Duer (E. L.) With the Compliments of the Author

POST-MORTEM DELIVERY.

BY

EDWARD L. DUER, M.D.,

Gynecologist to the Presbyterian and Philadelphia Hospitals, Member of the Obstetrical Society of Philadelphia, etc.

WITH TABLE.

Reprinted from the AMERICAN JOURNAL OF OBSTETRICS AND DISEASES OF WOMEN AND CHILDREN, *Vol. XII., No. I., January*, 1879.

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THE problems involved in the death of a pregnant woman, whose child is viable, have commanded to a greater or lesser extent the attention alike of the medical profession, the state, and the Church for many centuries; the literature of the subject dating back to at least 800 B.C. It is, indeed, curious to note how much discussion its various relations have excited, and in view of this fact it is certainly remarkable that no definite conclusions, binding as of authority, seem to have been reached; no recognition of responsibility as attaching to him who permits a child to die in its dead mother's womb without an effort to save it. It is the purpose of this paper to pass in review somewhat of the literature of the subject, and to consider the duty of an obstetrician when confronted, as he is at any time liable to be, with the necessity for prompt decision and action in such a case.

At a meeting of the Philadelphia Obstetrical Society, June 3d, 1875, Dr. Jos. V. Kelly related an interesting history of the delivery of a living child from a dead mother. The discussion which followed demonstrated that even obstetric spe-

cialists were not prepared to announce any operative procedure as *obligatory* upon the physician.

In an able paper of so recent date as 1861, by Dr. Schwarz, Medicinalrath[1] in Fulda,[2] the following remarkable passage occurs: "If a man is fortunate enough to obtain a living child by the Cesarean operation on a dead mother, he places himself in the unfortunate position of being suspected of having operated on a woman in a trance, or he burdens his conscience with having waited so long for the death of the mother that he has allowed the child to die." Dr. Schwarz quotes from the records of his own duchy 107 cases, all having occurred in Kurhessen between the years 1836 and 1848, out of 336,941 births, and "not one living child was extracted." He quotes also in support of his position the assertion of Scanzoni that "the fetus in utero is the same as any other internal organ of the woman," and that, "if we recognize the instant of the death of the mother, when all organic expression is gone, and organic laws yield to chemical laws, that instant we must recognize also the death of the child."

Similar opinions constantly find expression in the recorded reports of pregnant women dying at term, without mention of any operative procedure to save the children, and in an unpublished lecture by a distinguished obstetric teacher of this city, it was argued that it was utterly futile to attempt any post-mortem measures having for their object the saving of the life of the fetus.

These modern utterances are in striking contrast to the convictions which have been entertained by various peoples for many centuries. With the exception of the Chinese, the Jews, and the Egyptians, all the older nations had laws more or less stringent on this subject, and which doubtless reflected, to a considerable extent, the medical sentiment of their times. The old Roman law forbade to "bury pregnant women before the fruit be taken from their bodies," and disobedience to this mandate was considered as affording grounds for a "legal suspicion that a living child had been killed."

In 1749, Charles, King of the Sicilies, commanded that all physicians who should neglect to perform the Cesarean section on a woman dying pregnant should be arraigned for murder.

[1] A kind of public medical recorder and adviser.

[2] Monatschrift für Geburtskunde, vol. xviii., supplement.

In the *Carolina Journal* for 1820, in "An Essay on the Causes Demanding the Cesarean Section," by W. Michel, M.D., the author, besides enumerating many mythological records of the operation, mentions the historical examples of Scipio Africanus, of Manlius Torquatus, of the Roman army; of the Consul Caius Fabius, and the doubtful one of Cesar, all having been rescued after the death of their mothers. The world is also indebted to post-mortem Cesarean sections for the lives of the philosophers Gorgias and Hermes Trismegistus. It is not, therefore, surprising that Numa Pompilius, with any one of these illustrious examples before him, should have issued an edict[1] commanding physicians to "open the bodies of dead pregnant women, with the hope of preserving citizens to the State." The same law existed in Venice,[2] from 1608 to 1722, and in 1740 the Council of Ulm not only prescribed the law, but the formalities of its execution, and directed that the "stupid parent" be informed "that if he omitted any possible means of saving the life of his child," he "put upon his conscience," but "could not be compelled to submit."

In the first half of the last century, Pope Benedict XIV. issued "Church directions" for the operation, and so tempered his commands as to require the measure only "in case the child be living, and in order to receive the holy ordinance of baptism."

Dr. Schwarz' essay presents also the record of the Austrian law of 1757, that "the operation shall be carried out with the same care as if the woman be living," and the Theresian law of 1768—"if a pregnant woman commits suicide, open the body as much as necessary only, that the child shall not be deprived of a holy Christian burial." Thus "Christianity seems to have given fresh importance to this subject, by giving new value to the life of the child." The requirements of the laws of various other countries are also quoted, all having for their object the more or less compulsory performance of the Cesarean section by the "physician or other officer of the place."

In fact, some of these laws would not do violence to the intelligence of latter-day physiologists. In *Eid und Pflicht*

[1] Legregia Diget., lib. xx., A.C. 600.
[2] Schwarz, Mon. f. Geb., Sup., vol. 1861, p. 121.

einer Sachenfrau, Heilbronn, December, 1772, Article 7th, the following well-digested instruction occurs: "Since occasionally the fruit of a woman dying pregnant may be saved by a cut, therefore the midwife is required to attend to the following points, viz.: In case the mother dies of a long, slow, and wasting disease, such as phthisis, the fruit dies with her always (?); therefore, the operation is useless. On the other hand, if she dies suddenly, and has borne her fruit seven months, the child may yet be saved, and the midwife shall proceed at once to operate—the relatives to the contrary notwithstanding."

With the same general objects, laws have been enacted as follows: By the City Council of Frankfort, in 1786; by the Duchy of Kurhessen, in 1767 and 1787; the Lippe-Detmold law of 1789; by the Grand Duchy of Baden, in 1827; at Wurtemberg, in 1755; at Nassau, in 1818 ("if mother has been pregnant five months"); the old Saxon law; the Bavarian law of 1816 ("the midwife to treat the patient as if in a trance till the physician arrives"); and the Russian law, which left all to "the judgment of the physician."

The semi-medical reports of these cases in olden times were such as to have caused the enactment of absurd legal requirements. In the *London Hospital Reports*, 1872, vol. xiv., page 240, Dr. Aveling has collected 30 cases illustrative of the ignorance and superstition concerning this subject. Conspicuous among these is that of the Princess Pauline de Schwartzenberg, who died in consequence of several severe burns, and twenty-four hours after death an infant was withdrawn from her womb, which ultimately survived. This is cited as "well known," and "still believed to be true."

Meanwhile science has been recording *facts*. In the *Wiener medizin. Wochenschrift*, Drs. Hyman and Lange have collected 331 seemingly authentic cases, all reported in the present century. Of this number, only 19 of the children were born living. In the *Gazette Hebdomadaire* for November, 1860, M. Devilliers is quoted as having published a thesis in 1838 on the Cesarean section practised after death, in which he had collected 49 cases, and classified them according to their results, thus: 7 infants were dead when extracted, 7 survived, and 37 lived from five minutes only to thirty-four hours. Among these were two pairs of twins. Since then, in the

same journal, there has been added a collection of 22 more cases, in which the results are given as follows: 9 infants were born dead, 6 survived, and 7 lived from a "few minutes to five hours."

In a discussion before the Berlin Obstetrical Society, 1864, Dr. Boehr refers to a collection of cases in *Casper's Wochenschrift*, which I have been unable to secure, and in which, out of 147 cases, only three instances of living children occurred.

For our own country, I can only find a reference to a collection of twelve cases by Dr. L. Ch. Boislinière, of St. Louis. In these, the post-mortem Cesarean section was performed within fifteen minutes of the mother's death, from eclampsia and cholera. Two children only were extracted alive, and these lived only for a few minutes. The discrepancy in these results is so great that there can be but one explanation of it.

The great object in the collection of all these cases seems to have been to establish some ratio between the whole number of mothers operated on, and the number of children rescued alive. But the ratio of successful results is not material, inasmuch as the mutilation of any number of dead bodies is as nothing to the saving of one living child.

The practical questions to be considered are—the period of pregnancy when the child may be delivered with any favorable prospect; the length of time after the death of the mother when operation promises success; the operation indicated; the diseases which render operation unnecessary, and the best means of resuscitating the child. I will discuss these seriatim.

1st. *The Period of Pregnancy when the Child may be Delivered with any Favorable Prospect.* The answer to this would seem to be sufficiently simple. Dr. Thatcher, who claims to have had much experience in the Cesarean section after death,[1] and who considers it entirely too much neglected, regards it as the duty of every physician meeting with a case advanced to the seventh month of utero-gestation, when there are present any signs of life in the child, to give the latter the benefit of its "individual vitality."

So, also, Dr. Berg,[2] in his citation of the Russian laws on this subject, urges the Cesarean section, or other operation, when the mother has advanced to the thirty-third week of ges-

[1] Transactions of the Edinburgh Medico-Chirurgical Society, June, 1860.

[2] Casper, xxiv. Heft, page 219.

tation, and is not more than twenty minutes dead of other diseases than cholera, etc.

For all purposes of practice, it may be assumed that an infant, delivered by Cesarean section, is as likely to live as one born at the same period of pregnancy in any other way, and as there is incontestable evidence of children having lived who were delivered from a living mother at the sixth month of utero-gestation, and especially as we are dealing entirely with *possibilities* and not probabilities, we will be safe in the adoption of a rule—to perform forcible dilatation, or the Cesarean section, on all otherwise favorable cases which have attained to the neighborhood of the sixth month of pregnancy.

Leaving out of view any question of Church rites—which are still insisted on in the Roman Church—I advocate this earlier month for the yet other reason, that there may occur in certain cases good and urgent legal motives for the preservation of the life of the child, even though it be only for an hour.

2d. *The Length of Time after the Death of the Mother when Operation Promises Success.* This question is encompassed by more than ordinary difficulties. It must be remembered that, all other things being equal, the sooner after the death of the mother the child is delivered, the greater the probability of good results. Again, if a child is manifestly living, as indicated by its movements, or by the sound of the fetal heart, there can be no question of the propriety of an operation; but the converse of this is by no means true, and we are then obliged to fall back on observation or recorded experience.

In the Hunterian Society discussion,[1] Dr. Lever relates that he has several times seen the movements of the fetus in utero, half an hour after the mother's death, and was only restrained from efforts to rescue by objections interposed by the relatives.

M. Hatin[2] brought this subject before the Academy of Medicine of Paris in 1861, in an able paper, in which he represented that the "French law was very deficient in respect to saving the life of the child." M. Laforgue, Professor of Midwifery at Toulouse, and M. de Kergaradec, member of the Academy, have likewise published papers calling attention to this important point.

[1] London Medical Times, N. S., vol. xvi., page 507.
[2] London Lancet, vol. i., page 313.

Toward the solution of this problem, with others, a tabulated record is offered of all the cases which the writer has been able to find, which have borne the appearance of authenticity. From this it appears that, of 55 cases, the time that elapsed between the death of the mother and the removal of a *living* child was in 40 as follows: Between 1 and 5 minutes, including "immediately" and "in a few minutes," there were 21 cases; between 5 and 10 minutes, none; between 10 and 15 minutes, 13 cases; between 15 and 23 minutes, 2 cases; after 1 hour, 2 cases, and after 2 hours, 2 cases.

These latter cases it is proper to examine very carefully. The record of number twenty-nine comes to us through the AMERICAN JOURNAL OF OBSTETRICS, Vol. IX., page 497, in a private letter to the Philadelphia Obstetrical Society, from "P. A. Verouden, Netherlands, Member of the Physical Council of the Provinces of Guelderland and Utrecht," and represents the mother, æt. 35, to have died of hemoptysis from pulmonary consumption, in the sixth month of pregnancy; that two hours after, the child's heart was "heard to beat distinctly;" that the child was then removed by Cesarean section; "taken to church, baptized, and lived several hours after the ceremony." Whether this recorder was a physician or not does not appear, but is inferential from the fact that the inspiration of the communication came from his having read a report of Dr. Kelly's case before the Philadelphia Obstetrical Society. The recency of this case, however, leaves open the opportunity of verification. The importance of the observer being a competent medical practitioner is readily apparent.

Number thirty-one is reported by Dr. M. O'Hara, of this city, and appears in the *Philadelphia Medical Times*, vol. v., page 301. This mother likewise died from hemorrhage and advanced phthisis. The child was removed between one and a half and two hours after, "gasped three times, and was baptized." Excepting for Church or legal reasons, these two cases are of little value.

Not so, however, with case number fifty-four, of the one-hour series. This was reported to and by a member of the Cincinnati Obstetrical Society, Dr. J. L. Cleveland, and appears both in the reported proceedings of the society, and in the *Cincinnati Lancet and Clinic*, July 20th, 1878. The mother is here

represented to have had convulsions (probably uremic) for about two weeks, and is supposed to have died in one. For reasons mentioned, the time which elapsed before the operation was "full one hour." The child was removed asphyxiated, but the heart-beat was perceptible. It gasped in a short time, and in the course of an hour seemed fully restored. It "was small, near full term, and is still alive, and in good health." This is in all respects the most interesting case of the whole series.

In the second case of the one-hour series—number twenty-eight of the table—there are but few particulars given. It was reported by Dr. J. H. Blatner, in the Transactions of the Albany County Medical Society, January, 1875,[1] and is interesting only from the child having been born "living, but asphyxiated." It expired in about ten minutes. No mention is made of the cause of the mother's death, or the means resorted to to establish the vitality of the child.

With regard to the cases rescued within twenty minutes after the mother's death, they are so numerous and well authenticated that no question can be raised as to their value in this connection.

Efforts have been made to establish the probabilities in such cases by other observations, and experiments upon the lower animals. Dr. Brunton[2] gives an account of a fetus rescued alive, after having been "retained in the membranes for a quarter of an hour after birth." Weisberg, in the *Dictionnaire des Sc. Méd.*, Vol. XIX., page 388, furnishes three such cases —one having lived seven minutes, and two others each nine minutes after birth in their envelopes. Buffon and Schierig performed many experiments on animals, which were afterwards confirmed by Edwards. It was found that "pups lived half an hour after birth in the membranes," and if plunged into warm water, continued to have a pulse-beat for many hours. Breslau[3] likewise experimented on guinea-pigs with the same object. He commenced by defining the death of the mother as "when the movements of the heart have sunk to the minimum; when there is no peripheral circulation; when the capacity for respiration has entirely ceased; and when instinc-

[1] AMER. JOUR. OBST., May, 1875.
[2] Transactions Obstetrical Society, London, Vol. XIII., page 88.
[3] Monatschr. f. Geburtsk., August, 1864.

tive and reflex movements no longer occur. This is death. But when the movements are rare and feeble, the limbs flaccid, respiration difficult, interrupted, and painful; the circulation weak, but still felt in the umbilical cord, and reaction slight on external irritation, the fetus is only apparently dead." The results of his experiments make the possibility of living, within a certain short time, depend alike on the cause of the death of the mother and on the period of the removal of the fetus after death. In operating after five minutes, he did not extract a living fetus, and, if later than eight minutes after the mother's death, not even one of the class denominated "apparently dead." In applying his observations to the human subject, and to practical obstetrics, he remarks that "daily experience proves that the power of resistance of the human fetus is greater than that of the brute," but that the Cesarean section will even here furnish no prospect of a living or even an "apparently dead child, if not performed within fifteen or twenty minutes after the death of the mother."

It may be mentioned also that this life-maintaining power of the fetus was recognized by Harvey, inasmuch as in his anatomical exercitations he asks: "How cometh it to pass that the fetus, being new-born, and abiding still in its bag of waters, can subsist for some hours' space without any danger of suffocation, yet, if he has but once attracted the air into his lungs, he cannot afterwards live one minute without it?"

Such observations, however, might be quoted indefinitely. But we are dependent for any positive data almost entirely upon our table. If we accept this record, we may conclude that it is *possible* for a child to be delivered alive after its mother may have been dead for two hours, and for a child to be "saved to the State" from a mother dead for one hour.

3d. *What Operation is Indicated?* The choice is as between Cesarean section and forcible delivery per vias naturales. The ready practicability of the one is patent; the other still sub judice. H. Raynes-Gringley[1] asserts that he has "no hesitation in pronouncing on the practicability of extracting a living child from a dead mother, per vias naturales, provided" he "was present at the death;" and Cazeaux calls attention to the fact that the child may be so nearly born that, after a cut may have been made in the abdomen, it might be found impos-

[1] London Medical Times, Vol. I., N. S., page 155.

sible to withdraw the child, in that direction, as easily as to advance it in the direction in which it has already started, and thus valuable time have been lost.

Barnes, in his "Obstetric Operations," quotes an Italian writer[1] who lays down the rule that in cases where there is any doubt of the mother's death, forced delivery should be resorted to as a harmless operation!" And Dr. Esterle, Professor of Obstetrics at the Maggiore Hospital, Novara,[2] goes so far as to recommend the same practice—generally by version and extraction—"whenever the mother's death is imminent." He refers, in justification of this practice, to five cases of his own, in which forced delivery rescued four living children from dying mothers, and to one of Cesarean section, by Roser, performed successfully under like circumstances. (These latter recommendations are quoted only for condemnation.)

It is proper also to refer to an unfinished article on this subject, by Dr. Thèvenot, in the last (October) number of the *Annales de Gynécologie*. His plea is for artificial delivery, per vias naturales, in all cases; and urges in support of its advantages that intervention may always be immediate; that the certainty of the death of the mother need not so largely interest us; that the Cesarean operation, of itself, is so formidable that we must not resort to it except with the approval of the family, whose disapproval or hesitation may necessitate delay; and, moreover, that there are certain delaying preparations always incident to so extensive an operation as the Cesarean section.

With our knowledge of the fact that approaching death in pregnant women is often accompanied by relaxation of the cervix, and even rapid completion of labor, we must concede to these views a binding force in a certain number of cases. When, however, we remember the difficulties often encountered in our efforts at delivery of children, through the disproportioned pelves of living mothers, the selection of the operation is still a question of rapidity of execution. We conclude then: first of all, there should be an absolute certainty of the mother's death. Then, with a due appre-

[1] Probably Prof. Rizzoli, who devised this measure as promising "better results to the child" and "perhaps no distress to the dying mother." Italy, Belgium, and Germany have accepted this recommendation. (Dr. Thèvenot, Progrès Méd., June, 1878.)

[2] London Medical Times, Vol. I., 1862, page 441.

ciation of the necessity for expedition, if the child has not already engaged in the pelvic brim, the Cesarean section should be made with the greatest possible dispatch. If the head has so engaged, it then becomes a question of judgment as to whether forcible delivery per vias naturales, or the Cesarean section may be most quickly accomplished.

4th. *The Diseases which Render Operation Unnecessary.* It will be remembered that the cause and mode of death of the mothers have been noted as largely influencing the result to the child. Not only has this conclusion been arrived at by experimenters on animals, but with as much positiveness by bedside observers. It will also be remembered that many of the ancient laws on this subject were qualified by a knowledge of this fact.

Professor Esterle, already referred to, evidently basing his inferences on purely theoretical grounds, makes the statement that in cholera, phthisis, hemorrhages, the acute exanthemata, dropsy, eclampsia, syphilis, cancer, cerebral disease, and lead poisoning, the death of the child usually precedes that of the mother. Hening seems to have arrived more nearly at the true state of the case, when he formulated his observations thus: "The results of an operation performed post mortem matris are little favorable to the child, but it is most likely to succeed when death has followed some shock to the nervous system; less favorable to the child when the death agony has been prolonged, and most unfavorable of all when the mother has been suffocated by carbonic acid gas." We must differ both from the statement of Esterle and the conclusion of Hening. Of the cases of children born living, as given in the table, the causes of death in the mother are mentioned in thirty-six. Of this number, eighteen died in various kinds of convulsions, the most of which were eclamptic; five died of advanced phthisis; three more from profuse hemorrhage from phthisis; three of organic heart disease; two suddenly by accident; one of thoracic aneurism; one of chronic dysentery; one of metro- (?) peritonitis; one of gangrene of neck, and one had "been ill a long time." Of those born dead, the cause of death in the mother is given in six cases, viz.: two from cholera; one from severe burn; one from apolexy; one from uremia, and one from suffocation. It will be remembered also that previous mention has been made of

the twelve cases of Dr. Boislinière, all of which died of "cholera or eclampsia," and the two children extracted alive lived but a few minutes. It is not stated, but it is probable, that the two latter were of the eclamptic cases, inasmuch as the universal testimony, elsewhere, is unfavorable to operating at all, when the mother has died of cholera. Dr. Balocchi, in the proceedings of the Societa Medico-Fisica of Florence, 1876, as reported in the *Gaz. Med. Italiana Toscana*—number thirteen of table—questions the propriety of operation after death from cholera, in that, "of a large number of cases" so dying, "only one child was rescued alive, and that lived but for a short time; one was cyanosed, and in all the others putrefaction was more or less advanced." The case of Dr. Shippen—number fifty-five of table—substantiates the same conclusion. The mother was a "robust young woman, near her confinement," who died of cholera, "after a terribly short illness," and was opened "immediately," yet the child was dead. In this case everything was especially favorable to a better result.

It may be mentioned that cholera, in its various epidemics, has furnished large opportunities for observation in this respect, and the result has been almost uniformly the same. A proper understanding of the cause of this will probably be found in in the general disintegration of the blood in cholera; and if such is the case, we are accordingly obliged to classify under this disqualifying head all of the congeners of this disease. We may then conclude that it is useless to operate on a woman, however soon after death, with any hope of securing a living child, who has died of any disease in which disorganization of the blood was a prominent factor.

5th. *The best Means of Resuscitating the Child.* It is apparent that the necessary measures differ, in no wise, from those indicated in like conditions of children born in the usual way. It is, moreover, no part of the purpose of this paper to specify the various conditions under which children die in utero. It is only of importance to remember here that the last vestige of vitality may vanish for actual want of strength to maintain it, or for the reason that the strength is yet latent, because of the absence of respiratory action to develop it. The first condition is true of most cases of greatly premature deliveries; the second is represented by the asphyxia of chil-

dren retained too long in the abdomen of the dead mothers. The treatment of the two classes, it will be observed, must be widely different, and the existence or non-existence of the infantile heart-beat will determine whether any efforts are to be of value in either.

On the management of children born prematurely, these investigations throw no new light. The condition is well understood, and the conduct of such cases is a part of every-day practice. As to the second class—"life without respiration"—every effort should have for its object the maintenance of the one to the end of establishing both.

In the quoted experiments of Buffon and Schierig on pups, it was stated that if they were plunged, still in their fetal envelopes, into warm water, after delivery, the pulse beat for several hours. Though the conditions are somewhat different, we may perhaps receive a valuable hint from this fact. If the child fails to respond to the simple and usually resorted to measure of alternate application of heat and cold, it is plainly a duty to restore and maintain any deficiency of animal heat that may have been thus lost. This may probably be best accomplished—as in case number seventeen—by the envelopment of the child in hot cloths. Immediately thereafter, recourse should be had to artificial respiration—preferably by the Silvester method—and to be effective it must be continuous, despite the most discouraging circumstances, short of the absolute cessation of the heart-beat. This was especially insisted on by the older authorities in midwifery, and it is much to be regretted that their teachings of the favorable results that may be expected from persistent artificial respiration, even after infants have failed to "respire for two or three hours," should nowadays be so little emphasized. In our table it will be noted that this expedient was resorted to in at least twelve cases, and was successful in two of them after it had been maintained "continuously for one hour." In one other case, "when the heart-sounds were feeble," it was continued for *two* hours, and until "the child was able to breathe without assistance."

This valuable measure may be supplemented advantageously by the occasional employment of stimulating substances to the surface of the body, especially by a piece of ice over the epigastrium, and by the careful application of dilute ammo-

nia, weak vinegar, or the fumes of burning paper to the nostrils.

There still remains another—perhaps least often adopted—measure, yet possibly of equal importance with any mentioned, viz., mouth-to-mouth insufflation. This may be mediate or immediate. The first by the introduction of a flexible tube into the larynx, the second by applying the mouth to the mouth of the infant. In the reported proceedings of the N. Y. Obst. Soc., in the last number of this JOURNAL, Dr. Garrigues has recorded the case of an infant born in a state of profound asphyxia, and presenting but a few slow and feeble heart-beats, which was kept living for seven hours by means of insufflation through a flexible catheter passed into the trachea, whilst the child was kept enveloped in hot cloths. "Two and a half hours elapsed before the child gave the first respiratory gasp." His commentary on this case was, "*that if only the heart beats, the life of the child may be saved, even if spontaneous respiration does not occur for hours.*" Insufflation may readily be accomplished, as suggested by Dr. Jewett, "through the intervention of a coarse towel; passage of air into the stomach being prevented either by pressure upon the epigastrium or by gently forcing the larynx back against the esophagus." This plan was resorted to in only eight of the tabulated cases, but furnished gratifying results in all. In one case—number twenty—when it had been omitted, and the child died on the seventh day of atelectasis, the operator advanced the criticism that, "had mouth-to-mouth inflation of the lungs been substituted for artificial respiration, possibly the child might have been saved." M. Depaul recommends that from ten to twelve insufflations should be made in a minute. It is not impossible that, after the removal of mucus from the fauces, this measure may prove a most valuable adjunct to artificial respiration, by fully distending all of the pulmonary tubes, and freely opening the way for admittance of air to all the vesicles by artificial respiration.

It will be observed that no conclusion has been indicated as deducible from a comparison of the number of children saved to the whole number of mothers operated on. With the scant opportunities for securing reports of unsuccessful cases, such a comparison is utterly useless. See, for instance, the tables of Lange, as showing that prior to 1700 as many as 70

per cent were saved, whilst since 1800 there has been scarce 2 per cent. In truth, so much interest attaches to a successful case that a report of it will be quoted in almost every contemporary journal; and so little to an unsuccessful one, that the latter are seldom published at all—except, perhaps, to adorn a discussion originated by the former. Thus it will be seen there are not sufficient data upon which to found even a proximate conclusion. Happily, this is of small importance.

In regard to the method of operating, little need be said. The ordinance of the Venetian Senate, "to perform the Cesarean section as though the mother be living," is said to have had its origin in the acknowledgment of Peu, the celebrated professor of midwifery of Paris, of having operated on a woman "supposed to be dead, but who was not." In this age of enlightenment, one is scarcely willing to acknowledge the possibility of so horrible a blunder. Our education leans, if possible, even too much toward conservatism. We can, however, well afford to accept the conclusion of Bouchet, whose essay on the subject was crowned by the prize of the French Academy, that "with the last pulsation of the heart the mother dies."

As Dr. Blundell remarks of such matters, "as long as we are surgeons, let us be men." Our respect for the dead is such as to command from us, in the performance of post-mortem Cesarean section, almost, if not the same care as is bestowed on the living.

As to a compulsory law having reference to this subject, it is referred to simply as having been operative over many of our transatlantic brethren, for almost all time. It would be at variance with the spirit of our institutions and the claimed status of our profession. At the same time, it is evident that there is an incongruity in recognizing a criminal offence in the production of an abortion at three months, yet failing to see a constructive murder in the wilful neglect to rescue a perfectly-developed, perhaps healthy child, vigorously struggling for escape from the abdomen of its dead mother.

In conclusion, it would seem that the sentiment of the medical profession should be so pronounced on this important subject that, in every proper case, of which the physician is to be the judge, no parent or other relative or friend would dare to interdict any measures necessary to the possible saving of a living child.

No.	Journal Record and Operator.	Cause of Death of Mother.	Time of Operation after Death of Mother	Condition of Child when Born.	Means of Resuscitation Adopted.	Remarks.
1	Wiener med. Woch., August, 1874.—Dr. Bandl, asst. to Prof. Von Braun, Vienna Gen. Hosp.	Chronic peritonitis.	5 minutes.	Asphyxiated.	"*All* attempts at resuscitation."	Fetal heart beat about 60 per minute for 10 minutes. Inspired and died.
2	Révue Méd., Jan., 1830. Hôpital St. Louis—M. Hugier, Interne.	Hemoptisis. "Died in four minutes at 7th month of pregnancy."	5 minutes.	Heart-beat scarcely perceptible	Hot bath, artif. resp., and frictions.	"Child now 30 days old and doing well."
3	Heidelbergerklinische Annalen, Vol. x., No. 3. Observations on P. M. C. S.	Died after operation for rickets, of metro-peritonitis on 8th day.				Child living. Limits to time for operating, "3 hours after mother's death."
4	Edinburgh Medico-Chirurgical Society Trans., June, 1850. —Dr. Harley. Read by Prof. Simpson.	"Effusion into air passages consequent on heart disease."	"Few min."			"Child doing well."
5	Humboldt Medical Archives, Vol. 4, 1870, p. 328.—Dr. E. L. Fechan, St. Louis, Mo.	"Comatose after a convulsion."	10 minutes.	"No effort to respire for 25 or 30 min."	"Usual means."	Child did well for months.
6	Le Progrès Médical, June, 1873.—M. Marcé, Interne, Hôpital la Pitié.	Uremic eclampsia.	Immediately.	Did not breathe.	"Stimulated."	Doing well.

7	Med. Times and Gazette, July 21st, '77. Trans. Lon. Obstet. Soc.—Dr. Buckell.	Suddenly, of dilatation of aorta.	20 to 30 min.			"Living."
8	L'Abeille Médicale, Aug. 23d, 1843.—Dr. Loweg of Vere.	"Ill a long time."	"At once."	"Apparently dead."	Hot bath and insufflations.	Heart perceptible in a few minutes, and soon respired. "Doing well 3 months after."
9	"Upper Canada Journal," 1851.—E. M. Hodder, M.D., etc.	Apoplexy, lasting 38 hours, and profound coma for 26 or 27 hours.	"At once."	"No signs of life."	Hot bath, artif. resp., stimulants to spine.	At first promised little, but now "doing well." Born ten days before full term.
10	N. Y. Med. Jour., Jan. Vol. 7, 1851.—Dr. Blumdell.	Run over and died in a few minutes.	"On arrival," 13 min.		Artificial respiration for 15 minutes.	In last months of pregnancy. Ultimately resuscitated completely.
11	Monthly Jour. of Med. July, 1851.—Dr. Schneider.		At once.	"Still-born." "Apparently dead.'		Per vias naturales. Soon revived.
12	N. Y. Jour. of Med., Vol. x., 1853.—Dr. F. R. Owens.	Hemoptisis brought on by vomiting. Blood gushed out.	Dead on arrival. "Went for instruments and operated soon as possible"	Apparently dead.	Hot baths, art. resp., stimulants to nostril, art. resp., for one hour.	Weighed 5 lbs. at birth. Now weighs 8½ lbs., and is 7 weeks old and thriving. Did not cry till 3 hours.
13	Repertorio Medico-Chirurgico de Torino.	C. dysentery for two months. Died much emaciated.	13 minutes.			Did not cry for some time; 32 minutes afterward began to suck. Now tolerably robust.
14	American Med. Recorder, Vol. vi.—M. Borrone, Surgeon at Salto.		12 minutes.			Case quoted from foreign journal. Child living.

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15	Proceedings of the Società Medico-Fisicà of Florence, 1856.	Cholera.		Dead.		Dr. Balocchi questions the propriety of operating in cholera.
16	Lond. Med. Times.—M. Campbell, Interne, La Maternité.	Died suddenly—probably from heart disease.	10 minutes.	"Born alive."	Insufflation and stimulants.	Mother in last stage of pregnancy. Child "now 55 days old, and in a perfectly prosperous condition."
17	Edinburgh Med. Jour. (Trans. Lond. Obst. Soc.)—Peter Brotherton, F.R.C.S.E.	Syncope from concealed hemorrhage.	23 minutes.	"Gave no signs of life when extracted."	Mouth-to-mouth insufflation. Hot cloths. Artificial respiration for 15 minutes.	Child deluged with blood; is now living, three months after, and as fine and healthy a child as was ever seen.
18	L'Union Médicale of the Gironde. — M Bonnet.	Apoplexy, 7th month.	At once.			Respired feebly in a few minutes; 15 minutes later, it groaned feebly; ultimately it was saved.
19	Lond. Lancet (Trans. Lond. Obst. Soc.), 1877.—Dr. Playfair.		½ hour.			Child saved. This case elicited in a discussion on Dr. Buckell's case.
20	"Proceedings of Med. Soc. of the County of Kings," N. Y. S., Jan.' 78.—C. Jewett, M.D.	Suddenly, of diphtheria. Immediate cause not ascertained.	6 minutes.	"Apnea."	Artificial respiration for at least half an hour.	Child died 7th day of atelectasis. "Possibly child might have been saved by mouth-to-mouth insufflation."
21	Unpublished case at Phila. Hospital, '62.—Resident Physicians. Service of Dr. Penrose.	Suddenly, during convalescence from diphtheria.	At once.	Asphyxiated.	Artificial respiration. Hot baths. Stimulants.	Persistent efforts not made to save the child through ignorance of the possibility.

22	Wiener med. Wochenschr. and Memorab., No. 6, 1877.	"Woman sickly and died eight days after full term."	15 minutes.	"Heart still beating."	Artificial respiration for two hours.	When the child was "able to breathe without assistance."
23	Epoca Medica of Seville, March, '73.—Dr. Gomez Nieto.	Puerperal convulsions.		"Semi-asphyxiated."	"Means of reanimation resorted to" for 15 minutes.	Did well.
24	Gaz. des Hôp., April 20th, 1861. — Dr. Lemarley.	Eclampsia.	2 hours.	"Still-born."	"Efforts to resuscitate."	Were continued for forty minutes, at end of which time heart ceased to beat. Auscultation detected heart-beat before operation.
25	Mon. f. Geb., July, '62.—Prof. Breslau.	"Hydropericardium and softening or pneumonia of right side."	15 minutes.	Heart beat feebly. Weighed 4 pounds.	Insufflation and rubbing for one hour.	Child restored and cried loudly. Died 7 hours after of exhaustion.
26	"Progrès Médicale," 1873.—M. Marcet.	Sudden convulsion. Patient dying comatose.	3 minutes.			Child living.
27	Wiener med. Wochenschrift, March, '73. —Dr. Blumenfeld.	Advanced phthisis.	10 minutes.	Very feeble.	Every effort made to save child.	Lived 3 hours. Child only weighed $1\frac{3}{4}$ pounds.
28	Trans. Albany County Med. Soc., Jan., '75, AMER. JOUR. OBST., May, '75. — Dr. J. H. Blatner.		1 hour.	Asphyxiated.		Lived 10 minutes and expired.
29	AM. JOUR. OBST., Vol. ix., page 497. Letter to Phila. Obst. Soc. from P. A. Verouden, Netherlands.	Hemoptisis from phthisis.	2 hours.	"Living."		Sixth month, taken to church, baptized, and lived several hours after.

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30	Ibid. Nov. '75. Trans. Phila. Obst. Soc.—Dr. Jos. B. Kelly.	Thoracic aneurism (?).	15 minutes.	"Heart-beat very feeble."	One hour's faithful and continuous artificial respiration.	Delivered by Version. "Since done well."
31	Phila. Med. Times, Vol. v., page 301.—Dr. M. O'Hara.	Hemorrhage of advanced phthisis.	Between 1½ and 2 h'rs.			"Gasped and was baptized."
32	L'Abeille Médicale, Oct. 14th, 1872.	Convulsions.	Few minutes.	No signs of life when delivered.	Mouth-to-mouth insufflation and artificial respiration.	At first but little successful; but child "afterwards breathed and began to cry."
33	Journal de Médecine, Vol. xv., p. 185.—M. Boyrone.	Dysentery.	Immediately.	"Seemingly dead."		Did not breathe "till twenty minutes after birth." Now a "fine, robust child."
34	Cincinnati Lancet and Clinic, July, 1878, Trans. Cincinnati Obst. Soc.—Dr. J. L. Cleveland.	Had had convulsions for about two weeks, and supposed to have died in one—"probably uremic."	'A full hour.'	Asphyxiated, but heart-beat perceptible.		Child gasped in a short time, and in one hour fully restored; was small, near term, and is "still alive and in good health."
35	Private from Dr. S. Caro, N. Y. City. Unpublished case.	"Albuminuric convulsions during delivery."	Immediately.	Dead.		Twins. Mother died during delivery of first child. Cesarean section immediately, but did not save the child.
36	Lond. Lancet, Vol. i., '37 and '38, p. 28.—Wm. Dawson, Esq., F.R.C.S., and Lecturer on midwifery.	Obscure brain disease for four months. Died in convulsions. Greatly emaciated.	15 minutes.	Child emaciated and very weak.	Insufflation and artificial respiration.	Child lived twenty minutes.

37	Ibid. Vol. i., 1869, p. 638.—Service of M. Guyon, Hospital Necker.	Moribund on admission. History of convulsions. "Half an hour in violent agony." No albumen.	Few minutes.	No signs of life.	"Ordinary means."	Child sent to the country in few days in charge of wet-nurse.
38	Berlin Med. Zeit., July 6th, No. 27.	Died in labor of apoplectic convulsion. Paralyzed at 8th month.	15 minutes.	No signs of life.	"Ordinary means."	"Since continued well."
39	Quebec Chronicle, '67.—Drs. Tixier and Sallath.	Run over by coal cart and died at once "in last stage."	At once.			Fine, healthy boy who appears in no way to feel the effect of the accident to his mother."
40	Lond. Med. Times, Vol. i., U. S.—Geo. Harley.		3 minutes.	Apparently dead.	"Artificial respiration for some time."	Ultimately recovered.
41	Lond. Med. Times, Vol. i., U. S.—Hy. Raynes.	Apoplexy. Died in 15 minutes after seizure.				Child died whilst making fruitless attempts to deliver per vias naturales.
42	Ibid. Vol. xii., U. S., '55.—"South Staffordshire Hospital."	Severe burn.		Showed no signs of vitality.		
43	Obst. Report of "Cork Maternity." Dub. Med. Sciences, April, 1878. — Dr. Jones.	Hemorrhage. Convulsions. Immediate death.	At once.	Twins. One dead; one asphyxiated.		Child lived only a short time.
44	Mon. f. Geburtsk., Dec., 1869.— Dr. Pingler. (Case 1.)	Died of severe dyspnea. Had edema of legs.	23 minutes.	Cord pulsated.		Child lived 10 months. 35th week of pregnancy.
45	Ibid. (Case 2.)	Apoplexy.	15 minutes.			Child lived 32 minutes.
46	Berlin klinische Wochenschr., 1869. —Dr. Beckman.	Suddenly after an attack of convulsions.	5 minutes.		Persistent resuscitating means for 2½ hours.	Child weighed 4 pounds. Regular respirations were established, and the child lived.

No.	Journal Record and Operator.	Cause of Death of Mother.	Time of Operation after Death of Mother	Condition of Child when Born.	Means of Resuscitation Adopted.	Remarks.
47	Archives de Tocologie, Jan., '75.—Dr. Bailly.	Eclampsia or suffocated by prodigiously swollen tongue.	15 minutes.	Dead.		Could not be resuscitated.
48	El Telegrapho Medico, Trimestre, 1848.—Dr. Celestius de Pelayo.	"Tetanic convulsion."	Immediately.	Asphyxiated.	Insufflations and frictions.	Completely resuscitated. This the only success out of six cases by Dr. de P.
49	Unpublished letter to Dr. R. P. Harris, from Dr. Rufus Woodward, Worcester, Mass., 1871.	Apoplexy. "First fit."	Without delay.	"Fetal heart still beating."	Hot bath and usual manipulations.	In one hour cried lustily. Lived 8 hours, and died by neglect of the family physician—through jealousy.
50	Ann. Univers. Maz., 546 (caust.), Vol. iv., 483.					Child lived two hours.
51	Archiv. Gynäk., ii., 1, 1871.-Dr. Hoscheck.	Phthisis.	10 minutes.	Apparently dead.	Insufflation, mouth-to-mouth.	Mother near full term.
52	Gaz. des Hôp., lxxxi., 1871.—M. Molinier, Interne, Hôpital Necker, Paris.	"Convulsions and died in half an hour."	Some minutes.	No signs of life.	Insufflation and artificial respiration for some time.	"Had the happiness to hear it cry." (Possibly duplicate of 37.)
53	Lond. Med. Record, Feb., 1874. — Dr. Rota.	"Anasarca."	Few minutes.	Asphyxiated.		"Eventually lived."
54	"Gazette Obstetricale."—Dr. Pinnard.	Hemorrhagic central tumor. Died after several epileptic convulsions.	5 minutes.			"Child resuscitated with some little difficulty, and only lived 3 hours."
55	Private letter from Dr. Edw. Shippen, Med. Direct., U. S. N.	Cholera after a "terribly short illness."	Immediately.	Dead.		The mother, a robust young woman near her confinement, operated on by Dr. Benedict, physician in charge Philadelphia Hospital.

In the preparation of the above tables I wish to acknowledge valuable assistance from my young friend and pupil, Dr. Robert C. Hutchinson.