotomy case; short diameter of the brim two and three-fourths inches. Artificial premature delivery at the eighth month; rupture three and a half hours after the membranes broke; turning very soon. Died on fourth day.

Post-mortem.—*Linea ileo pectinea* very sharp, and sharp juttings from the pubis into the cavity.—*Ramsbotham, Process of Parturit.*, p. 417.

Case CCXLIX.—The head at the brim escaped into the abdomen, whilst the breech was forced into the pelvic cavity. Breech brought down and extracted with some difficulty. Rent at the cervix into the vagina.—*Ibid.*, p. 419.

Case CCL.—Æt. 28—well formed, but small; sixth child; pains mild at first, became severe. About six hours from the first of labour she was pale; restless; averse to move; irritable and desponding; pains trifling and unfrequent; she had flooded; the os a little dilated; membranes tense; presentation natural; membranes artificially ruptured; in a few pains the head descended into the pelvis. After a time ergot given; energetic pains induced; child's head born; and after a cessation of pains for fifteen minutes, the body and placenta expelled. Died in six hours.

Post-mortem.—Uterus firmly contracted; rupture posterior near the fundus; of the size of a crown-piece; its margin irregular, surrounded by a reddened stain; near it three or four small cracks. The rupture extended only two-thirds through the muscular substance; womb seemed sound elsewhere.—*Mr. Chatto, Lond. Med. Gaz.*, vol. x. p. 630.

Case CCLI.—Mother of several; for two hours from rupture of the membranes, labour favourable, and a prospect of speedy delivery. On sitting up and making some exertion, had a sudden pain and fainting, with agitation, and said "the child had gone back again:" head receded at once; anxiety; quick respiration; restlessness, thirst, vomiting; entire cessation of pains; slight hemorrhage; rupture evidently not suspected for twenty-one hours; then the limbs felt; the child being in the abdomen, and putrid; version difficult, but the uterus uncontracted; hernia of the bowels after delivery. Died immediately.

Post-mortem.—Belly distended with gas; three pints of blood and water removed; a rent of the whole length of the womb posteriorly; this part had the livid appearance of gangrene; the rest natural.—*Dr. James, in Am. Med. Repos.*, vol. vii. p. 328.

Case CCLII. (Case CXIII. *continued.*)—In her fourth labour Cæsarean section, on account of supposed contraction of the pelvis. After this delivered of twins at full time alive, by another practitioner. In her sixth labour the uterus acted with great energy, and she exclaimed that something had given way; considerable hemorrhage followed; vomiting and syncope; head receded; gastrotomy; child almost all in the cavity of the peritoneum; dead. Lived thirty-six hours.

Post-mortem.—Rupture at the place of previous incisions.

Case CCLIII.—Æt. 32—third labour; pains feeble and few at first; rupture of membranes accompanied by slight hemorrhage; regular pains ceased, and an irregular pain took their place. Ergot was given; the os dilated; the head presented; forceps could have been applied, but it being many hours after rupture before she was seen, it was considered too late. Died soon after admission.

Post-mortem.—Extensive rent in the right side through the muscular substance only, from the cervix to the round ligament.—*M. Dubois*, in *Journ. de Méd. et Chirurg.*, July 1846, p. 293.

Case CCLIV.—Æt. 28—small and always sickly; very bad health during pregnancy; mother of three. Fell with force, and at the time felt a sense of tear-

ing and giving way inside; slight vaginal hemorrhage; was restless; had an indescribable oppression in the abdomen for three days, but no pain; kept about the house. Strong pains came on, followed after some hours by exhaustion; the fœtus was in the peritoneal cavity; version. Death five hours after delivery.

Post-mortem.—All the abdominal viscera intensely inflamed, except the uterus; right side of the uterus "dark-looking, relaxed, thin as a sixpence in some places, and transparent." A fissure three and a half inches in extent, with ragged sloughy edges running perpendicularly to the cervix; the remainder of the womb healthy.—*Mr. Spark, Lond. Med. Gaz.*, vol. iii. p. 218.

Case CCLV.—Æt. 28—fifth labour; after a sudden movement of the fœtus had a pain and a sense of faintness; rallied; os somewhat dilated. Eleven hours afterwards fluid detected in the abdomen; delivered by artificial means, and died twenty-two hours after the commencement of the symptoms.

Post-mortem.—Escape of a large quantity of blood; uterus large, soft and pulpy. Transverse rent at the fundus of the peritoneal coat, and not implicating the muscular coat; posteriorly a zigzag rent, involving the superficial fibres, and opening a large vein from which the hemorrhage had occurred.—*Dr. Lever. Lond. Lancet*, Feb. 1846, p. 588.

Case CCLVI.—Æt. 47—borne no child for six years; rupture about twenty-five hours from the first of the labour; pains vigorous, and ceased gradually; no bad symptoms for five hours; one hour after rupture died undelivered.

Post-mortem.—The fœtus in the peritoneal cavity, excepting the head, which was impacted; walls of the uterus "everywhere oily, and of a soft and doughy feel; rent in front to the left, where the walls were exceedingly thin and softened, and of a deep red." *Dr. Elliot. N. Y. Annalist*, Oct. 1846, p. 7.

Case CCLVII.—Æt. 40 to 45—mother of four; previous labours easy; duration of labour a little less than thirty-six hours; labour favourable; within a few hours after its commencement she complained of weakness, which continued with occasional rigors until death. These, the only symptoms that could be learned by inquiry. A few moments before death a rigor, and a sudden noise in the abdomen, as if the escape of a body from a confined place. Died undelivered; rupture probably took place at the time the weakness came on.

Post-mortem—Two hours after death; a large quantity of sero-sanguineous fluid of dark colour, and slightly offensive smell; child enormous, completely in the abdomen with the placenta; uterus contracted, with a transverse rent, admitting the hand about the junction of the cervix and the body. "Nothing like thinning or disease of any kind in the uterine walls;" rupture owing to the great size of the head, which could not have passed the brim, and which was indented by the "immense force."—*Dr Wragg. South. Med. Journ.*, March 1847, p. 146.

Case CCLVIII—Æt. 23—first child; after a labour of over forty-eight hours; with extreme rigidity of the os uteri; the whole os burst off; delivered by perforation; the head being low down. Died after eleven days.—*Dr. Lever. Guy's Hos. Reps.*, Oct. 1845.

Case CCLIX.—Æt. 20 to 30—had regular pains for two hours, when she had sudden pain in the abdomen and nausea; great irritability, faintness and restlessness followed. Died in fourteen hours undelivered.

Post-mortem.—Forty to fifty transverse lacerations on the posterior surface; none over one-twentieth of an inch in depth; from one-fourth of an inch to two inches in length, and occupied nearly the whole posterior surface.—"*Dr. C. M. Clarke*, from *Trans. Improv. Med. and Surg. Knowledge in Dub. Med. Jour.*, vol. v. p. 324.

Case CCLX.—Delivered in a former labour by forceps; presentation natural; no distortion of the pelvis; towards the end of the first stage of labour, the pain ceased; presentation receded: considerable hemorrhage followed; dark coloured vomiting took place. Died undelivered.

Post-mortem.—The whole contents of the uterus were in the peritoneal sac, with very little blood. An immense rent of the lower part of the uterus and vagina on the left side, the edge of which was of a dark red colour, and as soft as jelly; softening had affected nearly the whole womb, but not from decomposition.—*Dr. Robert Lee's Midwifery*, p. 434.

Case CCLXI.—Second child; membranes ruptured early; pains became exceedingly violent; at the end of about fifty hours from the escape of the waters, the os being of the size of a shilling, during an examination, under a strong pain, the os split on the right side a considerable distance up through the cervix. Died on the fourth day of uterine inflammation.—*F. Ramsbotham, op. cit.*, p. 183.

Case CCLXII.—Mother of nine; anasarca and ascites during pregnancy; the os from the beginning was thick, soft, puffy, and œdematous; when a little above the size of a crown-piece, during an examination under a strong pain, the cervix was rent upward, posteriorly; child immense. Died on the fifth day.—*Ibid.* p. 184.

Case CCLXIII.—Third labour; the first instrumental, the second difficult; in labour from Saturday until Monday-noon; head presentation; contraction of the superior strait; very little progress. In the absence of the physician, alcoholic drinks were freely given to increase the pains, in place of the opiates which were ordered. Had a sudden, severe pain in the side like a stitch; pains began to diminish, and soon ceased; and died in two hours.

Post-mortem.—Cervix uteri torn across half way round the organ; the head impacted; body, limbs and placenta in the peritoneal cavities.—*Dr. Post. N. Y. Jour. Med.*, May 1847.

Case CCLXIV.—Sixth labour. During a "tremendous pain," she felt something give way in the region of the uterus; the pain immediately ceased, and was renewed slightly two or three times. Frequent pulse; tender abdomen; anxious countenance; lips swollen and somewhat livid; and begged for delivery. Some hours after, the os was contracted as after labour; the vagina extensively rent at its junction with the cervix, and entirely detached to the left, and in front; fœtus and placenta in the peritoneal cavity. Delivered by version, which occupied thirty minutes; the hemorrhage had been slight; bore the operation well, and felt gratified. Died twenty-four hours after rupture.—*Dr. Workman. West. Journ. of Med. and Surg.*

Case CCLXV.—Æt. 36—robust; sixth labour; previous deliveries artificial; labours painless; pelvis well formed, and of good dimensions; pains feeble and infrequent for the most part. After several hours, she had a severe pain which she thought moved the child; neither child nor os could be felt; distress, vomiting, and faintness soon followed. These abated, and she was bled for severe pain at the pit of the stomach; suffered greatly for two days, then became gradually more comfortable. On 16th day, had a profuse discharge of waters. By the 20th day, the abdominal integuments sloughed around the umbilicus; her size was less; discharges very offensive; she was sinking rapidly. An incision of eight inches was made, and the child withdrawn; the placenta separated and removed; the cavity was formed by the viscera glued together, and the peritoneum of the parietes, thus shutting off all connection with the rest of the abdomen; and contained putrid blood and water. Four days after this, injections thrown up the vagina passed out of the abdominal incision. Little fever followed; felt greatly relieved, and was about the house in five weeks; menses returned, and she became strong.—*Dr. Snell. Journ. Maine Med. Soc.*, 1834, p. 1.

Case CCLXVI.—Æt. 44—several children, and generally easy labours. Had been in labour twenty-four hours; pains very strong; child low down, pressing on the perinæum; shoulder presentation; version without difficulty. On removing the placenta, a rent of about four inches was felt over the pubes; rigors and vomiting came on. Died in about twenty-four hours after delivery.—*Dr. Ayer. Ibid.*, p. 8.

Case CCLXVII.—Æt. 34—mother of three or four. After about twenty-four hours, the pains at first light and trifling, and afterward abating; waters evacuated and funis prolapsed; the vectis and crotchet were tried, and failed. She only complained of great soreness and distress about the umbilicus. After a few hours she sank and died, undelivered.

Post-mortem.—A knee of the child passed through a rent in the anterior part, four or five inches long; and running from the cervix toward the fundus; a large quantity of blood in the abdomen. *Ibid.*, p. 9.

Case CCLXVIII.—Æt. 42—mother of several. Physician had been with her

twenty-four hours; an arm presented, and the chin and mouth were to be felt; an attempt to turn failed; great distress in the abdomen, a large tumour could be felt in the epigastrium; a foot could be felt, and its toes; vomiting now came on, which lasted for about fourteen hours, till she died undelivered.

Post-mortem.—Fœtus all in the abdomen; body of the uterus nearly separated from the cervix, and connected to the vagina only by a small portion; the uterus was putrid.

Rupture had taken place early or before labour, as there was nothing like labour pain after the rupture of the membranes.—*Ibid.*, p. 10.

Case CCLXIX. Died five months after rupture; part of the fœtus having escaped by the anus; fœtus putrid, and viscera disorganized; rent apparently very large; *cicatrized*, except for eight or ten lines. *Ibid.*, from *Recueil Period. de la Soc. de Méd. de Paris*, tom. x. p. 268.

The following communication, with the interesting cases appended, is from Dr. Channing, Professor of Midwifery in the Medical School in Harvard University, whose extended experience in the practice of obstetricy has afforded him opportunities of seeing numerous examples of this accident.

Boston, Aug. 30, 1847.

Dr. J. D. Trask:—

Dear Sir:—Enclosed are rough, very rough notes of cases of ruptured womb, which have more or less directly come under my notice. You will not regard them as occurrences in my practice, or that of any other single person. I know of but one physician who has had *two* cases in his own practice. I have not had one in my own. Physicians may and do pass whole lives without observing cases which may not be rare in those of others, and this too without the least suspicion of their want of skill, or of knowledge. * *

I have other cases, I think, but my notes are not at hand, which I regret, as it would give me pleasure to have sent you the whole.

The recoveries in my cases, are about ten per cent. * *

I remain your friend, &c.

W. CHANNING.

Several cases of ruptured womb have occurred here. In four of them the women were not delivered.

[Case CCLXX.]—In one of these, in which I was especially consulted, the woman refused to have anything done after rupture occurred. In another,

[Case CCLXXI]—the medical attendant preferred that the case should be left to nature.

[Case CCLXXII.]—In a third, the child was turned, and advanced well, until the head was to enter the brim. Here was delay. The woman said, "I am dying; will you stop till I am dead?" She died in a few minutes, and it was then very satisfactorily ascertained, that the diameter (the conjugate) of the brim was so much diminished as to prevent the entrance of the standard fœtal head, except by very powerful effort, and it was during such, as I was informed by the medical attendant, rent occurred.

[Case CCLXXIII.]—In a fourth case in which I was consulted, death occurred before delivery; and, because, of the opposition of the patient to any operation. I examined the woman after death. The fœtus was lying among the intestines. The womb was well contracted, presenting a flattened thick mass, perfectly white, except in the part of it in which rupture had occurred. Here it was *thin*, thin as a *membrane*, and perfectly black. The contrast between this state of things, and of that which bordered it, was most striking. The extent of which the *thinning* process had extended, was a space judged to be equal to the surface of two hands' breadth. It was through the centre of this the child had escaped. It was in a portion of the womb which very exactly corresponded to one in the

abdomen—viz: the left iliac region, and extending upward from that—in which the woman had experienced much soreness and tenderness, in the latter months of pregnancy, and which she ascribed to her habit of resting that part of the uterine tumour against the washing-tub, at which she almost daily worked, for self-support, and to support her family. There is another fact of interest in this case. The head, which had been forced fairly down into the pelvis by the pains, *did not in the least recede* after rupture, but remained just where it was before the rent occurred. Nay more, so fairly impacted was the head, that it was with great difficulty that I could draw it back again, after opening the abdomen, and to do which I was desired to make the *post-mortem* examination. A writer has recently advanced the doctrine, that in a majority of cases of rupture, there is preceding, and predisposing disease of the womb. This opinion has some confirmation in this case. There was found a state of the organ, or a part of it, entirely different from its condition elsewhere, and which was certainly preceded by symptoms denoting a morbid condition of the part.

In *two* cases *dropsy of the fœtal head* existed. The water was discharged by perforation after turning, and because the head could not pass until reduced in size.

[Case CCLXXIV.]—In one of these, sudden and excruciating pain in one groin and above it, immediately preceded the rent, perfect repose following the accident. The woman survived till the fifth day, promising to do well, and then rapidly sank without the supervention of disease which was marked by any distinctive symptoms.

[Case CCLXXV.]—In the other case, death occurred soon after delivery.

In two cases a remarkable lesion of the womb was discovered after death, and which seemed allied to a morbid condition which might have preceded labour, but in which labour was the exciting cause of the lesion alluded to. In both the placenta was retained.

[Case CCLXXVI.]—In the first, I saw the woman some days after the delivery of the child, on account of symptoms resembling very nearly those of puerperal peritonitis. I was told that the placenta was retained, and that the woman had suffered much since the birth of her child. I found the placenta projecting somewhat beyond the os uteri, and that it was moveable. I brought it away. It was cylindrical in shape; long, round; of a light gray colour and very firm, as if it had been strongly compressed by the womb. Some temporary relief followed its removal, but in a few days after symptoms of grave peritoneal inflammation came on, and the woman died.

Upon examination, sero-purulent effusion, with masses of floating lymph were found in the abdomen. The womb was found contracted, but in shape corresponding to that of the placenta, and at the top of it having an opening which communicated into its cavity and with that of the peritoneum. An abscess had formed in the substance of the womb at its fundus, and from this pus was passing into the abdominal cavity.

[Case CCLXXVII.]—In another case; the second of the above, of anomalous uterine lesion, labour in its two first stages was well accomplished. The placenta was retained. The cord parted; attempts were made to deliver the placenta. They failed. I saw the patient at this time and advised, after an examination, to make no farther forcible effort to bring away the placenta, but to wait, and to be governed by circumstances. The patient was for a few days comfortable. Then signs of peritoneal inflammation occurred. She was seized with very severe and forcing pains. Examination was made, but the os uteri was found firmly closed and would not admit of passing the hand or a finger. The pains at length subsided. The patient sank and died. Death occurred more than a week after the child was born.

Upon examination the uterus was found at its fundus, to have experienced a lesion through which about half of the placenta was found protruding from its cavity into that of the abdomen. The opening was circular; a form which wounds in the womb are apt to assume, in consequence of the equal action of its muscular fibres.—(See *Charles Bell on Muscularity of the Uterus.*)

Rupture of the womb is often preceded by very violent and distressing pain, in the midst of some one of unusual severity, the organ gives way.

[Case CCLXXVIII.]—A case occurred in which nothing of this kind happened. Labour; second child; was wholly natural and easy. The physician was surprised to find, on examination after a pain, made to ascertain what was the progress of the labour, that the head had receded from the position it had just before occupied. Not that it had merely done so as is common during the uterine relaxation which follows pains, but that it had much exceeded the ordinary measure. He found that by gentle pressure the head receded more and more, and soon being left to itself, that it entirely passed out of the pelvis. Rupture was thus at once declared and soon showed its ordinary effects. The child was delivered by turning. It was found entirely out of the womb, and lying among the intestines.

Reaction now took place; no violent symptoms attended this; the patient was comfortable. She lived five days after rupture, and in a condition so slightly morbid as almost to have encouraged hopes of recovery. I learned the above particulars of this case from the medical attendant; not having seen it till at a meeting for a *post-mortem* examination which circumstances prevented.

[Case CCLXXIX.]—I was one day dining with a friend in the country. He told me his gardener's wife had been in labour that day, and that the womb had given way, and she was not delivered. I went in to see her. I found her much sunken, restless, vomiting, cold, pulse small and very rapid. Her appearance was miserable enough. I now learned that the rent had occurred at 11 A. M. I told my friend that I should much like to see the physician, and he was sent for. He came between three and four P. M. and after consultation, it was agreed that an attempt should be made to deliver. I began the operation at four o'clock. Upon passing the hand, the pelvis was found perfectly empty, and at the anterior part of the abdomen, just beyond the symphisis pubis, I felt a hand of the fœtus, its fingers being toward my hand. I passed my hand, guided by the fœtal arm, till I reached the trunk, and then the feet, and gently brought them down. The turning was now accomplished, and an opiate given. Mrs. T. now rallied. Her stomach became quiet; pulse, &c., improved, and there was no more constitutional trouble than so grave a lesion should be accompanied by. This state of things continuing some days, she suddenly sunk on the fifth day and died.

Upon examination it was discovered that the rent had occurred, and extended from points corresponding to the superior and anterior spines of the ilia. It was a wide gaping fissure, so much so that you looked through it, directly across the neck, to its posterior face.

[Case CCLXXX.]—I have seen another case in which the rent was transverse of the collum uteri. This was a first labour, patient between thirty and forty years old. The labour was long, but in no sense a severe one. Rupture was attended by subsidence of pain, sinking and recession of the head of the fœtus. This last was not so entire as to prevent the use of the forceps. This woman died *seventeen* days after the rupture. I saw her because of symptoms indicating severe disease in the abdomen. For some days recovery was looked for. She sunk at last without any severe precursory trouble, and till late, especially, free from the ordinary signs of grave peritoneal or abdominal disease.

She was examined after death, and the evidences were strong of much more grave lesions than were indicated in the ordinary way during life. Adhesions had taken place extensively in the organs in and about the place. Abscesses were discovered in the place where adhesion was most marked. Rupture had taken place *directly across* the neck of the womb in its posterior face, and was about one and three-fourths inches in length. Contraction had taken place and explained the small extent occupied by the rent. Its edges were ragged, and gave no proof that restorative process had taken place.

[Case CCLXXXI.]—In one case of rupture death had occurred before I reached the house. The rent, as discovered by dissection, was *longitudinal*, of great extent, and involving the neck and vagina, a very usual complication. The womb was not at all contracted.

[Case CCLXXXII.]—A case occurred in a neighbouring town. The child was turned and brought away. Death occurred soon after. In this case the rent was of great extent, the hand passing freely into the cavity of the abdomen.

[Case CCLXXXIII.]—I attended a woman some years ago, and after the birth of

the child, I had occasion to pass my hand into the womb to ascertain what caused retention of the placenta. I first reached a mass projecting from the womb, which I soon ascertained was not the placenta: and being guided by the cord reached the placenta, separated, and removed it. The woman did well. In her next labour, she employed another physician. The arm presented. Another physician was called in, and turning agreed on. This was done Soon after the woman sunk and died.

Upon examination, a large polypous tumour was found projecting from the os uteri, and a large rent of the womb, involving the vagina. I examined the womb after it was removed, and found it to be perfectly uncontracted, presenting a large organized bag, with a tear through much of its length. It is very probable that, in this case, the dragging of the child through the os uteri, partially filled as it was by the polypus, and the resistance of this last to the progress of the fœtus, probably led to the accident.

[Case CCLXXXIV.]—Case of circular polypus; polypus surrounding the os uteri. In this case the patient had suffered for some time from descent of the womb, so that it was external, and the tumour was thus distinctly diagnosed. The polypus sprung from the edge of the mouth of the womb, by a very thick base, and of singular firmness. She suffered much by menorrhagia, or uterine hemorrhage. She became pregnant, and when examined during labour, one of the *upper extremities* was found presenting. I was called to see her. She lived about thirty miles from Boston, and when I reached the address, I found the labour was over, the medical attendant having delivered by turning. The child was dead, and, from the separation of the skin everywhere, and much distension from gas, it was pretty clear it had been dead some hours. Two or three ruptures had occurred in the circumference of the polypus, one of them very deep, and which I carefully examined, extended into the mouth and neck of the womb. The other rents were less distinct. This woman recovered. It certainly was a case which, in its extreme complication and previous history, seemed to present the least prospect of recovery; still it did well.

The treatment was mainly resolved into such a use of opium as would positively prevent pain, and keep the bowels perfectly quiet, and this for days; such a use of calomel as would secure alterative effects, and limit inflammation as far as possible to such a degree of it as might be necessary for the establishment and continuance of the restorative process, and such an employment of the catheter as would supersede the natural functions of the bladder. The use of opium was suggested by what is known of its beneficial effects in some cases of perforation of the intestines in typhoid fever, and from other causes; of calomel, from its supposed power to control inflammation, or to keep it within the demand. The result of the case, whatever may have been the therapeutic doctrines or agencies, was wholly satisfactory. The case was one of questionless rupture, and the patient recovered.

[Cases CCLXXXV., CCLXXXVI.]—Two cases have occurred, one of which came under my notice, and the post-mortuary appearances of both of which I have examined, which were of much interest, as showing how fatal may be the consequences of apparently very slight uterine lesions occurring in labour. In these cases the only uterine tissue which had given way was the peritoneum. In one of them much more extensively than in the other, and principally about the origin of one of the Fallopian tubes. The lesions consisted in fissures of the *peritoneum*, as if it had been cut through with a knife. This form of rupture, if such it can be called, has been described by the late Dr. Clarke, brother of Sir Charles Mansfield Clarke, so distinguished by his writings on the diseases of females. Dr. C. describes cases of sudden death after labour, preceded by symptoms closely resembling those of rupture, and in which no other lesion was discovered after death, than the peritoneal fissures referred to.

[Case CCLXXXVII.]—Two cases of rupture occurred in the practice of the same physician, and to which he called me in consultation. The first was a case of exceedingly easy labour. It was long and troublesome, but it was almost painless. Ergot was given to increase pain. Rupture happened without any warning,

and was followed by its ordinary signs. The child was turned. Death took place a day or two after delivery.

[Case CCLXXXVIII.]—In the second of these cases, the labour was severe. The exceeding destitution of the patient made her case much more wretched than it might, under other circumstances, have been. The child was turned, in a state of hopeless exhaustion of the woman, and death soon took place.

[Cases CCLXXXIX., CCXC.]—I have met with two cases, in which rupture was limited to the *vagina*. In both of these, death occurred, and under circumstances similar to those which mark the other cases in this paper.

[Case CCXCI.]—A case occurred here five or six years ago, in which rupture happened without its accustomed precursors of severe pain, or local symptoms indicating disease of the womb. The woman was most unfavourably situated, being one of our most wretched, squalid Irish. Her labour proceeded without unusual violence, until it was noticed that the head, the presenting part, had receded, and was at length out of reach. Turning was resorted to soon after, or as soon as a consulting physician was found, and the child brought from the peritoneal cavity through the natural passages. There was no question of rupture, as the child was found lying among the intestines. The symptoms immediately produced by rupture, and those which followed, were strongly marked. Still she lived on. At length, when apparently doing well, she became dissatisfied with her regular medical attendants, dismissed them, and sent for some one else; and, notwithstanding the utter wretchedness of her condition, and severe privations, she perfectly recovered. She has had a child since, and did well.

[Case CCXCII.]—The latest case to which I refer, is of recent date. Circumstances were deemed to make it necessary to apply the forceps, while the head was yet above the brim of the pelvis. The effort failed. The forceps were well applied, and all safe force used. The perforator was next resorted to, and then the crotchet. After as many as four hours of uninterrupted effort, the child was delivered. Very soon after, the symptoms of ruptured womb showed themselves. These were rapid pulse, cold, damp skin, restlessness, sinking. But a symptom most relied on, was the occurrence of a tympanitic enlargement of the abdomen, in which the distension was suddenly produced, and which soon became of great size. The skin seemed stretched to the utmost, so thin, in short, as to show that the distending air was very near to the surface. The woman died the morning following delivery. An examination was not permitted. I have no question of the accuracy of the diagnosis in this case, as the physicians in attendance had observed unequivocal examples of the uterine lesion under consideration.

Of the above, in *four* death occurred before delivery. In two after the opposition of the patient to any operation for her relief. In a third, the physician thought it not expedient to operate. In a fourth, the patient being conscious of coming death, asked that the removal of the child might be deferred till after that event.

In *two* cases dropsy of the head existed.

In *two* cases the placenta was retained, it being impossible to remove it until after death, in one, and until a short time before death, in the other. In both, the womb was found communicating with the peritoneal cavity, in its fundus—and in one in which the placenta had not been delivered, it was projecting from the womb into the cavity of the abdomen.

In *two* cases the rent was *transverse*. In one of these it was across the *anterior* part of the womb, corresponding to the brim of the pelvis; the woman living five days. In the other it was across the *posterior* face, the woman surviving seventeen days.

In *two* cases polypus existed. In both of them the *upper extremity presented*. In one the polypus arose from the inside of the organ by a pedicle. The child was turned; the woman died soon after, and an examination showed a longitudinal rent of the womb of great extent, involving the os uteri. In the other, the polypus was *circular*, surrounding the os uteri.

In this the child was turned, and recovery followed. The ruptures here, for there were more than one, involved the polypus and os uteri.

In *two* cases rupture was confined to the *peritoneum;* both fatal.

In *two* cases rupture limited to *vagina;* both fatal.

In *two* cases recovery."

The following is from a communication with which we have been favoured by the politeness of Prof. C. D. Meigs, of Philadelphia.

"I have met with a few cases of rupture of the womb in labour, all of which proved fatal within some twenty or thirty hours.

The cases that have fallen under my notice, have not been recorded by me, and I cannot, therefore, give you the particulars of them. I am aware that some of them, at least three, followed the ergotic contractions induced by the imprudent exhibition of secale cornutum.

[Case CCXCIII.]—In a case that occurred this spring, the gentleman administered the ergot at midnight, or a little later, and the child escaped into the peritoneum at about 2 A. M. Her fate was announced—but as she lingered longer than was expected, I was called at 7 P. M.

I proposed to perform gastrotomy; but as the child could be touched through the rent in the vagina and cervix, it was deemed unadvisable to execute this purpose. Whereupon I withdrew it, by means of my craniotomy forceps, after making perforation of the cranium. The woman was sensible, though pulseless all the while, and quite conscious of her dying state. The operation was most fatiguing to me, and painful and exhausting to her, as the child was very large, and the pelvis a very bad one, which had caused laborious labours before. She survived the extraction for some hours.

A post-mortem examination showed me, that it would be far more humane in all such cases to extract the child by a gastrotomy operation, as the least painful, and least mischievous. I bitterly regretted having changed my purpose, and am now fully resolved in all future cases of rupture and escape to open the abdomen. I admit that a woman might recover, the child being left unextracted, but such good fortune is never to be expected. A hasty and speedy removal of the child and secundines gives, in my opinion, a chance not greatly inferior to that in Cæsarean section."

The following case occurred in the practice of a friend in this city, by whom we were requested to see the patient soon after the occurrence of the accident.

[Case CCXCIV.]—*Dec.* 23d, 1846.—At 3 A.M., we first saw the patient. Her condition was as follows. She lay upon her back with the knees partially drawn up; countenance pale and denoting great anxiety; face and upper extremities bedewed with perspiration; the lower extremities cold; was almost insensible, and when aroused complained of pain and soreness in the abdomen; pulse exceedingly rapid; the abdomen very sensitive to pressure; and the distended bladder felt distinctly above the pubes.

The doctor stated that he was called to the patient between nine and ten o'clock the preceding evening. He was told that pains came on about midday, when a midwife was called in, who soon left, believing that labour had not commenced. Unfortunately she returned in the evening, and left indubitable evidences of her officiousness: the labia being greatly swollen and livid; and the poor patient assured the doctor that this woman had "pulled her almost to death."

At the time of the doctor's arrival, the pains were moderate and even, as he considered, of deficient force, seeming rather dilating than expulsory. The head was in the cavity of the pelvis, about entering the inferior strait; the brow presenting, and the outlet was somewhat diminished in its transverse diameter. The patient had been delivered one year before of a living child, by means of forceps. Pains being so moderate that no suspicion of any danger to the uterus could be excited, and the bones of the head being very movable, the doctor determined to trust awhile to the efforts of nature.

Under this condition of things, about a quarter past two o'clock, she suddenly complained of faintness, and at the same time expressed a belief that something had given way within her. Two or three feeble pains followed; vomiting ensued; the head retreated from the inferior strait, and she fell into complete collapse. Brandy was freely given her but rejected.

This was from one-half to three-fourths of an hour before our arrival. Notwithstanding the feeble character of the pains up to the time of the accident, there could be no doubt that rupture of the uterus had taken place. It was agreed to continue administering brandy freely for awhile in order if possible to bring on reaction. A gum catheter was introduced, and about a pint and a half of urine drawn off, of the colour of strong coffee; an attempt to introduce the silver catheter some time previous, had failed. A hard tumour was now felt in the right side of the abdomen just below the margin of the ribs, presenting about the size and feel of a contracted uterus after delivery; below it nothing could be distinctly felt through the abdominal walls, the whole abdomen being, in fact, too sensitive to permit of any accurate examination. During twenty or thirty minutes she took over half a pint of brandy which she retained; under its influence, intelligence returned; the countenance brightened; and she had considerable strength to assist in changing her position. There was not, however, a corresponding improvement of the pulse, and it was agreed that the only chance for herself or child was immediate delivery, though little expectation could be entertained of saving either.

The space between the tuberosities of the ischia appeared to be less than three and a half inches. The head rested on the brim of the pelvis, with its long diameter corresponding to the transverse diameter of the superior strait, and movable. Some blood flowed from the vagina when the head was disturbed. Version was contra-indicated by the contracted outlet; the choice was between the perforator and forceps, and though no attempt was made to ascertain if the child were alive, because of the difficulty of distinguishing the pulsations of its heart from those of the iliac arteries of the mother, which were now as frequent as those of the fœtus; yet in order to give it a chance, if alive, the forceps were selected. The blades were introduced without difficulty, and just being locked, when it became apparent that the poor creature was sinking. The forceps were accordingly withdrawn, the patient replaced upon the bed, and in a few minutes she expired.

Post-mortem.—Four hours after death whole surface of the body blanched. Abdomen very tense and distended; contracted fundus felt in the right side, and could be grasped in the hand; in the left hypochondrium a limb could be felt on deep pressure. Upon laying open the peritoneal cavity liquid blood gushed out, and from three to four quarts were removed. The fœtus lay in the left side of the abdomen, the head only remaining within the uterine cavity, the lacerated edges contracted around the neck. The placenta was lying in the peritoneal cavity, a small portion only remaining still attached to the fundus uteri. The fundus and the portion of the body not surrounding the head of the fœtus was firmly contracted. She had evidently perished from hemorrhage.

The rent was irregular and ragged, involving the posterior and lateral aspect of the cervix, running up into the body of the womb and down into the vagina. The womb was apparently somewhat thinned at the place of rupture.

Professor Bedford, of the University of New York, has kindly furnished us with the six following cases, additional to those already quoted from his valuable additions to *Chailly's Midwifery*.

[Case CCXCV.] *Oct.* 10, 1844.—Mrs. H., of Williamsburgh, was taken in labour with her fourth child. When labour commenced she sent for a midwife; shoulder presentation; arm came down; midwife made violent traction on it. Fourteen hours after labour began I was sent for; found the patient much prostrated, with more or less constant vomiting; child undelivered; mouth of womb relaxed. I turned, and delivered her of a living son. Neck of the uterus had been ruptured by rude manipulations of the midwife. Patient recovered after four weeks extreme feebleness.

[Case CCXCVI.] *Dec.* 9, 1844.—Dr. Burtsell sent for me to see Mrs. A., who had been in labour four days. Before Dr. B. had arrived, a physician in attend-

ance had administered ergot freely. The pelvis, though not deformed, was small. Vomiting and prostration; head at the inferior strait. The woman's strength failing, I applied the forceps, and delivered her of a living son. After-birth was retained; introduced the hand to remove it, and found a small rupture in the anterior surface of the womb just above the cervix. Patient recovered in two weeks without one untoward symptom, except great weakness.

[Case CCXCVII.] *June* 14, 1844.—I visited a patient of Dr. Ostrom, in New Jersey; patient in labour thirty-seven hours when I first saw her. Pains had been violent, but no progress in the labour, except the mouth of the uterus was dilated to the extent of a four shilling piece. The patient possessed an extremely rigid fibre; ordered bleeding to twenty ounces, followed by a solution of tartar emetic. Pains continued vigorous; mouth of the womb dilated a fraction more, and became softer; no further progress in delivery after six hours. During a violent pain, something was heard to *give way;* this was followed by vomiting and great prostration, with cold extremities. I suggested the propriety of *turning*, and performed the operation, and delivered the patient of a *living* son. The womb was ruptured on the left of the cervix, and the patient survived twenty-four hours.

[Case CCXCVIII.] *Jan.* 18, 1846.—Mrs. N., in the ninth month of pregnancy, was struck on the abdomen with a stone. Labour came on, with vomiting and sickness; cold extremities, &c. &c. There was rupture of the womb. She was delivered naturally in four hours of her third child. Died in twelve hours from the effects of rupture.

[Case CCXCIX.] *March* 3, 1845.—Dr. Reiley requested me to see Mrs B. with him. She had been in labour ten hours when I saw her; no progress notwithstanding violent contractions. On examination, found the cervix in a state of scirrhus, and rupture at the fundus. The child had partly escaped into the abdomen. The woman died three hours after my arrival. The abdomen was opened, and the child removed. If I had arrived in time, I should have laid open the mouth of the uterus with a bistoury.

[Case CCC.] *Jan.* 16, 1847.—I was requested by Dr. Thomas to visit a lady in West Chester, who had been in labour twenty hours. The arm protruded through the vagina, and had been in this situation for six hours. Patient had suffered most acutely from violent and increasing pain. One hour before I had arrived she was seized with great prostration and vomiting; there was rupture of the cervix; pelvis small, though not deformed. I turned and delivered her of a living daughter. The mother recovered in two weeks.

"These six cases, with the five mentioned in my note in Chailly, eleven in all, are the cases I have met with in my practice. Of these eleven, in three the mother recovered, and four children were delivered alive. You will please remember that in every case I was called in consultation."

Dr. Wm. R. Wagstaff, of New York, late Resident Physician of the Lying-in Asylum, during a practice of eight years, in which he has attended nearly twelve hundred patients in their confinements, has had three cases of rupture of the womb. The first is Case CCIII. of our series.

[Case CCCI.]—"The second was in a patient of Dr. Ira B. Blakeman. She was a strong, healthy Irish woman, who had given birth to three full-time living children, without any preternatural difficulty. In this labour, her fourth, the doctor was summoned in the evening, and upon examination, found a natural vertex presentation, parts dilatable, pains recurring at proper intervals, and not unusually forcible; in short, all the evidences of an easy, natural labour. The membranes gave way soon after the os was fully dilated, and as the head was engaging in the superior strait; in half an hour after their rupture, the head being in the inferior strait and pressing on the perineum, during a pain she exclaimed that something had snapped in her side." The pain instantly ceased, and there was no recurrence of contractions of the uterus afterwards.

I was immediately summoned by Dr. B, and arrived about an hour after the accident; she was then complaining of a continuous lancinating pain in the epi-

gastric region, with constant vomiting. I applied the forceps to the head, and delivered at once without difficulty. The child was a male, weighing about seven pounds [and dead]. No contraction followed the delivery of the child, and upon passing my hand into the cavity of the uterus for the purpose of exciting contractions, and effecting the delivery of the placenta, I found a large quantity of intestines protruding into it through a laceration of considerable extent on the anterior side near the fundus. No contraction of the uterus ever took place, nor could reaction be established, although stimulants were freely administered. She died fourteen hours after delivery. A post-mortem examination was denied.

[Case CCCII.]—In the early part of this summer, I was called to attend Mrs. C., a strong, healthy woman, in labour with her fourth child. Her first had been born without any artificial assistance, after a protracted labour of five days. Her second was delivered by instruments. Her third I had delivered with instruments thirteen months previously, at the request of her attending physician, on account of inertia of the uterus. When summoned to attend her in her last confinement, I found upon examination a vertex presentation, os uteri dilated fully, parts flaccid, pains forcible, but not unusually violent, and everything progressing naturally. In a short time the membranes ruptured spontaneously, and in a half hour afterwards, the head having reached the inferior strait, she experienced a sensation of something giving way during a pain, which immediately ceased. Having waited for fifteen minutes, and observing no recurrence of the propulsive efforts of the uterus, and being alarmed by her continuous complaint of a sharp lancinating pain in the epigastric region, I made examination *per vaginam*, and found that it was impossible to reach the child, and that the os uteri was firmly contracted. On passing my hand over the abdomen I distinctly felt the fœtus beneath its parietes, and low down, just under the arch of the pubes, a firm, hard ball, which I at once recognized as the contracted uterus. On account of the difficulty always attendant upon obtaining a medical consultation in the night, it was four hours before the operation of gastrotomy was performed. In the presence of Drs. Powers, Whittaker, and several others, I opened the abdomen through the *linea alba*, and found the child and secundines in the cavity of the peritoneum, together with a large quantity of blood and water, all of which was carefully removed, and the uterus firmly contracted, and down in the cavity of the pelvis. The child was a male, weighing nine pounds, and dead. The lips of the wound were brought in apposition and retained by six sutures. It was found necessary to administer stimulants freely during the operation, and in fact during the whole residue of her life. She never so rallied as to admit of the abstraction of blood, nor was it thought advisable to apply blisters. Twelve hours after delivery she commenced discharging from her stomach a large quantity of dark green-coloured fluid, mixed with such nourishment as had been taken, amounting to more than a gallon in twenty-four hours, and this she continued up to the time of her death, which took place six days after the operation. Her bowels were daily evacuated by the excitement of enema. Ice was kept constantly applied over the abdomen. The upper part of the wound healed by the first intention, the lower part remained open, and through it there exuded continuously a greater or less quantity of bloody fluid. I regret that no examination, *post-mortem*, could be obtained.

Case CCCIII.—A specimen of rupture of the anterior wall of the uterus and of the bladder, by the forcible introduction of the forceps.—*Museum of New York Hospital, presented by Dr. Watson.*

In the next number of this Journal we propose to consider the symptoms of rupture of the uterus, the cause, both remote and proximate, of this accident, its pathology, and the most successful mode of managing it, as deduced from the cases we have collected.

MONOGRAPH.

ART. XII.—*A Statistical Inquiry into the Causes, Symptoms, Pathology, and Treatment of Rupture of the Uterus.* By JAMES D. TRASK, A. M., M. D., Brooklyn, New York. Read before the Brooklyn Medical Association, Oct. 14, 1847.

IN the preceding number of this Journal, we presented a summary of three hundred and three cases of rupture of the uterus; and we propose now to show the deductions which may be drawn from these cases, in regard to the symptoms of this accident, its causes, pathology and management.

V.—*Rupture during Pregnancy.*—Rupture of the womb during gestation, is, as we infer from our cases, comparatively rare. There are, however, unquestionably numerous instances of sudden death during pregnancy which are due to this, in which the cause is not known, and not even suspected. This arises mainly from the difficulty of distinguishing this accident, from rupture of any of the other abdominal viscera, as the spleen, liver, stomach, and bladder, when the symptoms follow mechanical injury; and from colic, peritonitis, &c., when they occur spontaneously. Thus we see that in Case XXV., it was considered to be colic, and in Case XXVIII., the patient exhibited "symptoms of loss of blood, or of lead poisoning." In Case II., the usual alarming symptoms of rupture were absent. In several cases it is evident that the rupture was unsuspected, until revealed by an autopsy.

The diagnosis of the accident during pregnancy, is more difficult than during parturition; for, in the latter case, we often have the recession of the head as a diagnostic sign; the limbs of the fœtus may often be felt in the abdomen; and the other concurrent symptoms are not usually so well marked in the former as in the latter case. From an examination of our cases, it appears that, in making a diagnosis, we may derive aid from the previous history, and the circumstances immediately preceding the alarming symptoms. Thus in Case II., the patient suffered a severe blow upon the abdomen, and felt a severe tearing pain. In Case III., several weeks before medical aid was demanded, she felt a strange sensation in the abdomen, &c., after violent pumping. In Cases IV. and V., the Cæsarean section had been previously performed. Case VI. had suffered a fall several months before, followed by severe constitutional symptoms. In Case XVIII., there was habitual dysmenorrhœa, and the symptoms followed an excursion. In Case XVII., the accident immediately followed violent injury. In Case XX., the symptoms immediately succeeded a sudden fright; and in Case XXX., a fit of passion, succeeded by violent exertion. In Case XXII., it occurred while waltzing, after dining, and taking a cold bath. In Case XXIV., it followed severe fatigue, and in Case XXV., a sudden and severe pain was felt after a long walk. In Case XXVI., rupture occurred while leaning over a flour-barrel. In the remaining instances, the rupture was not preceded by any unusual occurrences during pregnancy, and followed

no physical injury, and is therefore to be regarded as having been spontaneous.

Rupture, then, may depend on traumatic and idiopathic causes. In Case XXX., it followed intense emotion and violent exertion. In Cases XX., XXX. and LIV., it followed intense emotion. Mental emotion is a cause of rupture not ordinarily recognized; and yet it would appear that cause and effect could be as distinctly traced in these as in any other cases.

If we now inquire into the symptoms attending, and preceding the rupture, we shall find that, in a large number of cases, violent pains come on, followed by sudden vomiting, faintness, and tenderness, each, or all, and sometimes hemorrhage from the vagina; as in Cases I., III., VII., in which the pains were very violent, and in many of the other cases detailed. In Case XIII., the patient was awakened in the morning by the pains. In Case V., a cracking sound was heard when the abdominal parietes gave way. In Case XXII., the cracking was felt at the time of rupture, and in Case XXV., a tearing sensation. In Cases XXVI. and XXXIII., the patients were conscious of something giving way within them. In Case XXI., after repeated profuse hemorrhages, the limbs could be felt through the abdominal parietes; and in Case III., after an attack of vaginal hemorrhage. In Case XXXI., coagula were discharged *per vaginam*, two hours after pain and bilious vomiting.

In those cases, in which rupture followed a mechanical injury, the patients were conscious of a strange sensation, which was followed by a greater or less degree of prostration, except in Case VI., in which the fall was succeeded by severe constitutional symptoms. In Case II., however, notwithstanding the fœtus escaped into the abdomen, the usual symptoms of rupture were absent; this is the only instance among this class of our cases, in which this fact is stated. In those instances in which no mention is made of symptoms following the accident, the omission is probably due to the neglect to record them.

It is evident that the diagnosis of this accident during the early months of pregnancy, must be often very difficult, and in some cases impossible. Whenever symptoms of collapse have followed a severe mechanical injury, and are accompanied by pains more or less severe in the region of the uterus, especially if accompanied at once, or within a short time, by any degree of hemorrhage from the vagina, we have strong grounds for believing that this accident has taken place. Even with all these symptoms, there might be danger of mistaking it for rupture of the bladder. If, however, the fœtus can be felt in the abdominal cavity, we may consider our diagnosis well established.

The diagnosis of spontaneous rupture is liable to the same difficulties. When symptoms of collapse follow a sudden exclamation on the part of the patient, that something has burst within her, and are accompanied by pains in the uterine region, and hemorrhage from the vagina, we may reasonably suppose that the uterus has ruptured, and we should act accordingly; but when the symptoms are gradual in their accession, of moderate intensity, and indistinct in their indications, we shall be compelled to trust our patient to the resources of nature alone. It is only when the pregnancy is considerably advanced, that we could expect to be able to distinguish the limbs of the fœtus through the parietes of the abdomen; when these can be distinctly made out, in connection with the other symptoms, the diagnosis can scarcely be difficult.

VI. *Causes of Rupture.*—The causes of rupture are predisposing and immediate.

1. Among the former, contraction of the pelvis has been considered by most authors as standing pre-eminent, especially when rupture occurs at the neck. F. Ramsbotham has never known a case, in which there was not some contraction. In the *Edin. Med. and Surg. Journ.*, 1843, p. 49, Mr. Roberton has presented thirty-six cases of rupture, collected from various sources, in which there was diminution of the diameters of the pelvis. We find among the cases we have collected, a large number in which it is stated that such contraction existed to a greater or less degree.

There appears to be among authors three different modes of accounting for the influence of a contracted pelvis in producing rupture.

The first is, that, as a consequence of long continued pressure of the neck of the uterus, between the head and the pelvic bones, during a protracted labour, "inflammation ensues; and, if the cause be not soon removed, gangrene will follow."—*Dewees.* Denman maintained that, "independently of disease, the uterus may be worn through mechanically in long and severe labours, by pressure and attrition between the head of the child and the projecting bones of a distorted pelvis; especially if they be drawn into points, or a sharp edge." Were Denman's theory true, as Dr. Dewees significantly remarks, the head of the fœtus would exhibit marks of the attrition.

A second idea is, that, since during the latter part of gestation, the neck of the womb rests upon the brim of the pelvis, if the promontory of the sacrum be too prominent, or the pubes sharp, it is reasonable to suppose that the uterine structure may be affected—that inflammation may occur from pressure—and that a thinning or softening of the substance of the womb may be induced.—*Ramsbotham.* A third does not recognize any morbid condition of the uterine substance, but accounts for the influence of a disproportion between the fœtal head and the pelvis, by the fact, that a portion of the cervix uteri is pinched between the head and the pelvis, and fixed so that the action of the uterus is directed against this spot rather than the os uteri.—*Burns.*

The probability is, that each of these causes explains the occurrence of rupture in some cases, but that neither is of general application. An objection that strikes us in reference to the first cause, is, that the injury of the soft parts, from long-continued pressure, could not take place without great constitutional disturbance, such as would probably induce a prudent practitioner to resort to energetic remedial means, or to artificial delivery; and yet we know that in the practice of such, rupture has not unfrequently occurred. Farther than this, many cases of labour, in which rupture has occurred, have been of insufficient duration for such grave lesions to be produced.

If we take the cases of contracted pelvis in which rupture took place at or near the cervix, we shall find, in case CLXIX., the duration of labour was only *four* hours, and the pains were feeble. In case CLXXVII., it lasted *five* hours. In CCXCIV., *six or seven hours*, and feeble pains; in CCXX., *ten hours*; in XCIV. and CLXVI., *twelve* hours; in CXXVI., about *twelve* hours; in CCXVI., *thirteen* hours; in CLIII., *nineteen* hours; in CLXXXIX., *twenty-four* hours; in CXC., *twenty-seven* hours; in CLXXV., *thirty* hours; in XCIII., *forty* hours; in CC., *forty-eight* hours; in CLI., *sixty* hours; CCXXI., *several* hours. In CCLXIII., it lasted from Saturday till Monday noon; in CCXCIV., not over six or seven hours.

In several of these cases, the rupture could not have depended upon any morbid condition induced by the severity of the labour; while in a few, the duration was undoubtedly sufficient to permit such lesions to occur.

The second explanation is applicable to certain cases. Thus, in Case CCXXI., there was a dark brown ragged opening, chiefly in the posterior part of the vagina and cervix; and also a transverse rent at the junction of the vagina and cervix, after a labour of several hours. In Case CXXVI., labour lasted but about twelve hours, and yet there was a circular opening opposite the promontory of the sacrum, and "from the rupture a circular patch extended a short way into the body of the uterus, much thinner than the remainder." In Case CXXVIII., rupture took place before the os was fully dilated, the labour evidently not very protracted. The cervix was altered in structure, but the fundus was likewise involved in the disease. In the first of these two instances, the lesion might, and perhaps did, depend upon long-continued pressure of the gravid uterus upon the promontory of the sacrum; but, in the latter case, there was a diseased condition of the organ, which could depend on no such local cause. It is easy to conceive that continued pressure for a considerable time should produce atrophy of the portion compressed, and absorption of more or less of its substance. The same should be true when the disproportion is from excessive development of the fœtal head, or from hydrocephalus.

Even in a full-sized pelvis the head rests, during pregnancy, upon the brim, and consequently we ought to meet with rupture from this cause when the diameters are ample, as well as when they are not so. In one or two instances, the lesion might have been due to the long continuance of the labour, while, in Cases CXXIX., CLVI., CLXXVII. and CCI., it might have been caused by long-continued pressure, during utero-gestation, certainly not by protracted labour; while, in Case XXIX., it could be due to neither, as it occurred at the fifth month.

The third explanation of the frequent occurrence of rupture at the cervix, in contracted pelvis, is this: "As the uterus, in its efforts to force the child into the pelvis, acts by shortening itself, the cervix is, in some part of its circumference, a fixed point, being held as in a vice, during a pain between the head and the brim, and after a few pains, more or less, it tears at or near this fixed point, as an over-stretched piece of cloth tears." The value of this explanation depends upon the highly important question, can a perfectly healthy uterus be thus ruptured by the energy of its own contractions? Though in by far the largest proportion of our cases, the condition of the uterus is not stated, or is reported as morbid, nevertheless there appears, in several cases, to have been no lesion discoverable, on careful examination, which could predispose to rupture. In Case CXXIV., there was no such lesion; in Case CXLI., the uterus was very healthy, and the fibre very firm; and in CLI., the womb was perfectly healthy. In these instances, the third mode of explanation may be applicable.

2. Next, what are the causes producing rupture in the body and fundus of the womb? When any portion of the uterus is confined, in the manner just described, between the head of the fœtus and the pelvis, thereby causing a great degree of tension of the uterine fibre during its contraction, it is evident that the walls will give way at the weakest point; and this may be at the fundus, or in the body of the organ, as well as at the cervix. The weakness of any given portion of the uterine structure most usually depends on either a softening or thinning of the walls, in most cases evidently, and in a few others, most probably, from morbid action. Thus, of *forty-*

three cases of rupture of the fundus and body, occurring at the full period of pregnancy, it is stated that, in *twenty*, the uterus was more or less softened or thinned, or otherwise diseased at the place of rupture. In Cases CXXII., CXXIV., CLXXXIII., it is stated that there were no marks of disease; in Case CCXLI., there were "no marks of gangrene;" in more than one it gave way at the place of previous incisions; in Case CCVI., all the viscera were gangrenous, the condition of the uterus not being particularly stated. In Case CCII., it was "very firm, and two inches thick."

Of the *ten* rents which involved only the body or fundus during utero-gestation, in Cases XIX., XXI., XXII., the uterus was more or less thinned or softened; while in Cases XXV. and XXVI., there was no appearance of disease. In the remaining cases, the condition of the womb is not stated.

It appears, then, that in a very large proportion of instances in which the laceration takes place in the body and fundus, the uterine structure is diseased and thereby predisposed to the accident. The location of the disease in these instances cannot depend upon either long-continued pressure against the pelvis during pregnancy, or any similar injury during parturition, as has been supposed to be the case when rupture takes place at the neck. It is evidently due to disease of the organ, called into action either by mechanical injury or occurring from idiopathic causes, as from chronic inflammation, or inflammation excited during protracted labour. If the body and fundus may become thus affected, we see no reason why the cervix may not also, and hence the compression of the cervix by the head may have less influence in inducing a morbid condition than has been attributed to it.

The influence of *a diseased condition of the uterus from idiopathic causes* as predisposing to rupture, has generally been enumerated by authors, but a minor place has been assigned to it in the catalogue of the remote causes of this accident. This subject has been more distinctly brought to the notice of the profession by Dr. Murphy, in the *Dub. Med. Journ.*, vol. vii., who calls attention to it as a frequent cause of rupture, supporting this opinion by the post-mortem examinations of several cases; an analysis of these cases will be found in our series. Of *eight* cases, detailed by Dr. Murphy, in which the examinations were conducted carefully by himself, in *four* there was softening of the uterus, and in *three* it was more or less thinned. It is to be regretted that the large number of cases in our series throw less light upon the subject than might have been expected. In a large proportion of these cases, the condition of the uterine structure is not stated—while a part of them note changes which would evidently have been detected only on careful investigation—in most instances only very marked departures from a healthy condition have been recorded—and this undoubtedly is owing to the fact that the attention of observers has not been directed to the detection of the results of neglected chronic inflammation of the uterus during pregnancy, as well as of the changes that may be effected in its structure from inflammation arising during the process of parturition.

Of the *forty-nine* cases in which the condition of the uterus is mentioned, under lacerations in all parts of the organ, in *ten* it is spoken of as *healthy*—in *fourteen*, it was *thinned*—in *fourteen*, it was *softened*—in *one*, both *thinned* and *softened*—in *two*, both *thinned* and *thickened*—in *one*, *thickened*—in *three* others, it was *diseased*.

Thinning and softening were both met with in every degree.

The lesions of the uterus met with in cases of rupture are *thinning* and *softening*—local gangrene may sometimes exist.

Thinning occurring at the cervix, may depend on long-continued compression of the uterus between the head of the fœtus and the pelvis. Occurring in the body of the organ, it may be caused by the pressure of other enlarged and diseased organs in the cavity of the abdomen, by exposure to accidental pressure from without the abdomen, perhaps, as Dr. Murphy suggests, from the separation of a slough after a previous tedious labour, and probably, though our cases present no unquestionable examples of it, from defective development. In Case CCXI., the womb had been pressed upon by an enormous spleen. In Case CCLXXIII., rupture took place, at a point where almost constant daily pressure was made upon the tumour, by leaning against a wash-tub.

When *softening* of the uterus takes place, according to Dr. Murphy, "the uterus loses its elasticity; its parietes are easily torn, and afford but little resistance to the knife. The fibrous structure seems to soften sooner than the membranous: the peritoneum often remains entire, and is detached from the uterus lying loosely between it and the bladder." The distinction between softening and gangrene, he considers difficult; and it is to be determined only by the general state of the uterus: softening being always a consequence of an unhealthy condition of the uterus, while gangrene is not—gangrene is rather a local, softening a constitutional effect.

Rejecting from consideration those of our cases in which no mention is made of the state of the uterus, one or the other of these lesions, in greater or less degree, was met with in a large proportion. It should be borne in mind, that many observations were made by persons whose opportunity for autopsic examinations must necessarily have been limited, and slight alterations would be unobserved by them. We know not whether a more careful investigation would have diminished the number of cases reported as presenting no morbid change, but if we consider even this as a fair proportion of cases in general, it confirms the very important conclusion arrived at by Dr. Murphy, that, *in most cases, rupture depends on a diseased condition of the uterus, and is therefore unavoidable, for the most part*, when occurring in the natural progress of labour. The risk of rupture when any portion of the uterus is in an unhealthy condition, will depend upon the opposition presented to the expulsion of the child; whether from contraction of the pelvis, or excessive size of the fœtal head. Thus, a woman may, with considerable diminution of the diameter of the pelvis, pass safely through successive labours, but the substance of the uterus becoming thinned or softened, it may eventually give way in a subsequent labour, and the patient perish. Case CXXXIX. presents an illustration of this fact; the patient having previously borne four children, and apparently possessing an ample pelvis: chronic inflammation supervening previous to her last pregnancy, which resulted in softening of the uterus, the resistance of a dropsical fœtal head caused laceration of the organ after a very few pains.

4. Again, when the *large size of the fœtal head* presents an obstacle to delivery, it is evident that, although the diameters of the pelvis may be of standard dimensions, they will nevertheless be relatively deficient, and the disproportion will predispose to rupture in the same way that a contracted pelvis does. Case CLV. is an example of such disproportion from a large and firmly ossified head. Cases XLVII., CLXI., CXXXVII., CXXXIX., CXCIII., CCLXXIV., CCLXXV., are instances of disproportion depending on *dropsy of the fœtal head.*

5. *Oblique positions of the head* at the brim of the pelvis, by which an unfavourable diameter of a head of moderate size is presented, will produce similar results. For illustrations of this, see Cases CXXIII., CCXXXVI., CCXCIV.

6. *A transverse presentation of the trunk* occasionally, when not corrected by artificial interference, by presenting an insuperable barrier to the progress of the fœtus, brings about a rupture of the uterus. For examples of this, we may refer to Cases XLIV., CLXVIII., CLXXV., CXCVIII., CCV.

7. Similar to the influence of a contracted pelvis in producing rupture, is that of *insuperable rigidity of the cervix uteri*, depending on chronic inflammation or a carcinomatous condition of that part of the organ, and also of unyielding bands crossing the vagina, these being the result of previous protracted labours, or of the injudicious employment of instruments in delivery. The same may be said of various tumours growing from or falling into the cavity of the pelvis. The influence of a rigid os uteri in causing rupture will be considered more at length at another time. Of the obstruction presented by bands in the vagina, Cases CLXII. and CLXX. are examples. For instances of rupture from rigidity of the os uteri, see Cases XCVI., CVI., CVIII., CIX.

The obstacle to delivery is, in some of these cases, as great as in contractions of the pelvis; and, from long-continued uterine action forcing the head against the unyielding structures, the uterus bursts.

8. *Obliquity of the Womb* has usually been enumerated among the predisposing causes of rupture. In Case CCIX., there was anterior obliquity of that organ; and in Case XXXIV., retroversion.

9. Cases IV., V., CCLII., show that the uterus is liable to rupture in the *place of the incision after the Cæsarian section.* According to Jacquemier, tom. ii. p. 289, "M. Keyser has collected six cases of gastrotomy after rupture of the uterus, in women who had recovered from the Cæsarian section; three of them recovered."

10. Dr. Channing has furnished us two cases, in which *polypus of the womb* was the remote cause of rupture. In one of these, the rupture was attributed to the tumour occupying the pelvis, diminishing the diameter of the passage; in the other, the polypus surrounded the os uteri, and the rent passed through its substance into the cervix, in consequence, probably, of the morbid condition of that part of the organ.

The *immediate causes* of rupture are, first, uterine action, either natural or increased by the operation of ergot, or alcoholic stimulants; and secondly, external violence, as blows or falls upon the abdomen, and forcible attempts to induce artificial delivery.

1. Unless caused by direct violence, rupture must, in almost every case, be the result of the contraction of the uterine fibres, whether the uterus be healthy or diseased. As an evidence, we have seen, that, while there is reason to believe a morbid condition of the womb a very frequent predisposing cause of rupture, even in these cases, rupture usually takes place after a certain continuance of the labour pains of greater or less severity. Thus, in Case CCXXIII., the patient was suddenly seized with uterine pains, which went off quickly, and were succeeded by symptoms of rupture. In several instances, the sensation of rupture is the first sign indicating any degree of action about the uterus. If we glance the eye over cases occurring in pregnancy, we shall find this especially hold good among them. In Case XXXIII., the patient experienced a sensation of rup-

ture while in the act of stooping, and this was soon followed by unequivocal symptoms of the accident having occurred. In Cases XIII., CCV., the patient was awakened in the morning by a severe pain, and symptoms of rupture followed. Cases I., IX., XIV., XVII., XVIII., XXI., XXIV., XXV., XXVIII., XXXI., XXXII., XXXVII., are further examples of the sudden accession of symptoms of rupture, in which the pain attending the laceration was the first experienced.

This accident, occurring as it does under such circumstances spontaneously, is analogous to spontaneous rupture of some of the other organs in the body—as, for example, the heart; of which, as it is well known, there are several recorded instances—for rupture of the heart also may take place in consequence of the action of its own muscular fibres. Both ruptures of the heart and ruptures of the uterus may depend on external violence, or they may occur spontaneously, both when organic alterations in their substance are present, and when they are absent.

Rupture of the stomach presents another instance of the spontaneous laceration of hollow organs within the body, of which there are two cases related in the *Medico-Chirurgical Transactions*, vols. xiii. and xiv. In a work on Hemorrhage, published by M. Lafour, and referred to in *Dict. des Sci. Méd.*, tom. xlix. p. 226, we find a case of spontaneous rupture occurring in the unimpregnated womb after the final cessation of the menses. The womb became immensely distended, and the patient suffered severe pain. After a paroxysm, she felt a disturbance in the abdomen, and the swelling became diffused. She died next day. An enormous quantity of fetid blood was found in the cavity, and a rent in the fundus uteri, admitting three fingers. Womb thinned at the rupture, and thickened elsewhere, the os cartilaginous, and obliterated. In this instance, however, the rupture seems to have been due to over-distension of the uterus. An impression prevails in general, that rupture is almost always connected with protracted and violent labour. The statement that we have already made of the duration of labour in several cases, attended by contracted pelvis, shows the incorrectness of this.

Table of Duration of Labour.

Labour lasted, as nearly as can be ascertained,

1 hour	in 3 cases,	12 hours	in 12 cases,	27 hours	in 1 case,	3 days	in 3 cases.
2 hours	in 1 case,	13	" 1 case,	30	" 4 cases,	4	" 2 "
3	" 1 "	14	" 3 cases,	33	" 1 case,		
4	" 3 cases,	17	" 2 "	35	" 1 "		
5	" 6 "	18	" 1 case,	36	" 2 cases,		*Average.*
6	" 9 "	19	" 1 "	39	" 1 case,		21,6 hours.
7	" 2 "	20	" 1 "	40	" 2 cases,		
8	" 3 "	22	" 1 "	44	" 2 "		
9	" 5 "	24	" 8 cases,	48	" 5 "		
10	" 3 "	25	" 1 case,	60	" 3 "		

From this statement, it appears that rupture may take place at any time after the commencement of uterine contractions, either immediately or after the lapse of many hours.

Rupture, then, may be caused by ordinary contractions, and in an apparently healthy uterus; and want of agreement between the diameters of the pelvis and the head, or any obstruction of the soft parts, predisposes to the occurrence.*

2. If there be risk when the uterine contractions are of their natural

* In Phila. Med. and Phys. Journ., vol. viii., is an account of a rupture of the womb in a cow.

intensity, how much must the danger of forcing some part of the fœtus through the uterine substance be increased, when the strength of the pains is augmented by *ergot*, or alcoholic stimulus.

The medical journals, for obvious reasons, contain but few cases of rupture from the imprudent administration of ergot. Cases CXXX., CXLI., CCXXII., CCXXIII., however, are instances of it. There can be no doubt that the injudicious exhibition of this drug has been the source of infinite mischief. It is difficult to obtain data upon this subject, for few in whose practice such cases occur would be disposed to report them, and those met with in consultation practice are kept secret from motives of delicacy. Dr. Meigs, in his communication above, remarks that some of the cases which he has seen, at least three followed the "ergotic contractions, induced by the imprudent exhibition of secale cornutum." Dr. Bedford has, in his valuable additions to Chailly's "Midwifery," most earnestly directed the attention of students to this subject, and states that he has, in his museum, four wombs ruptured by the improper use of secale cornutum. F. Ramsbotham, p. 194, relates one case of rupture during a breech presentation, and another in which there was a slight distortion of the pelvis; in both, the catastrophe was mainly to be attributed to the exhibition of ergot; and he has known some other instances of rupture from its employment in cases unfitted to its use. There is reason to believe that it is not unfrequently administered, not only by ignorant midwives, in cases to which it is not adapted, but also by better informed individuals, who disregard the necessary precautions which should regulate its employment.

It is true that there are some cases in which the womb is altered in its structure, and in which rupture would probably occur under the efforts of ordinary pains; and in Cases CCXXIV., CCXXVIII., CXLI., CCLXXXVII., it would appear that the ergot did not materially increase the severity of the contractions; in Cases CCXCIII., CCXCVI., ergot had been given; nevertheless, the great risk of administering ergot under the conditions above specified, can never be too strongly urged upon practitioners of midwifery. It should be a rule, in no case to be departed from, to refrain from the administration of this medicine, when any disproportion exists between the head and the pelvis—caused either by contraction of the diameters of the pelvis, or excessive size, or by malposition of the head—in presentations of the trunk and superior extremities—when obstacles to the birth of the child exist, as from morbid contractions of the vagina, and obliterations more or less complete of the os uteri—and, also, before the os uteri is *completely dilated, or at least perfectly dilatable.*

3. Rupture may be produced by mechanical violence, as from falls and blows, to which the patient may have been subjected; and also from injuries inflicted during the unskilful performance of obstetric operations, especially that of introducing the hand into the womb in order to deliver by turning. Instances are spoken of by authors, of great damage inflicted by the forcible introduction of the blades of the forceps, by which the uterus has been torn from the vagina. Histories of cases of this kind, also, are rarely met with in medical journals, from reasons similar to those that prevent the publication of cases of rupture following the abuse of ergot. It is only when here and there the voice of a man is heard, whose extensive experience has afforded ample opportunities of becoming acquainted with the mal-practice of the ignorant or the inexpert, that we have any means of estimating the amount of mischief arising from this source. Dr. Collins

has known the mouth of the womb torn by the imprudent use of forceps, when the os uteri was undulated.

Blundell, p. 701, says, "there are two great causes to which lacerations of the uterus may be ascribed, and the one is continued resistance to the passing of the fœtus; and the other is obstetric violence, whether of instruments or the hand." F. Ramsbotham says, "it may be the consequence of forcible and improperly conducted attempts to turn under a shoulder presentation; of which sad catastrophe I have unfortunately seen more than one instance; or, again, it may be caused by instruments in the hands of the ignorant, the careless, or the inconsiderately rash."

Cases XLVI. and CCVII. are instances of great violence in the use of instruments in both of which rupture took place, probably, in consequence of such violence. In Case CXLII., there was a very protracted use of forceps, though their influence in producing rupture is not so certain. In Case CCCIII., the forceps were thrust through the anterior wall of the womb into the bladder. In Case CCXCV., rupture of the cervix was produced by a midwife in attempting to turn. In CCVII., there were no symptoms of rupture before the employment of instruments. In XXXVI., it was caused by forced dilatation of the os uteri. In a case mentioned by Dr. Ingleby, *Dub. Med. Journ.*, vol. viii., p. 441, the practitioner, in an attempt to deliver by turning, passed his hand through the anterior part of the vagina into the abdomen—the intestines protruded—and the patient soon expired. Hamilton says he has been called to several cases in which he found the proper texture of the uterus extensively lacerated, but the organ kept entire by the peritoneal covering, in consequence of the finger of the practitioner being pressed through it, from a neglect to observe the well established rules of procedure in delivery by turning.

While rash and ignorant violence exposes the patient to such imminent risks, it is important to know that rupture may occur during judicious and carefully conducted attempts at delivery, and when no blame can be attached to the unfortunate attendant. In Case CXLIV., although version was performed by a midwife, and occupied an hour, the medical attendant who subsequently took charge of the patient, considered her qualified for performing the operation. In Case CCLXXXIII., rupture occurred during version, the os being obstructed by a polypus. In Case XXXV., it occurred during version, the uterus being extensively diseased; and in Case LI., it happened after application of forceps. In Case XLIII., under a breech presentation, it occurred when half the trunk had passed the vulva. In Case CXXXIII., rupture took place when the child was half delivered by version. In Cases CXXXI., CLX., CLXI., CLXII., delivery was effected in consequence of convulsions, hemorrhage, &c., though rupture perhaps in part of these, may have taken place previous to the commencement of delivery. Cases XXXVIII., CXIII., CCLXI., CCLXII., are instances of rupture occurring to practitioners of undoubted skill, while making vaginal examinations during the presence of a pain. Case CCXCII. is apparently an instance of rupture occurring during judicious, but protracted and difficult artificial delivery. It is nevertheless ever to be borne in mind that even those qualified by education to conduct obstetric operations, may, by a neglect of proper caution, bring irreparable mischief upon their patients.

In Cases XLIII., L., LXVII., LXXXV., CLXXXIII., CLXXXIV., CLXXXIX., CCIII., CCLXXXIII., the accident followed a *blow, fall, or other mechanical violence*, inflicted upon the abdomen. In XC., the

patient suffered an injury during pregnancy, but appears to have been well after it. In a portion of these cases, the effect seems to have been immediate, rupture taking place at once, and manifesting itself by all the symptoms of serious injury of important abdominal viscera. In other cases, the uterus appears to have undergone a chronic inflammation, which has resulted in softening, or gangrene, and consequently predisposed to rupture, when the parturient process should begin. In Case XLIII., it is stated that there were morbid adhesions of the placenta, occurring in a patient who had fallen some time previously; the condition of the uterus is not stated, yet it is probable that its substance had also undergone changes which had predisposed to rupture.

4. By a reference to the earlier writers on midwifery, it will be seen that some, as La Motte and Levret, attach great importance to *violent movements of the fœtus*, as a cause of rupture. Cases CCIV., CCXXXVII., CCLV., afford instances of this accident, following *immediately* after the violent convulsive movements of the fœtus. It can scarcely be conceived that any such movement can be sufficiently powerful to cause a laceration of the parietes of healthy uterus; indeed, after the escape of the waters, it must be regarded as impossible; and, in the cases referred to, the escape of the fœtus into the peritoneal cavity through the laceration, must have been coincident with the occurrence of the rupture, and a mere accompaniment of the accident mistaken for its cause. When, however, the uterus is diseased to the degree presented in some of our cases, such an event as this may not be considered impossible.

5. Cases XX., XXX., CCXXXVI., show that rupture may follow intense emotion, as has already been alluded to, in considering some of the peculiarities attending rupture, during utero-gestation. Such instances must be regarded as very remarkable, and as affording most striking exemplifications of the influence of the emotions over the various organs of the body. Such occurrences are to be regarded as perfectly analogous to rupture of the heart, under violent mental excitement. The influence of mental emotion in determining uterine action, in cases of abortion, following intense anger, grief, and joy, has been occasionally remarked; but, that uterine contraction may be excited from these causes, to such a degree as to produce a spontaneous rupture of the uterus, must be regarded as of great interest.

VII. *Pathology of Rupture.*—Our abstract of cases embraces only the most important circumstances connected with the pathology of this accident; and, for many interesting particulars, we would refer to what we have said of the influence of a diseased condition of the womb in producing rupture.

Situation of the Rupture.—Of cases occurring during *utero-gestation*,

7 were of the fundus.	3 involved the cervix and vagina.
1 was of the posterior part.	1 from cervix to fundus.
2 were of the anterior part.	1 of cervix, body, and the bladder.
2 " of the right side.	2 of posterior and inferior part.
1 was of the left side.	1 lower segment of womb torn off.

Of cases occurring during *parturition*,

11 were of the fundus.	15 from cervix to fundus.
13 " of the posterior part.	2 involving the bladder.
14 " in the anterior part.	47 at the cervix, and involving the vagina, and separation from the vagina.
8 " of the right side.	2 of the "body."
7 " of the left side.	7 transverse.
2 " of the vagina.	

Total.—In cases occurring during *parturition*, rupture in the body and fundus—63.

Of the cervix, involving more or less the body of the uterus, and the vagina—64.

Of cases occurring during *gestation*, the *total* is of the fundus and body—13.

Of the cervix, involving the vagina and body more or less—8.

The latter class, in both cases, includes those in which the lower segment was torn off, and those occurring in the "posterior and inferior" part of the womb; since the boundaries between the relaxed uterus and the vagina, during life, at least, would be necessarily quite indistinct where rupture had occurred. From the indistinctness with which the location of the rupture is in many cases specified, those described as being in the superior, and posterior, lateral, or anterior part, have been classed among those of the fundus and body; and those described as being the "posterior and inferior" part, assigned to the body and cervix.

It is usually stated by authors that the cervix is the most frequent seat of rupture. Among the cases quoted from Dr. Collins' most excellent work, we find the rupture, in the largest number of instances, in the cervix. We are inclined to believe that the exact situation of the rent has in many cases not been noted, and that the cervix was also involved when the rent is described as in the "anterior" or "posterior" part. Dr. Smellie, vol. iii. p. 384, in speaking of a case in which he found a slight rent of the vagina, after delivery, and in which the os was "a little torn also," says: "I was afraid of the worst from the laceration of these parts; but the woman recovered without any bad symptoms. . . I have had some others in which I have been sensible of the os uteri having been rent; but never found it of bad consequences, unless the patient was thrown into a fever by bad management, or other dangerous symptoms." Dr. Lever, in *Guy's Hospital Reports*, for Oct. 1845, p. 183, in describing a case of vaginal hysterotomy, says: "I selected the sides of the mouth for the situation of the incision, for several reasons; first, at the sides of the womb the rigidity was the greatest; secondly, it is at the sides of the womb we usually find lacerations, when they take place spontaneously, as is *frequently seen in protracted labours*. When the waters pass off early, and when the os uteri is thin and tense, such a lesion is by no means unusual. I have on *many occasions* pointed it out to the students of this hospital, who have filled the office of obstetrical clinical clerk."

The statement of Dr. Lever, that such a lesion is by no means uncommon, we apprehend could not be corroborated by the observation of practitioners in general. Those, however, who have made numerous examinations of the cervix uteri by the speculum, state that deep fissures of the os are not unfrequently met with, which must have taken place during former deliveries; and we have recently delivered a woman, in whose os uteri there was a fissure, probably the result of a similar laceration. Careful examinations instituted during, or immediately after labour, may reveal it to be not an unusual occurrence for such unimportant lesions to take place where there is a rigid os uteri.

The rent may occur in any direction—longitudinal, oblique, or transverse.

In Case XV., the uterus was *bifid;* and the rupture took place in the division which had been impregnated.

In Cases XXI., XXXII., CXLIV., CLVII., CLVIII., CLX., CLXXII., CLXXIII., CLXXIX., CLXXXII., CLXXXIV., CCLIII., the rent involved the muscular coat alone. Hamilton (*Pract. Observs.*, Am. edit., p. 107), remarks that, "considering that the uterus, at the full period of gestation, is so soft, that the fingers can be pressed through it with as much facility as through a wetted sponge, it is surprising that ruptures do not more frequently take place in artificial delivery." In several of the above cases, the muscular substance was evidently in a state of disease, but the physiological condition of the healthy uterus, in which some of these appear to have taken place, can scarcely be considered so fragile as is described by that author.

In Cases XX., XXXI., CXCIX., CCLV., CCLIX., CCLXXXV., CCLXXXVI., the rupture involved the peritoneal coat alone. See Cases CCLXXXV., CCLXXXVI., and the remarks following. In these instances, the lesion has been described by several different observers, as presenting the appearance of having been produced by a pen-knife. In the most, only the peritoneum was involved; in some, a few superficial fibres of the muscular substance were torn; in Case CCLV., a large vein running among the superficial fibres was ruptured, and the hemorrhage from it caused the patient's death. In a part, the whole surface of the uterus is occupied by these crack-like rents; in others, as in CCLXXXV., it was confined to the neighbourhood of the Fallopian tubes. In two instances, these fissures were of a crescentic shape, with the convex part toward the fundus, and presented the appearance of scarifications.

In CLXVIII., there was a rent of the muscular coat, and one of the peritoneal, the two not corresponding. *Softening* and *thinning* of the uterine tissues are met with in every degree. In CCLVI., it was oily, soft and doughy; in CCII., very firm. In CCLX., it was soft as jelly. In CCXXIII., it was unusually soft. In CLXXXII., the uterus was not thicker than strong brown paper. In CLXXXV., it was not thicker than paste-board in some parts; in others, three and a quarter or four inches thick. In CCVI., it was in part thin as paper, and in part frail as cobweb. In CCXXXIX., it was one-eighth of an inch thick, and tore like writing-paper. In Case CCLXXIII., it was thin as membrane. In Case XXXVII., it was extremely thin and very friable. In Case XIX., it was thinned and softened. In CCXLII., it was preternaturally thickened. In CLXXXVI., it was partly thinned, and in part thickened. In CCLI., the edges of the rent were apparently gangrenous. In Case CCV., all the viscera were gangrenous. In Case CCIV., forty days after rupture, the uterus, &c., was putrilaginous." In Cases CLVII., CLX., the uterus was diseased from syphilis. In most, the edges of the laceration were ragged and irregular.

The colour of the morbid tissues varies; in some it is brown, in others red. In Case CLXXXVII., it was of a pink colour, and where there has been much hemorrhage, the uterus is very often quite blanched. In Case CCLXXIII., it was perfectly black. Sometimes the colour is a dirty green, from the altered blood, and this appearance might be mistaken for gangrene. Gangrene was found when death has taken place several days after the rupture; but it is rarely met with in an examination soon after the accident, as the result of inflammation arising in the course of labour. In Case CCLI., there was the livid appearance of gangrene; in Case CCLXVIII., the woman died fourteen hours after rupture, and the womb was putrid. In neither of these cases was the labour unusually protracted.

In Case XXIII., the bladder and uterus were united by false membranes. In Case CCXIX., the rent involved the bladder. In Case LIV., the patient passed blood in the urine. In Cases XVIII., XX., XXIV., the ovaries were involved in disease. Case CCXXX., was subject to uterine hydatids. In a large number of cases, blood, or sero-sanguineous fluid, often to a very large amount, is found in the peritoneal cavity, mixed oftentimes with coagula. When rupture occurs before the escape of the waters, the amniotic liquid is also found among the intestines.

In Cases XVI., LXX., and CCLXIX., more or less perfect cicatrices of former ruptures were found.

Rupture is liable to occur, in labours succeeding those in which the Cæsarean section was performed. According to Dr. Merrem, of Cologne, (see *Ranking's Abst.*, vol. ii. p. 128,) this depends upon the nature of the cicatrix, by which wounds of the uterus are united. In some it is closed merely by peritoneum; and in one case this author found, on resorting to the Cæsarean section a second time, that the former incision was four inches long, and three fingers in breadth, concave instead of convex, and composed of white, glistening fibres, with a dilated blood-vessel running close to either margin. This portion not contracting equally with other parts during labour, exposes the uterus to rupture.

In the cases in which the patient was abandoned to the resources of nature, and yet not at once fatal, the fœtus remaining in the peritoneal cavity, we learn from Cases XIV., XXIII., LXX., CXLII., that the fœtus becomes invested in false membranes, by which it becomes separated from the viscera of the abdomen. In this way, it appears that the patient may survive many years; most usually, however, in from a few weeks, as in Cases II., IV., LII., LXIV., CCXXX., to months or years, as in Cases LXXII., LXXIII., XCV., CXVII., CCX., the fœtus is discharged piece-meal through fistulous openings in the abdomen, *per vaginam* and *per anum*. In Cases VI., XIV., LXXXVII., CXI., CCLXV., when an opening had been formed by nature, through the abdominal parietes, art aided her efforts by making an incision of a few inches in length, and removing the *debris* of the fœtus. In most, if not all such instances, however, adhesions had previously taken place between the peritoneum and the parietes, immediately around the fistulous opening, leading to the sac which is formed around the fœtus, and consequently the incision through the abdominal walls does not necessarily lay open the cavity of the peritoneum.

In Cases CLIII., CLXI., a psoas abscess was found on post-mortem examination, as a result of the inflammation following the rupture.

Cases CCLXXVI., CCLXXVII. afford examples of a very unusual lesion of the uterus, in one of which the placenta was found protruding from the fundus into the cavity of the peritoneum, and in the other, an opening of a similar character was found, the placenta having been withdrawn during life. Occurring, as death did in both cases, several days after delivery, it would be very difficult to ascertain what was the condition of the womb at the time of rupture. Dr. Channing thinks that a morbid condition of the uterus might have preceded the accident; labour was at any rate the exciting cause.*

* A case analogous to these is quoted by Dr. Ingleby, (*Lond. Lancet*, 1839–40, vol. i. p. 635,) which is probably an additional portion of the history of Case XIV., in which it is said, "the attenuation had actually produced a breach of surface, and a portion of disrupted placenta had partially entered the belly."

Table of Ages.

16 years 1 patient.	27 years 3 patients.	38 years 5 patients.
17 " 1 "	28 " 14 "	39 " 1 patient.
18 " 1 "	29 " 2 "	40 " 6 patients.
20 " 4 patients.	30 " 19 "	42 " 1 patient.
21 " 3 "	32 " 9 "	43 " 2 patients.
22 " 1 patient.	33 " 6 "	44 " 4 "
23 " 1 "	34 " 4 "	47 " 1 patient.
24 " 5 patients.	35 " 8 "	40 to 45 1 "
25 " 7 "	36 " 17 "	
26 " 8 "	37 " 6 "	

Table showing the number of the Pregnancy.

Of 1st pregnancy, 24 patients.	Of 7th pregnancy, 9 patients.
" 2d " 18 "	" 8th " 5 "
" 3d " 17 "	" 9th " 5 "
" 4th " 21 "	" 10th " 9 "
" 5th " 18 "	" 11th " 8 "
" 6th " 16 "	" 12th " 3 "

13th pregnancy, 2 patients.
Several pregnancies, 17.

It is stated by several writers that ruptures during a first pregnancy or labour, are rare. The above table, however, exhibits even a larger number during a first labour, than during any other. The discrepancy may be accounted for by the fact, that the comparison is usually made in the mind, between the first labour, and all subsequent labours taken together, and not as it should be, between the first, and any other individual labour, as between the first and second, or the first and sixth.

VIII. *Symptoms of Rupture.*—The symptoms of rupture of the uterus are usually well marked, and the uneducated observer cannot but see that something serious has occurred to the unfortunate patient. When this accident takes place during parturition, it is generally during a pain of unusual severity. The patient is conscious that something has given way within her; she feels a tearing or rending sensation, and in some instances the noise accompanying the rupture has been heard by the bystanders. But, whether the patient be conscious of any peculiar sensation, or not, almost immediately afterward the stomach rejects its contents, the countenance assumes an expression of anxiety, and on examination *per vaginam*, the presenting part is found to have receded; the contents of the uterus are high up in the abdomen; perhaps the limits of the fœtus can be distinguished immediately beneath the parietes, and there is slight hemorrhage from the vagina.

Very soon, dark-coloured matter is ejected from the stomach, the pulse becomes rapid and feeble, the skin cool over the whole body, or over the limbs alone, and covered with perspiration; there is great distress in the abdomen, and great sensitiveness to pressure upon its surface. If there be large hemorrhage, the abdomen becomes tense and distended. If no relief be afforded, the unhappy patient dies within a few hours, of hemorrhage, or from the shock which the constitution has received, or lingers a few days to perish from inflammation; or, perhaps, as happened in a few rare cases, life is continued, and the fœtus is discharged piece-meal.

To the occurrence of each and all of the symptoms above described, there are numerous exceptions; and the practitioner should, therefore, be prepared to meet with cases of this accident in which the symptoms are far from distinctly marked. By a reference to our cases, we shall see that the

symptoms occur in every degree of intensity and in every variety of combination.

Thus, of those cases in which the character of the labour previous to rupture, is stated: in *twenty-nine*, the pains were *very severe;* in twenty-three, *strong;* in *twenty-eight*, *moderate;* in *ten*, *feeble;* and in *eleven*, the labour is characterized as *tedious*. From the variety of terms used by different individuals to describe the character of the labour, in the cases which they relate, it is somewhat difficult to classify them, but they have been arranged under the above heads as the most eligible.

In *twenty-seven cases*, the pains ceased *suddenly;* in *ten*, they are reported as having ceased *gradually*. In *seventeen*, the head receded; in several, it did not recede; and in several, it was impacted.

In Cases CVI., CXIX., CCXIV., CCXXVII., CCXXXIX., CCXCVII., CCXLIV., the noise of the rupture was heard by the bystanders, and in CCXXIV., it was so loud as to awaken the physician who was taking a nap in an adjoining room. In CXV., there were two loud cracks, as if the rafters had broken. In CCLVII., a sound was heard at the instant of the probable escape of the fœtus into the peritoneal cavity, as of something suddenly escaping from a confined place. In Case CXCI., she said the child had slipped into the belly. In Case CCXIV., complained of a "strange lump" in her side. In Case CCLI., she exclaimed that the child had gone back. In CCLXV., an apparent movement of the child attended the pain.

In Case XCIX., the patient felt as if something had slipped out of its place. In Case LXII., there was a sensation as of two children in the abdomen. In Cases XLII., LXVIII., CXXV., CXLI., CLXXXVIII., CCXI., CCXXI., CCXXVII., CCXXXI., CCXXXIV., CCLVII., CCXLIV., CCLXIV., CCXCIV., CCCI., CCCII., there was a sensation of something giving way within the abdomen. In Cases LXXXI., C., CXL., CXXIII., CCXLIV., CLVII., CCXIV., CCXVI., CCXVIII., CCXXIV., CCLXXIV., there was a sudden sensation, and, in part, an exclamation of pain in the abdomen, in some cases not severe, in others of great intensity. In CXXIV., it was as if a sword had passed through her; in XCIV., a sense of "stabbing." In Cases XCI., CXCV., CXCVII., CCXIX., the pains are described as cramp-like, or spasmodic. In Case CCLV., there were slight pain and faintness.

In Case CCVI., although rupture was suspected, there were none of the ordinary symptoms attending that accident; no pain or sinking, and no motion of the fœtus. In CCXXVIII., there had been no vomiting, sudden screaming, or other symptom of rupture, and ten hours after the occurrence, she was only a little restless, and respiration a little hurried; and yet there was a rent two-thirds across the uterus, and the patient died. In Cases CCLXXVIII., CCXCI., the first symptom of rupture was recession of the head. In Case CVI., the patient died without appreciable cause. In CCLVII., the only symptom during the many hours that elapsed before death, was a gradually increasing weakness, and occasional rigors; and here the rent admitted the hand. In CXCIX., there were no alarming symptoms, but she gradually sank. In Case CCLXXIV., perfect repose followed the accident.

In Cases LXXXIX., CLV., CLVI., CLXIX., CLXXI., CCXV., CCXXV., CCXXXII., CXXXV., CXLIV., the first indications of rupture were cessation of pain followed by collapse. In Case CCXCII., there oc-

curred a sudden tympanitic enlargement of the abdomen, the air seeming to be very near the surface.

IX. *Diagnosis.*—To avoid repetition, we refer to the description already given of the symptoms preceding, attending, and following the accident; both when it occurs at the full period, and before the full period of utero-gestation. The two circumstances which are *diagnostic* of the accident, are, first, a recession of the presenting part, which almost always happens when the rupture is at the fundus, or in the body; very often when it is at the cervix, and sometimes when it is confined to the vagina; and 2d, the ability to distinguish the limbs of the fœtus beneath the parietes of the abdomen, when they were not felt before. It is important to remember, however, that if the head is impacted, it cannot retreat, and, also, that in some persons, the walls of both abdomen and uterus are so thin, that the limbs of the fœtus can be clearly made out by an examination of the surface of the abdomen by touch, though no rupture has occurred.

X. *Prognosis.*—What the actual rate of mortality in this accident is, taking a large number of cases, it is impossible to say. As we have already remarked, our series does not exhibit this, inasmuch as it does not embrace *all* the cases which the individual observers have met with. Formerly, it was regarded as so necessarily fatal, that it was considered the most humane to let the patient alone; experience and enlightened observation, however, have taught, that much can be done by art for the patient's relief, and to increase the chance for life, as we shall more fully show, while, if left to nature, the chance of recovery is indeed almost nothing.

According to the experience of Smellie and Lever, slight lacerations of the os during labour are attended by comparatively little hazard, while several such cases, in our series, occurring in the practice of others, have proved fatal.

In making a prognosis, much consideration would naturally be given to the extent of the injury and the parts involved, the amount of hemorrhage, and the constitutional shock.

If the peritoneum remain entire, it is evident that the patient escapes, in a great measure, the risk of peritonitis, which so frequently is the immediate cause of death, when the patient has survived the immediate effects of the accident. If slight lacerations of the os are less hazardous than lesions of other parts of the organ, it is because the peritoneum has remained uninjured, and because the rent has not advanced sufficiently far into the cervix to lacerate the large vessels and endanger life from hemorrhage. The exact extent of the rupture has been given in only a few cases, and we have, therefore, no positive means of showing the influence of extent on the mortality; but if we are not mistaken, the distance to which the rupture extends has but little, if any, influence on the mortality in those instances in which the peritoneum is involved, inasmuch as a lesion of that membrane, of small extent, must necessarily be followed by peritonitis.

When the muscular coat only is involved, the patient is exposed to the risks of metritis.

Our cases collectively do not teach us that lacerations of the cervix itself, extending up into the body of the womb, or down into the vagina, enjoy any immunity over ruptures in any other part of the organ, and the greater part of the cases reported by Dr. Collins were of the cervix, and, of the whole, only two recovered. The amount of hemorrhage is difficult of estimation, inasmuch as the flow of blood being usually into the peritoneal cavity, it is rarely profuse from the vagina. Several of our cases show

that the patient may rally from the combined influence of hemorrhage and the constitutional shock.

If reaction come on, the patient is to run the risk of the irritation of the fœtus if she remain undelivered, and of the inflammation essential to the process of reparation, if the child be artificially removed. It is desirable that we should know the mortality of this accident, for an impression, even at this day, prevails with very many, that it is of very little use to do anything for the patient, inasmuch as she must almost necessarily die. We think the mortality much overrated. If individual experience be consulted, we shall find it to differ widely. Of the thirty-four cases reported by Dr. Collins, only two recovered; but we must remember that the thirty-two who died, were, at least, inmates of a pauper lying-in asylum—part of them worn down by disease, and, in all probability, few, if any, were in a condition to suffer any severe accident with much chance for recovery. These give the proportion of *one* recovery in *seventeen* cases. The cases of Drs. Channing and Bedford, occurring in consultation practice in large cities, were, for the mort part, of an entirely different character, and, with a few exceptions, among patients enjoying the comforts of life. Dr. Channing remarks, that the recoveries among his cases is about *ten per cent.*, or *one in ten.* Of the eleven cases of Dr. Bedford, there were three recoveries, or *a little over one in four.* We can obtain the true mortality of this accident, only by practitioners of large experience keeping an account of such cases through a series of years, and presenting the result to the profession. Could we be sure that the mortality among patients in comfortable circumstances were even as small, relatively, as one in four, fearful though that indeed be, the knowledge of it would certainly encourage and embolden the physician in his efforts to afford his patient the best chance of recovery.

The prognosis in any particular case must be a matter of great uncertainty, inasmuch as some have recovered from most extensive lacerations of all the coats of the uterus, while others have perished from very slight lesions of the peritoneal or muscular coat alone; and this, too, where there were no apparent differences of circumstances sufficient to affect the result of either. The amount of danger that may be incurred during inflammation, can, of course, never be anticipated.

Since a morbid condition of the womb is, in many cases, a predisposing cause of rupture, the question arises, can such lesions be detected previous to parturition, and are there any circumstances indicating its existence after labour has commenced? It is rare, we know, that disease of any important organ exists without affecting the general health, especially so in the case of one, connected as is the uterus, by intimate sympathies with the entire animal economy. Yet occasionally cases of extensive lesions of vital organs are revealed by autopsies, which were not suspected during life, or which were manifested by symptoms far disproportionate to the extent of the disease. This holds good in reference to the uterus, so far as the very imperfect results of our cases in this respect afford any information. The condition of the patient before labour, unfortunately, is stated but in very few cases.

Of those in which the uterus was found *softened*, Case CLXXXVII. was "stout." Case XVIII. had been a subject of *severe dysmenorrhœa;* and though the variety is not stated, we can conceive that a degree of congestion of the uterus might have existed, sufficient to produce an alteration of its structure—or, indeed, the rupture may not have been dependent at

all upon it. Case XXII. had had one child and three miscarriages. In the rest of the cases in which the uterus was found softened, no mention is made of previous health; hence the patients may have been healthy, or they may have been sickly.

Of cases in which the womb was found *thinned*, XXXIII., LVII., CXXIII., CCXCIV., were *healthy*. In Case CXXI., there was severe pain in the bottom of the belly, with a tendency to vomit for two weeks before delivery: Case CXXXI. was delicate: Case CLXXXVI. had four premature births, and the uterus was felt to be diseased in a previous labour: Case CCXXIII. had always suffered before and after labour: Case CCLIV. was sickly.

Of cases in which the uterus was *healthy*, we find the previous health in Cases XXVI., CXXII., CLI., CCII., CCXXI., was good, and probably in Case XXV., in which it happened after a long walk. On the contrary, in CCXIV., the patient is reported as "*delicate*."

Although, considering the extent of our series, these results are meagre, they are nevertheless valuable so far as they go, and show on a small scale what we would expect to find true on an extended examination, which is, that, although in some cases in which lesions of the uterus exist previous to labour, the general health is unimpaired, still, in a very large proportion of cases in which the uterus is found healthy, the patient enjoyed previous good health.

Of the remaining cases in which the previous state is described, in *twenty-three*, the patient was *healthy*, in *eight*, more or less *diseased*.

Nothing, therefore, in the previous history, would lead us to fear the occurrence of rupture, unless the following—when the patient has complained of distress in the abdomen, especially if there has been any unusual constitutional disturbance, or if any violent injury has been sustained during pregnancy, with persistent pains at the spot where it was inflicted, we may fear the existence of a morbid condition of the uterus which will predispose to rupture.

Does the course of the labour furnish any indications of the existence of disease? In the following, the uterus was thinned or softened. In Case CXXIII., the pains were lively, not violent. In Case CXXV., tolerably strong: in Case CXXVIII., labour strong; in Case CXXXI., labour of twenty-four hours, and ruptured in version; in Case CXLI., pains feeble till ergot was given; in Case CLXXXVII., pains very strong; in Case LVII., pains sharp, severe, and quick; in Case CCVI., labour regular; in Case CCXXIII., sudden seizure; in Case CCXXVIII., pains very slight; in Case CCLIV., strong pains; in Case CCLV., after a single sudden pain; in Case CCLVI., pains vigorous and ceased gradually; in Case CCLIX., regular pains for two hours; in Case CCLX., rupture toward the end of the first stage; in Case CCLXXIX., pains moderate.

These cases show us that, although in several instances in which the womb is diseased, the first efforts at the contraction of its muscular fibres produce rupture, yet in others, as CLXXXV., &c., though soft and easily torn, it sustains itself under violent contractions for many hours, contractions apparently as violent as would occur in a perfectly healthy uterus.

XI. *Treatment.*—Let us first inquire if our cases afford us any encouragement to leave patients, suffering from this accident, to the unaided resources of nature.

We have said that English practitioners long advocated the principle of

non-interference by art. Smellie appears to have looked upon the occurrence of rupture of the womb as necessarily fatal; and one of his former pupils, in detailing a case, very coolly remarks: "According to your prudent advice, I spoke nothing of the matter, but pronounced her a dead woman." *Op. cit.*, vol. iii. p. 386.

Dr. Denman, in his essay on Rupture of the Womb, p. 17, says, that if we take into account that the few instances of recovery are those in which no operation was performed, we are warranted in coming to the conclusion, that "*when the uterus is ruptured at the time of labour, both reason and experience show that the patient has a better chance of recovery by resigning the case to the natural efforts of the constitution, than by any operation or interposition of art.*"

Dr. Dewees, in an essay, published in the *Philada. Med. and Phys. Journ.*, vol. i. p. 77, warmly opposes this, by argument and the citation of cases of recovery, and challenges "the advocates of Dr. Denman's opinion to furnish a single instance of recovery from rupture of the uterus or vagina, at full time, when the fœtus had been permitted to remain undelivered; and we do this without fear of its being accepted." He considers that there is strong reason for calling in question the identity of cases purporting to be instances of recovery after the escape into the peritoneal cavity. He considers these to have been instances of extra-uterine fœtation. "In no one instance, in cases of this kind, that we have yet examined, have the same symptoms which mark rupture of the uterus, occurred," and he would expect to find traces of such rupture after death.

F. Ramsbotham, *Pract. Obs.*, p. 423, is of the opinion that almost all such cases were instances of extra-uterine conception.

Lee and Merriman, as we have seen, and others following them, not only regard such to have been veritable cases of uterine rupture, but they believe that abandonment to nature offers the woman the best chance when the fœtus has escaped into the abdomen, and the womb has contracted.

So convinced, however, is Dr. Dewees, of the impossibility of recovery after complete rupture and escape, that he labours very hard to show that in reputed cases of recovery, the muscular tissue alone of the womb must have been torn, the peritoneal remaining entire and forming a sac enveloping the fœtus. This view, however, is too exclusive, for in Case LXX. the child passed into the abdomen, and remained twenty-five years, and, on examination after death, the place of rupture was distinctly visible. This, with Case CCLXIX., in which, after five months, the place of rupture, which had been apparently very large, was nearly cicatrized, shows that patients may survive, after rupture of all the coats of the womb, and escape of the child.

In reference to the class of cases now referred to, we know not but they were, in part, instances of extra-uterine pregnancy. This much may be said, that their publication as cases of recovery from rupture of the womb, may be regarded, to a certain degree, as *prima facie* evidence of their being so, because we must presume that their authors, some of whom we know to have been responsible men, had reasons, to them satisfactory, for styling them such, rather than instances of extra-uterine fœtation.

In this investigation, we are willing to assume that all the cases on record, purporting to be instances of recovery after rupture and escape, are genuine; and we have, accordingly, included them as such in our series, thus granting the advocates of non-interference all they can claim. It is enough for us to show that granting them every such case, a far larger pro-

portion die when thus abandoned, than when delivered by art, and that, therefore, our duty requires active interference.

Our series of cases shows that the principle upon which the profession now almost universally act, of accomplishing delivery after rupture, is a correct one. Of 154 delivered by artificial means, 97 *died*, 57 *survived*.

Of 89 abandoned undelivered, 65 *died*, and 24 *survived*.

Of 31 delivered by natural efforts, 20 died and 11 survived, and these include, in both instances, cases of rupture of the os, in which the peritoneum was not involved.

Of 6 in whom artificial delivery was tried and failed, all died undelivered.

A comparison of those delivered by art and of those abandoned undelivered, yields 37 of the former, as saved, to 27 of the latter, in the hundred, showing that the chances in the former case are considerably better than in the latter. This, however, is to be regarded as mere approximation to the truth, for reasons to be more fully stated. It does not give the actual success of either course of procedure, but still enables us to form some idea of the relative success of the two. It should be remembered that in many instances, delivery was delayed until the patient was *in articulo mortis*, and in several others the injudicious attempts employed, could not but have hastened this fatal termination.

Among the class of cases abandoned, we include those in whom life was subsequently saved by an incision in the abdomen, and removal of the putrid fœtus.

But even were not the success of artificial delivery greater than that of non-interference, the fact that those delivered *survive* the accident longer than those who die undelivered, shows that it is the part of humanity to give our patient the chance of even the few additional hours of existence which delivery affords.

Of those who were delivered and died, there survived

1	hour or less	3	18	hours or less	2	5	days	3
2	hours "	4	20	"	2	6	"	3
3	"	1	23	"	2	7	"	1
4	"	2	24	"	5	8	"	2
5	"	1	29	"	1	10	"	1
7	"	1	30	"	1	11	"	2
10	"	4	36	"	5	25	"	1
12	"	1	40	"	2	26	"	1
14	"	2	42	"	1	28	"	1
15	"	1	2	days	8	8	weeks	1
16	"	1	3	"	8			
17	"	3	4	"	5			

Of those who died undelivered, there survived

1	hour or less	4	14	hours or less	1	5	days	1
2	hours "	4	18	"	1	9	"	1
3	"	1	20	"	1	2	months	1
4	"	1	36	"	1	5	"	1
6	"	2	42	"	1			
9	"	1	2½	"	1			

If we take the average of both classes under *forty-eight hours*, the number of cases beyond this, of those dying undelivered, being too small for any correct comparison with the corresponding who were delivered, we find that the average continuance of life after rupture, with those *delivered*, is *twenty-two hours*, while that of those *undelivered* is only *nine hours*.

Rupture during pregnancy, as has been said, must be treated upon the same general principles as when it occurs during parturition. From our cases it will be seen that it would be unnecessary to discuss the treatment of the two classes separately, for we find symptoms of labour coming on during the latter months of pregnancy, and even as early as the fifth, accompanied by rupture of the uterus, and the same mode of treatment resorted to, that is turning, perforation, gastrotomy, &c., as at the full time. There can be but little, if any difference, in the consequences to the patient between rupture and escape into the abdomen, at the fifth, sixth, seventh, or eighth, and at the expiration of the ninth month. In both instances, the peritoneal coat is torn, and a foreign body forced into the peritoneal cavity. We know not, so far as regards practical inferences, where the necessity is of making any distinction based upon the degree of advancement of pregnancy. It is only in the early months that the degree of development of the fœtus can make any difference; but these cases are excessively rare, and from the result of the few occurring in our series, it would seem that they form no exception to the great fatality of the accident at the full period of gestation. The treatment of cases of rupture during pregnancy, and during parturition, will be considered together, the results under each individual class being occasionally given, when of any particular interest.

First let us consider cases of rupture and of escape into the abdomen of the whole fœtus, or of the *head*, with the whole or part of the body. The treatment, when the *body* escapes, and the head remains in the uterus, will be considered under another head. In many of these cases, we cannot tell whether the edges of the laceration were contracted, so as to exclude free access to the peritoneal cavity or not: but if it appears that section of the abdominal parietes was more successful in *all* the cases of escape of the fœtus, of course it must be the most successful practice in the cases in which access to the peritoneal cavity is cut off by the contractions of the womb.

Escape of the Head with the whole or part of the Fœtus.

1. During Pregnancy.—*Saved.*—Delivered by

Gastrotomy.—Case I.

Undelivered.—Cases II., IV., V., VI., X. Case III. delivered of one, and one allowed to remain.

Lost.—Abandoned.—Cases XIII., XV., XVI., XVII., XVIII., XIX., XXI., XXII., XXIII., XXIV., XXV., XXVII., XXVIII., XXX., XXXIV., XXXVII.

2. During Parturition.—*Saved.*—Delivered by

Gastrotomy.—Cases XLIX., XLIX. (*a*), L., LXI., LXII., LXXIX., LXXXI., LXXXII., LXXXIII., LXXXIV., LXXXV., XCIV.

Undelivered.—Cases LII., LXIV., LXX., LXXI. (*a*), LXXII., LXXIII., LXXIV., LXXV., LXXVI., CXI., CXVII., CCLXV.

Turning.—Cases LXVII., LXVIII., LXXX., XCVII., CII., CCLXXXIV., CCXCI.

Turning and Crotchet.—Case LV., LXIII.

Lost.—Delivered by

Gastrotomy.—Cases CXXXIX., CCXXI., CCXXXV., CCCII.

Undelivered.—Cases XXV., XXXVII., CXXX., CXXXVII., CLXVII., CLXVIII., CLXIX., CLXX., CLXXXIII., CXCI., CCIV.,

CCXI., CCXVII., CCXXX., CCLVI., CCLVII., CCLX., CCXLIII., CCLXVIII., CCLXIX., CCLXXI., CCLXXIII., CCXCIX.

Version.—Cases XXXV., CXL., CXLVII., CLXXVI., CCIX., CCXXV., CCXXXVIII., CCLI., CCLV., CCLXIV., CCLXXVIII., CCLXXIX., CCLXXXII., CCLXXXIII.

Perforation.—Case CLXXXVIII. "*Blunt Hook.*"—Case CXLI. *Artificial dilatation and version.*—Cases CCIII., CCXXIII. *Unsuccessful attempts at delivery.*—Cases CCVI., CCVIII. *Spontaneous evolution and descent of the hips.*—Case CCXLIX.

Total.—1. *During Pregnancy.*

Gastrotomy.—Saved 1—lost 0.

Abandoned.—Saved 6—lost 16.

2. *During Parturition.*

Gastrotomy.—Saved 12—lost 4.

Abandoned.—Saved 12—lost 23.

Turning, &c.—Saved 9—lost 21.

Next let us consider the cases in which there was diminution of the diameters of the pelvis from distortion, or contraction, exostosis, &c. We embrace all cases of diminution, for if it exist to a sufficient degree to be perceptible on an examination, unless we are certain that the head is proportionately small, we never know how much difficulty we may encounter in delivery. Here we reject all cases occurring before the full time, since even a contracted pelvis may afford ample room for an immature fœtus.

Contracted Pelvis.

Saved.—Delivered by

Gastrotomy.—Cases LVIII., LXXXVIII., XCIV., CIII., CX., *after version.*

Version.—Cases XLII., XCII., CII., CCC.

Version and Perforation.—Cases LVI., XCIX.

Perforation.—Cases XCI., XCIII., XCIV.

Version—head assisted by the lever after failure of forceps.—Case XLI.

Version—head assisted by forceps.—Case LXXXIX.

Version—head assisted by crotchet.—Case LXIII.

Version—head assisted by lever.—Case XC.

Forceps.—Case XLVI.

Lost.—Delivered by

Gastrotomy.—Cases CLI., CCXXI., CCLII.

Undelivered.—Cases CXXXVII., CXXXVIII., CXLVI., CCXVII., CCLXIII., CCXCIV. *Forceps applied and removed.*—Cases CXIX. and CCXXVIII. *Apparently undelivered.*—Cases CCXXXIV., CCLXXII., *version and delivery of all but the head.*—Case CCLXXII.

Version.—Cases CXXXVI., CCXIX. *Cases* CCXVIII., CCXLVIII., *after attempted perforation.*

Version and Perforation.—Cases CXVIII., CLXIX., CXCVII., CCXXVII., CCVII., *head aided by forceps before perforation.*

Perforation.—Cases CXXV., CXXVI., CXXVIII., CL., CLIII., CLXV., CLXVI., CLXXXIX., CLXXII., CLXXVII., CXCII., CC., CCXVI., CCXXVI., CCXXXI. Case CLXXV., *chest opened.*

Forceps followed by Perforation.—Cases CXXIV., CCXV. Case CXCIV., disproportion. In Case CCXXV., probably contraction, delivered by *version*, assisted by the *blunt-hook.*

"*Blunt hook.*"—Case CXLI.

Total.—Gastrotomy.—Saved 5—lost 3.
Undelivered.—Saved 0—lost 11.
Perforation.—Saved 3—lost 16.
Other methods.—Saved 11—lost 14.
Total of both cases.
Gastrotomy.—Saved 18—lost 7.
Undelivered.—Saved 18—lost 50.
Other modes of delivery.—Saved 23—lost 51.

Several of the cases of *gastrotomy* we have found merely alluded to, in the works which we have quoted as our authority, and we have not been able to consult all the original accounts. It was, therefore, impossible to determine whether they were performed for escape into the abdomen, or because of contraction of the pelvis; in two or three of the instances in which the pelvis was contracted, the fœtus had also escaped. Inasmuch, however, as authors have in general recommended a resort to this operation, only when a delivery *per vias naturales* should be impossible, it is most probable that they were performed chiefly, if not entirely, for escape into the abdomen with firm contraction of the edges of the uterus, or else in cases of so great a degree of contraction of the pelvis as to demand Cæsarean section. But whether performed for one or the other, is of no consequence. This will appear from the fact that gastrotomy depends for its success in no respect upon the capacity of the pelvis to allow a child to pass, or whether the rent of the uterus is permanently closed, or will still admit the hand.

Cases of gastrotomy in which the pelvis was contracted, have, however, been placed with the rest of that class, whether the operation was performed in consequence of the contraction or otherwise, in order to compare the results of different modes of delivery.

We wish to be distinctly understood, that we do not consider that our statistics afford us the actual *proportion* of recoveries and deaths, after the respective modes of treatment. Few are ambitious to publish unsuccessful cases, and hence the reason of so large a proportion of successful terminations that our series exhibits. But we see no reason why such apparent success should follow gastrotomy, were not its results in reality, in the main, more satisfactory than that of the other modes of delivery. Gastrotomy is an operation that comparatively few of general practitioners have the nerve to undertake, amid the exciting scenes by which one is surrounded, on the occurrence of rupture of the womb. A degree of *éclat* attaches to its performance, even if it be unsuccessful—far more than to the application of the forceps, to perforation, or to version. There can be no causes tending to *suppress* the publication of unsuccessful cases of gastrotomy, which do not apply, in an equal and even greater degree, to the other modes specified.

We might even claim for these results a degree of the value attached to statistics of Cæsarean section, which were obtained from similar sources, that is, published cases. They will not command an equal degree of confidence with those of Churchill upon hysterotomy, because less numerous than the reported cases of that operation. It is well known, however, that there are numerous cases of hysterotomy that have never been published; the errors to which ours are liable are common to all such investigations.

But it is not with the view of ascertaining the actual success of the different modes of treatment that these cases have been collected. Our ob-

ject is not to ascertain the absolute mortality of rupture succeeded by gastrotomy, or of rupture succeeded by perforation or by version, or of rupture abandoned to the powers of nature. If our cases should show two recoveries after perforation, and twenty deaths, we do not infer that two out of twenty delivered in this way will be saved, nor do we suppose that of every twenty-four cases delivered by gastrotomy, seventeen will generally recover, but we do attach great value to the fact, that they exhibit a *greater degree of success* after gastrotomy than after any other operation; and we insist that, however much the degree of success of both it and the other modes may be modified in actual practice, their *relative* success, for the reasons that we have given, will continue about the same.

If the success of gastrotomy, then, be so much greater than that of other modes of delivery, it must be in consequence of its more fully meeting the indications that such cases present, than either of the other modes.

Many of our cases of *artificial delivery* do not state, with precision, the time occupied during delivery, and, in many, there is a neglect to state whether it was accomplished with ease to the patient or not. The varying expressions employed to state these and other facts, render it difficult to classify them. Taking all those delivered by art, we have grouped together those in which the delivery appears to have been achieved with ease, or, at any rate, without any marked difficulty, and those in another class, in which there appears to have been different degree of difficulty. Under the term difficulty, we include length of time occupied, and hinderances afforded by disproportions between the fœtus and the passages, from the numerous causes which may produce them.

I. *Recoveries after Artificial Delivery.*

Delivery accomplished with ease.—Cases I., VIII., XLII., XLIV., XLV., XLVII., XLIX., L., LI., LIII., LVIII., LXI., LXII., LXVIII., LXIX., LXXIX., LXXX., LXXXI., LXXXII., LXXVIII., LXXXIV., LXXXV., LXXXVIII., LXXXIX., XCIV., XCVIII., C., CIII., CVI., CXVI., CCLXV., CCLXXXIV., CCXCI., CCC.

Delivery accomplished with more or less difficulty.—Cases XLI., XLIII., XLVI., XLVII., LV., LVI., LVII., LX., LXVIII., XC., XCI., XCIII., CI., CX., CXII.

II. *Deaths after Artificial Delivery.*

Delivery accomplished with ease.—Cases CXCV., CCV., CCXXI., CCXXVII., CXXIII., in CXXVII., CXXVIII., XXIX., (apparently no difficulty,) CXLIII., CLI., CLXVII., CCXXXV., CCXXXVII., CCXXXVIII., CCLII., CCLXXIX., CCLXXX., CCXXXIII., CCXCVII., CCC., CCCI.

Delivery accomplished with more or less difficulty.—Cases CXVIII., CXXII., CXXIV., CXXV., CXXXVI., CLIII., CLVI., CLXV., CLXIX., CLXXXVII., CLXXXVIII., CLXXXIX., CCLI., CLXXIV., CLXXV., CLXXIX., CXCIV., CXCVII., CC., CCIII., CCVII., CCXII., CCXIII., CCXIV., CCXV., CCXVIII., CCXIX., CCXXIII., CCXXIV., CCXXV., CCXXVI., CCXLII., CCXLIX., CCLI., CCXCIII.

Of those *recovering*, then, after artificial delivery, we have *thirty-four* cases in which delivery was accomplished with *ease*, and *fifteen* in which it was effected with more or less *difficulty*.

Of the cases that *died* after artificial delivery, in *twenty-one* cases delivery was easy, in *thirty-five* it was *difficult*.

This statement exhibits, most conclusively, the influence of a speedy and easy delivery on the patient's chance of recovery, by showing the

great preponderance of easy deliveries in the cases of those who survive, and of difficult deliveries in those who sink. They show, we think, in the clearest manner, that a delivery accomplished in a short time, and with little comparative shock, places the patient in the most favourable condition for recovery. We have included cases of gastrotomy under the class of easy deliveries, desiring it to be borne in mind that by *easy* we have reference to time occupied, as well as facility of execution; just as *difficult* designates the opposite. In all the cases of gastrotomy in which any allusion is made to the subject, delivery was accomplished very rapidly, and with little suffering.

The dangers to which a woman is exposed from rupture, are, 1st, the direct shock of the accident; 2d, hemorrhage; 3d, undue action of the reparative processes. The risk attending the two first must be materially affected by the mode of delivery. That patient will stand the best chance of recovery, other things being equal, who is delivered most promptly, in the shortest time, with the least degree of suffering, and the least additional injury to the structures concerned.

These indications gastrotomy unquestionably fulfills, where the fœtus cannot be readily withdrawn from the abdomen through the rent, and where there is such a disproportion between the head and the fœtus, as seriously to embarrass delivery, and hence, undoubtedly, its superior success to that of other operations.

In determining upon an operation in any given case, regard must be had to its capabilities for meeting these absolutely essential indications. It is evident that no one mode can be applicable to all cases. Let us, therefore, inquire into the particular conditions for which the different modes of delivery appear to be intended.

It is not to be expected that cases reported in the imperfect manner of many of our series, will furnish sufficiently numerous instances of *every* variety of condition met with in delivery, to exemplify the comparative value of different modes under each. In many, the conditions for which the various operations were undertaken, are not stated. Of two of these conditions we have exhibited statistics; in the others we must be guided by the general rule above stated, which should in all cases control the choice of any mode.

THE HEAD WITHIN REACH, THE PELVIS BEING AMPLE, OR PRESUMED SO.

1. *Saved.*—Delivered by

Perforation.—Case XLV.

Perforation, after failure with forceps.—Case LX.

Version.—Cases LIV., CXII.

Os incised, version and perforation.—Case LVII.

Forceps.—Cases LIII., LXIX., XCVIII., CXVI., CCXCVI.

Lever.—Case CVI.

Lost.

Undelivered.—Cases CXX., CXXI., CXCIII., CCI., CCII., CCXXVIII., CCXXXIX., CCXLV., CCLIII., CCLIX.

Undelivered, after attempts with forceps.—Cases CXLII., CCXXIV., CCLXVII.

Version.—Cases CXLIII., CXCV., CCXIII., CCXXXVI., CCXXXVII., CCXCVII.

Perforation.—Cases CXXIII., CLIII., CLV., CLX., CLXI., CLXIII., CLXVII., CLXXI., CLXXIII., CLXXIX., CLXXXII., CCLVIII., CCXCIII.

Perforation after forceps.—Cases CXXII., CLVI., CLXXXVII.
Version after forceps.—Case CLXXIV.
Turning after forceps.—Cases CCXII., CCXXVI.
Forceps.—Cases CLXXXIV., CCXLIV., CCLXXX., CCCI.

1. *When rupture occurs in a patient having a well-formed pelvis, of ample dimensions*, especially if this has been proved by easy previous labours, and the head is judged to be of natural size, the treatment must depend upon the situation of the fœtus. Should it have descended into the pelvic cavity, and be *still found remaining there, if the child* be living, as ascertained by auscultation, it would appear unquestionable that delivery by the forceps should be attempted. Authors have objected to the employment of the forceps, on the ground that attempts to apply that instrument would cause the head to retreat; but by compressing the abdomen, the head can, in many cases, at least, be retained in its place, and our cases furnish instances of successful delivery with this instrument. The life of the child may continue for some time after the accident, provided that the placenta still retains its connections with the womb, though, in general, death of the child follows very early. It is in these cases alone, as we conceive, that the forceps is applicable.

In case the fœtus be known to be dead, the delivery may be much facilitated by lessening the size of the head by evacuating its contents, and in such a condition of things delivery would, without doubt, be effected by this more speedily, and with less suffering to the patient.

2. *Should the fœtus have escaped into the abdomen, the pelvis being ample*, the course to be pursued will depend much upon the condition of the opening through which it escaped.

At this point we remark that lacerations of the upper part of the vagina have been included with those of the uterus, because they are quite generally acknowledged to be of equal fatality, and because that the peritoneal cavity is very frequently laid open. When a lesion of the peritoneum occurs, and the contents of the womb escape into its cavity, the danger is very materially enhanced. We have seen that in a large number of cases the rupture is confined to the cervix, or else runs up into the body of the uterus, or downwards into the vagina, or extends both into the body of the organ and into the vagina. Whenever it is confined to the upper part of the vagina, the fœtus may escape, in whole or in part, into the cavity of the peritoneum.

Separation of the os, as in Cases CVII., CVIII., CIX., and mere lacerations not involving the peritoneal cavity, seem to be far less serious in their nature. But though ruptures of the uterus and vagina are so similar in their symptoms and results, one circumstance will demand for each a different treatment. This is the fact that the uterine walls being muscular, contract, and consequently close more or less completely the orifice through which the fœtus has escaped. This contraction takes place probably sooner in some cases than in others, and it is evident that upon it depends the continuance of life, which would otherwise soon fail from hemorrhage. However this may be, so soon as it has taken place, the edges of the laceration are drawn together, and a certain amount of force is to be applied to overcome this contraction. The degree of contraction is not equally great in all cases, but in some considerable force is required to overcome it, and the womb embraces the operator's arm so closely, as to seriously embarrass his movements.

This contracted state of the opening cannot be overcome but by a certain

degree of violence, the consequence of which must be a risk of increasing the hemorrhage, so as to endanger life, and causing great suffering. To this general condition of contraction after rupture, our cases present but a single exception, in Case CCLXXXIII.

In lacerations of the vagina, the edges of the rent do not thus approximate from contractions of the muscular tissue like that of the womb; the orifice remains patulous. When the rent, therefore, involves the vagina and the cervix, the degree of facility by which the hand may be passed through it, will depend on the relative degree to which the respective parts are implicated—the uterine portion will be more or less closed, while the vaginal is uncontracted. Provided, then, that rupture has taken place in the vagina alone, or has implicated the vagina so far, that notwithstanding the contraction of the portion extending into the cervix, there is still ample room to withdraw the fœtus without forcible dilatation, and in such a case as that of Case CCLXXXVIII., in which the uterus did not contract, with an ample pelvis, delivery would undoubtedly be accomplished more speedily, and with less damage to the maternal structures, by *version* than by any other means. In cases in which the rupture is confined to the uterus, and the edges have contracted, or when, as in Case CII., the os is contracted, it would appear that a different course is indicated, which we will presently consider. This, then, is the *only condition* under which version is to be considered allowable after rupture—*a pelvis, beyond all doubt, ample, a head of moderate dimensions, and the uterus uncontracted, or the rent confined to the vagina.*

We have already mentioned one condition in which *perforation* would best fulfil the indications which an operation should meet—it is where the head is low in the pelvis and the child dead, the pelvis being ample.

3. *Should the head become impacted in the cavity of the pelvis*, or *at the inferior strait*, in consequence of an approximation of the tubera ischii, or an unnatural condition of the coccyx, diminishing the size of the head would undoubtedly, in most cases, permit a speedy and easy delivery, because the body being already considerably advanced, after reduction of the size of the head, the trunk would follow without difficulty. To these cases *perforation* would appear to be particularly applicable.

4. *When contraction exists at the superior strait*, we know not the amount of difficulty that may be experienced in delivery *per vias naturales*. Even with the assistance of uterine pains, and with even a moderate degree of contraction of the brim, we often find difficulty, when no rupture exists, in delivering the fœtus. When, however, uterine contractions have ceased, the difficulty, as all must have found, is materially enhanced. Uterine contractions appear to direct the shoulders and body of the fœtus into the diameters most favourable to delivery; but when these are absent, the bis-acromial diameter of the shoulders may as readily engage the short diameters of the pelvis as any others. In such a case, great embarrassment has been known to arise from the arrest of the shoulders; this is, under such circumstances, exceedingly difficult, if not impossible of reduction until after decapitation. This happened once in a case in which we were concerned.

When the uterus is in action, we know that delivery by the perforator and crotchet is often exceedingly tedious and protracted. Every one acquainted with operative midwifery knows, that not unfrequently one or even two hours, and sometimes three or four hours are employed in perforating the head, in removing, it may be, portions of the cranial bones, and

in drawing the mutilated body by force through the contracted passage. Is it not evident that by thus subjecting the unfortunate patient to a prolonged operation, she is exposed to numerous hazards? The pain produced by the necessary manipulations, the fatigue and even exhaustion, can be but poorly borne by one who has already suffered from a terrible injury. If, then, previous to perforation behind the ear, and the removal of the contents of the cranium, the patient has been subjected to the operation of version, in which the hand has been passed into the abdomen, and after groping about among the intestines, at length has succeeded in grasping a lower extremity, by which the fœtus has been dragged through the rent into the pelvis, we may easily see that the chances of a successful termination must be very materially diminished. It is well known that perforation of the skull behind the ear, especially when the head is at the brim of the pelvis, is an operation of very considerable difficulty; and yet the most of our authors recommend version in cases of rupture, and escape of the fœtus, and perforations behind the ear, even though contraction of the pelvis exists.

5. Two questions then arise—first, have we any operation which, in case of escape through a rupture of the uterus, followed, as it must in almost every case be, by a contraction of the edges, will expose the patient to less risk than the forcible dilatation of the rent, and the delivery through the natural passages after version?

And, secondly, have we, when a contraction of the brim of the pelvis exists from deformity or from morbid growths, which would render delivery tedious and difficult, any mode of delivery which shall not only be speedy, but which shall in the main give a better chance of success than embryotomy?

In the first instance, authors have cautioned us against any forcible dilatation of the orifices by which the fœtus escaped, on account of the great hazard, and the great difficulty, if not impossibility, of succeeding. The same is true when rupture has taken place, when the os is only partially dilated, and is undilatable, or when it has contracted after the rupture. Two courses have been proposed in the first condition—one to abandon the patient to nature, if perchance the fœtus may become enveloped in false membranes, after the manner of an extra-uterine fœtation; the other is gastrotomy.

We have shown, we think, conclusively, that non-interference affords a patient a far inferior chance to any other course that can possibly be proposed. We cannot believe that any one can read the histories of the several cases detailed, in which the patient was abandoned, and compare the success with that following artificial delivery, without being convinced of the superiority of the latter course. It would appear that non-interference could never have received the preference from the high authorities whose opinions we have quoted, had as great a degree of attention been given to this subject, as to many others of which they treat. Giving the advocates of non-interference all they can claim, their success is anything but flattering. We shall find also, by referring to the histories of most of those who eventually recovered, that their existence was for months, and in some cases for life, one of suffering; and that with a fistulous opening through the abdominal parietes, or between the peritoneal cavity and the vagina or rectum, with the constant passage of the offensive detritus of the putrefied fœtus, existence must have been anything but desirable. There is nothing to induce us to follow this course. Reason and experience are

against it. *Gastrotomy*, then, is the only course which we shall be justified in adopting.

The second condition is one that has not so generally engaged the attention of obstetric authors. After observations made it clear that delivery, in all cases, gave a better chance of recovery than non-interference, it would seem to have been taken for granted, that delivery should be attempted *per vias naturales*, were the woman in a condition to endure any operation, no matter what difficulties might be in the way. It would appear from reading the histories of several, that, inasmuch as these are desperate cases, any amount of force and violence was to be considered justifiable, provided it tended to the end—delivery. Thus we read of repeated attempts at application of forceps during a whole afternoon, by which the head was crushed in—of attempted deliveries by the vectis, and forceps and turning, one being tried after the other failed; of attempts to drag by forceps a fœtus through a pelvis too small to allow a standard fœtal head to pass, &c. &c. Such cases are valuable in truth, as showing what amount of violence the system can suffer, and yet the patient recover; but surely they can be no examples for general practice; our object not being to ascertain how much violence a woman can bear in delivery, and yet recover, but to ascertain in what way she may be delivered with the least real suffering, and with the greatest chance of success.

If, now, in place of tedious delivery after embryotomy, we promptly remove the fœtus by a section of the abdominal parietes, is not the probability of recovery increased?

A prejudice has probably prevailed against the practice of gastrotomy, in consequence of the high mortality of the Cæsarean section compared with that of other operations in surgery, which renders it the last resource in the cases in which it was employed. The laying open the peritoneal cavity, and dividing the parietes of the womb and withdrawing the fœtus, as a *primary* operation, is one of great hazard, but we must bear in mind that when rupture has taken place with complete or partial protrusion of the fœtus, precisely this condition has already been brought about by the accident itself. The peritoneum has been torn, the walls of the uterus divided, and the patient is in the most imminent peril. Considering the magnitude of the accident, and the imminent danger which already hangs above the patient, a simple incision of the abdominal parietes loses much of its relative serious importance. It is evident, that, could she be delivered without suffering, or the risk of the infliction of any injury, her chance of recovery would be far greater than it can be by any means actually in our power; and knowing that if the pelvis be contracted, the suffering, exhaustion and delay must be considerable, if we attempt delivery by the natural passages, do we not place her in a better condition for recovery, by the abdominal section? To our minds this cannot be a matter of doubt.

When we consider that a section of the abdominal walls can be made in a few seconds, and the fœtus removed with its secundines, and the effused fluids in a very short time, can there be a doubt that the shock to the system is less than that produced by an exhausting delivery by any other means? Complete contraction of the uterus may be thus secured, with perfect security against the strangulation of the smallest knuckle of intestine in the rent, entire suppression of hemorrhage, and the abdomen freed from coagula and fluids, which might, by their presence or decomposition, induce irritation. In every instance in which the condition of the patient immediately after gastrotomy is recorded, she has expressed herself greatly relieved by

the operation, and in more than one instance, stated that her sufferings were less than in previous deliveries. From familiarity with the pains attending artificial delivery, as well as with those of labour in general, the practitioner becomes insensibly disposed to underrate the actual suffering endured by the patient; but it may well be questioned, if the suffering produced by an incision through the abdominal parietes, will compare with that produced by the operation of *version*. Gastrotomy at once gives nature the best opportunity to rally, and set about the reparative process; by protracted delivery after perforation, or version followed by perforation, suffering is greatly prolonged, and the last remaining strength is, alas! too often wasted in endeavours to endure it. But the incision of the abdomen furnishes another lesion for nature to heal; version performed under the circumstances in which we have above considered it to be indicated, inflicts *only* pain, hence its peculiar adaptation to cases in which the pelvis is ample, the edges of the laceration and the os uteri uncontracted, and the fœtus in the peritoneal cavity. In the case of a contracted pelvis, the choice is between two means—both productive of injury, but the one to a less degree than the other. Our cases furnish instances of obstruction to delivery from exostoses, fibrous tumours, bands in the vagina, and undilated os uteri. The success of the attempts made to dilate the os, and to divide resisting bands, is by no means such as to invite a repetition. In short, *as a general rule, from whatever cause we might be led to anticipate a protracted and difficult delivery by the natural passages, gastrotomy will afford the best chance of recovery.* The only exception is that of impaction of the head in the cavity, or at the inferior strait, where perforation is clearly indicated.

6. Other conditions than those we have considered, may exist, and embarrass us. For example, there may be but *a partial expulsion of the child* into the cavity of the abdomen, the head either remaining in the womb, and the body being without it, or the head in the peritoneal cavity, and the body in the uterus, the edges of the laceration in either case being contracted about the neck, *the pelvis being ample.* Our cases furnish no light on the course to be preferred here. By any mode, the womb is to be subjected to additional injury in delivery, from forcible dilatation of the rent. The diameter of the head being considerably greater than that of the shoulders; if the head were in the abdomen, and the trunk in the womb, the probable injury to the *womb* would be greater, from traction upon the trunk, than were the abdomen laid open, and the shoulders and trunk brought through the rent; but here would be the additional risk of the incision.

In a *contracted* pelvis, the practice, we consider, should be the same, whether the fœtus were wholly or partially in the womb.

7. *Disproportion* may exist between the pelvis and the head, from the size and degree of ossification of the latter, or from a hydrocephalus, and at the same time the pelvis be of standard dimensions. Where perforation can diminish the size of the head, so that it shall no longer be disproportionate to the pelvis, the case is reduced, in all respects, to that of rupture occurring, with an ample pelvis, and should be treated upon the same principles.

Upon the intelligent judgment of the practitioner, depends, in an important degree, the prospect of the unfortunate patient's recovery. As we have remarked, it is the habit of many men of extensive experience, to regard it as a matter of little, if any importance, what is done, indeed, whether anything at all be done, for the delivery of the patient. "Why,"

said one not long since, "inquire about the different modes of delivery, when they die under any mode of treatment?" Do not the histories of our cases show that the woman has a chance, and a chance which should be seized upon with the tenacity of desperation, and not lost from irresolution, or wantonly thrown away? We have proved that the ease and rapidity of delivery materially affect the result; this shows that there rests upon the practitioner a weighty responsibility of determining the most proper mode of delivery, as well as the duty of faithfully and energetically carrying out the proposed means of relief. When we read of the long-continued violence to which the patients in some of our cases were subjected, can we doubt that the selection of means more applicable to the case, might have made the difference of life and death? The mode of delivery, then, is deserving of careful consideration.

We have already remarked that we have not the means of ascertaining the mortality of this accident on a large scale; undoubtedly, there are not unfrequently instances of recovery from it, when the accident was unsuspected. Burns reports a case in which there were many of the symptoms of rupture, followed by recovery. On the other hand, many doubtless die, in whom it was unsuspected. Whatever the actual mortality be, we have great encouragement to persevere in the employment of a course calculated to promote recovery. Hamilton, in his *Practical Observations*, states the interesting fact, that, in the only instance of recovery that he met with, the symptoms seemed more adverse than in any one of the fatal cases, with the exception of those where the patients were moribund when his assistance was procured; and our cases present many instances of recovery, where the chances must be regarded as having been very small. Such cases are sufficient to satisfy one of the immense restorative capabilities which the system sometimes possesses. Baudelocque cites an instance in which the womb was torn open by the horn of a bull, and the woman recovered. The *Lond. Med. Gaz.*, Oct. 1846, presents the account of a similar recovery from rupture of the womb by a bullock's horn. In the April number of this Journal, for 1847, is quoted a case of recovery after perforation of the abdomen and uterus by a pitch-fork. These, and numerous other cases which we could cite, are sufficient to encourage us not to abandon our patient, howsoever great the extremity may be. They teach us the propriety of attempting delivery in every case, when the patient is not actually in *articulo mortis*. If she be actually dying, humanity would dictate that she should be left to breathe her last undisturbed, even though the reputation of the practitioner should suffer from her dying undelivered; for this would appear to form a proper exception to what is usually regarded a "golden rule" in midwifery. We shall ordinarily, however, be obliged to attempt delivery, where only partial reaction has taken place. No one would recommend the removal of the fœtus when the woman is in a state of actual collapse, but the state of depression is in a great degree kept up by the presence of the fœtus, and of the effused fluids in the cavity of the abdomen, and will probably continue until they are removed. The promptness with which reaction takes place, is seen in a remarkable and an especial manner, in cases delivered by gastrotomy. By this operation, the great source of depression of the vital powers is at once removed, whereas by the ordinary modes of delivery, not only is an additional shock inflicted, but the opportunity which the system requires for rallying, is long delayed; and herein consists the great advantage of this operation over any other,

when any circumstances would render delivery by the natural passages difficult.

We heartily concur with the opinion expressed by Dr. Meigs in the remarks appended to Case CCXCIII., that, when promptly performed, gastrotomy offers a chance not greatly inferior to that of the Cæsarean section. One circumstance, however, will tend to diminish the chances of a favourable result, even though gastrotomy were performed at the instant of rupture, and that is the frequency of a diseased condition of the uterus in general, or of its walls, at the place of rupture.

8. *A question arises, within how long a time after rupture is it proper to attempt artificial delivery?*—The longest period that elapsed, which our cases furnish, was eight days, in the woman delivered by Mad. Lachapelle, as quoted by Jacquemier. Although in this instance the woman recovered, it can scarcely be considered as a course to be generally recommended. When patients have recovered with the fœtus in the abdomen, it has been either from the escape of the fragments after putrefaction, or from the formation of false membranes about it. Should the formation of false membranes have taken place by the organization of the lymph thrown out, a destruction of the newly-formed membranes, by the violent removal of the fœtus, might easily result in serious consequences. But if, on the other hand, putrefaction had taken place, and the patient laboured under fever in consequence, a careful attempt at removal, at even a late period, by the hand, provided the rent freely admitted it, as in Case XIV., or by gastrotomy, as in Cases LXXVIII., CXI., CCLXV., would probably afford her the best chance.

9. *That delivery should be effected as early as possible after rupture has occurred*, must also be an important consideration, though the advantage does not appear so distinctly from a comparison of our cases, as several other points which we have considered.

Thus, in those who *recovered*, the time from rupture to delivery was, as nearly as can be ascertained,

1 hour and less in 7 cases.		Over 9 hours in 1 case.	
Over 1 hour and less than 2	in 6 cases.	" 12 " "	2 cases.
" 3 hours	" 3 "	" 15 " "	1 case.
" 4 "	" 1 case.	" 16 " "	1 "
" 7 "	" 1 "	" 23 " "	1 "
" 8 "	" 1 "		

Average—*a small fraction less than* 5 *hours.*

In those who *died*, the time from rupture to delivery was—

1 hour and less in 13 cases.		Over 12 hours	in 4 cases.
Over 1 hour and less than 2	in 5 cases.	" 14 "	" 1 case.
" 3 hours	" 4 "	" 17 "	" 1 "
" 4 "	" 3 "	" 19 "	" 1 "
" 5 "	" 3 "	" 21 "	" 1 "
" 6 "	" 2 "	" 24 "	" 1 "
" 8 "	" 2 "		

Average—*a fraction over* 5 *hours.*

In cases of partial rupture, the rent may increase, if the uterine contractions continue, and the child consequently escape from the womb into the peritoneal cavity, which might have been prevented by early delivery, as in Case CCLI.

10. In *sixteen* instances, the *intestines* were found to have *prolapsed* through the rent in the uterus. In Case XLVIII., "nearly four feet of

intestines protruded," and in Case CCV., it became strangulated from not having been reduced.

11. *Character of the labour in which the rupture occurred.*—The labours may be classed as nearly correctly as possible, under the following heads:—

Of those *saved*, labour was—		Of those *lost*, labour was—	
Moderate in	4 cases,	Feeble in	10 cases.
Very severe in	3 "	Moderate in	24 "
Strong in	6 "	Very severe in	26 "
Tedious in	2 "	Strong in	17 "
		Tedious in	9 "

We see that rupture is by no means confined to cases of severe and protracted labour, as is ordinarily supposed; the pains having been *feeble* or *moderate* in 38 cases, and *severe* in 63, if we include the *tedious* under this head.

12. *Presentations.*—There were 16 presentations of the *shoulder, arm or side;* 2 of the *breech. Three* of these were *saved* and *twelve* were *lost.* The remainder were of the *head*, or were not particularized.

13. In Cases XLIX., XLIX. (*a*), the patient was subjected to gastrotomy twice, and recovered, and in Cases CX., CCLII., to gastrotomy and to Cæsarean section successfully.

14. In Cases VIII., XXXIX., XLV., XLVIII., XLIX., LXVII., LXVIII., LXXIII., LXXXII., LXXXIII., XC., XCII., XCVII., CX., CXIV., the patients were *subsequently delivered of other children.*

15. In Cases XXVI., XLIX. (*a*), LXII., LXXIX., LXXXIII., LXXXVIII., XCVIII., CXIII., CXVI., CXXXII., CXLIV., CCXCV., CCXCVI., CCXCVII., the patient was delivered of a *living child.*

In Cases XLIX. (*a*), LXII., LXXIX., LXXXIII., LXXXVIII., the mother saved, and child born alive by *gastrotomy.*

In Cases XCVIII., CXVI., CCXCVI., the mother saved, and child born alive by *forceps.*

In Cases CCXCV., CCC., the mother saved and child born alive by *version.*

DELIVERED BY NATURAL EFFORT.

Saved.—Cases XXXIX., XL., XCVI.,—Case XLIII., *assisted by traction.* Cases CVII., CVIII., CIX., CXIII., CXIV., *os torn off or lacerated.*

Lost.—Cases CXXVII., CXXXII., CLVII., CLVIII., CLIX., CCXLI., CCXLVI., CCL., CCXCVIII.

Does not the fact, that nearly half of the instances in which both mother and child were saved, were those in which gastrotomy was performed, while the proportion of the whole number of cases of gastrotomy in our series is very small compared with that of natural deliveries, and other modes of artificial delivery, furnish a strong additional evidence of the great advantages which we may derive from gastrotomy? Dr. Lee's statement, then, that "the child is already dead," requires qualification.

16. When the death of the mother takes place, and the pulsations of the fœtal heart indicate that it still continues to exist, the choice of a mode of delivery must regard the interest of the child only. However trying to the feelings of the practitioner such a duty might be, there can be no doubt that an incision through the abdomen, made at once after it is established beyond doubt that the mother has ceased to live, affords the child a far better chance than any other mode of removal. It is uncertain how long

the fœtus may survive the death of the mother. In the *London Lancet* for December, 1827, p. 425, Mr. Green relates a case in which he removed a living fœtus from the abdomen of the mother *thirteen minutes* after her last respiration; and Mr. Dawson, in the same journal for September, 1837, reports a case in which the fœtus was found alive *fifteen minutes* after the death of the mother.

XII. *Treatment after Delivery.*—No note was made of the treatment of our cases after delivery. It is evident that the result may, in no small degree, be influenced by the manner in which the after treatment is conducted. Dr. Collins remarks, that "early and active means of counteracting the dangerous and sudden inflammation that sets in in all cases of this kind, are a matter of the utmost importance." He insists on the advantage of an early and free evacuation of the bowels, though sometimes the most drastic purgatives fail to move them, until the approach of death brings on diarrhœa. In the two cases that recovered, the bowels moved easily; in the remainder, there was excessive torpidity of the intestines. Dr. Murphy found, in almost all cases, the bowels were remarkably obstinate, and he could procure no feculent stools, until the gums had been touched by mercury. Symptoms of peritonitis, in the practice of both these gentlemen, were met by local depletions, warm baths, fomentations, and mercury in such doses as to induce its constitutional effects as early as possible. In one of Dr. Channing's cases, the treatment was mainly resolved into "such a use of opium as would partially prevent pain, and keep the bowels quiet, even for days; and to such a use of calomel as would secure alterative effects, and limit inflammation."

It would appear from the results of several cases whose histories are at present within our immediate reach, that the course from which we might reasonably expect the highest degree of success, is the following. Immediately after delivery an opiate should be given, and even alcoholic stimulants, if required. A prominent object should then be, to evacuate the bowels before inflammation comes. To this end, an active cathartic, as of calomel and jalap, should be exhibited, followed by enemata or castor oil, if required. The patient should be put upon an active mercurial course, and as soon as the bowels are moved, opiates should be administered in quantities sufficient to restrain their action for some days, or while the reparative process is going on, inasmuch as the recent adhesions might be readily broken up by the peristaltic movement of the intestines. Excessive inflammation should also be kept down by the abundant use of leeches, and continued application of fomentations to the abdomen; and evacuation of the bladder should be secured, if necessary, by the catheter. The continued use of opium to secure rest of the intestines, was suggested to Dr. Channing by the analogy of its employment in cases of perforation in typhoid fever. To prevent *psoas abscess*, which is a very serious complication, Dr. Collins inquires, would elevating the patient's shoulders, so as to facilitate the escape of the discharges from the uterus, diminish the liability of its recurrence?

In conclusion, though the value which we attach to the statistics furnished by our cases, has probably been perceived by the reader, we would, nevertheless, repeat, that we do not consider them alone by themselves, as of controlling authority. To merit this, a series of careful and minute observations should be made of a large number of cases of ruptured womb, stating every incident with a particularity, which shall leave no essential question unanswered. Generalizations drawn from these would be authori-

tative. Such reports the profession have a right to expect from those in whose practice they occur. Any attentive observer is capable of watching symptoms preceding, attendant upon, and consequent to rupture—to note the apparent effect of the course of treatment pursued, and all the particulars as to age and condition of the patient. In the examination of fatal cases, however, some familiarity with the appearances of diseased structure, as well as of the healthy tissues, is necessary, in order to appreciate slight departures from a healthy state.

But from the character of the reports of a majority of our cases, it is apparent, that the inferences they yield cannot be trusted, excepting so far as they correspond with well established principles of surgical practice. Our object has been to show that they do correspond with such principles; and the results are, in every instance, just what we should have anticipated, reasoning from such general principles alone.

[*Errata to first part of this article in the January number.*

Page 115, for Case XLIX. (*a*), read *Cases XLIX. and XLIX.* (*a*).

Page 121, second line from top, for see Case CCLI., read *see Case CCLII.*

Page 135, seventeenth line from bottom, for Case CXIII. continued, read *Case CX. continued.*

Case CCLXV. should have been placed among the recoveries.]