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IN LABOR.

Read by appointment before the Medical Society of the State of New York,

BY

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I understand the duty assigned me by the Society to be, to contrast the indications for the use of one of these efficient agents in parturition, in preference to the other. I shall endeavor to define the powers of each, to point out the conditions where each may be made available in assisting labor, and also the indications which forbid a resort to either of these resources. I shall aim to bring the subject up to the present state of science, as derived from the highest obstetrical authorities, based on the most extensive clinical observation, and the soundest and most philosophical reasoning. But in order that I may not occupy too much of the time of the Society, I shall content myself with a condensed statement of the present obstetrical doctrines and practice. To discuss the subject in full, to give the various arguments for and against each principle enunciated, to do full justice by quotations and references, to each contributor to obstetrical science, would extend this paper beyond those reasonable limits, proper for a report to be read before a Society at its annual session.

I shall first speak of the action of ergot, and its use and abuse in labor. There is a peculiar fitness in the effort on the part of this Society, to accurately determine the indications and contra-indications

for the use of this article in parturition, as to a former resident of the city where the annual meetings of the Society are always held, who was also for four years its President, belongs the merit of having first called the attention of the Profession to its oxytoxic properties. It is now half a century since the letter of Dr. John Stearns,* to Dr. Ackerly, was published, and the use of ergot in obstetric practice dates from this period. In the Transactions of the Society there have been published, also, two excellent papers on this article, which have been of great value to the profession. In vol. 3, Dr. S. Chevasse has a

**Account of the pulvis parturiens: a remedy for quickening child-birth.* In a letter from Dr. John Stearns, of Saratoga County, to Dr. S. Ackerly, dated Waterford, January 25, 1807, is the following narration :

"In compliance with your request I herewith transmit you a sample of the *pulvis parturiens* which I have been in the habit of using for several years, with the most complete success. It expedites lingering parturition, and saves to the accoucheur a considerable portion of time; without producing any bad effects on the patient. The cases in which I have generally found this powder to be useful, are when the pains are lingering, have wholly subsided, or are in any way incompetent to exclude the fœtus. Previous to its exhibition it is of the utmost consequence to ascertain the presentation, and whether any preternatural obstruction prevents the delivery, as the violent and almost incessant action which it induces in the uterus precludes the possibility of *turning*. The pains induced by it are peculiarly *forcing*, though not accompanied with that distress and agony of which the patients frequently complain, when the action is much less. My method of administering it is either in decoction or powder. Boil half a drachm of the powder in a half a pint of water, and give one-third every twenty minutes till the pains commence. In powder I give from five to ten grains; some patients require larger doses, though I have generally found these sufficient.

"If the dose is large it will produce nausea and vomiting. In most cases you will be surprised with the suddenness of its operation; it is, therefore, necessary to be completely ready before you give the medicine, as the urgency of the pains will allow you but a short time afterwards. Since I have adopted the use of this powder I have seldom found a case that detained me more than three hours. Other physicians who have administered it concur with me in the success of its operation.

"The *modus operandi* I feel incompetent to explain. At the same time that it augments the action of the uterus, it appears to relax the rigidity of the contracted muscular fibres. May it not produce the beneficial effects of bleeding without inducing that extreme debility which is always consequent upon copious depletion? This appears to be corroborated by its nauseating effects on the stomach, and the known sympathy between this viscus and the uterus.

"It is a vegetable, and appears to be a spurious growth of rye. On examining a granary where rye is stored, you will be able to procure a sufficient quantity from among that grain. Rye which grows in low, wet ground, yields it in greatest abundance. I have no objections to your giving this any publicity you may think proper."

paper "on the Injurious Effects of Ergot," and in vol. 5 was first published the classical "Observations on Ergot," by Dr. J. B. Beck.

The influence of ergot in inducing uterine contractions in the parturient woman is at the present day well known to the profession. These contractions differ from the normal efforts of the uterus to expel its contents, in that they are continuous, not recurring at intervals. Its effects are manifest in a very short time after its administration, the periods varying in different patients from five to twenty-five minutes. In most cases there is a marked diminution in the frequency of the maternal pulse, following its administration, but the pulse becomes quicker, and remains so, after its immediate action has ceased. In a majority of cases, also, a marked decrease in the pulsation of the fœtal heart follows its exhibition. This is succeeded after some time by an irregularity in its beats, which irregularity continues, more or less, until the sounds intermit, and at length, after a variable period, become inaudible. Dr. Hardy states, that in those cases where the number of pulsations have been steadily reduced below 110, and at the same time with intermissions, the child will rarely if ever be saved, although its delivery should be effected with the greatest possible speed.

Now, there are some cases where there is a deficiency of contractile energy on the part of the uterus, and the ergot is a precious resource; but no occasions in obstetric practice require a nicer discrimination or a more accurate diagnosis. We are frequently called upon to decide between the use of agents calculated to excite contraction, and those which have a directly opposite effect, and to determine whether it be better to rouse the energies of the uterus or to resort to manual or instrumental assistance. The safety or destruction of our patient may depend upon our decision. As a means of assisting labor, ergot is admissible only in cases of inertia of the uterus. The differential diagnosis between *inefficient* action of the uterus, and *impotent* action, is therefore of great importance, and sometimes it becomes a question of great difficulty. But there are certain requisites for the admissibility of the drug, which may, at the present day, be regarded as having been established by the experience of the profession.

1st. There must be no mechanical obstacle to delivery. This will exclude all cases where there is disproportion between the size of the fœtal head and the pelvic cavity, all cases where there is even the slightest pelvic distortion, all cases of mal-presentation, and all cases where the obstacle to delivery results from rigidity of the soft parts.

2d. The first stage of labor, viz., dilation of the cervix, must be fully completed. The action of this drug is specially directed to the body

of the uterus, and not to the cervix. The physiological functions of the cervix are entirely distinct from those of the body of the uterus, not only when the organ is in the nongravid state, but also during gestation and at the time of parturition. The phenomena of the first stage of labor pertain to the cervix, those of the second to the body of the uterus. Now, however desirable it may be to overcome delay in the first stage of labor, the attempt to effect this by premature development of the phenomena belonging to the second stage, is attended with great danger, as will be subsequently shown. The only exception to the law, that the first stage of labor must be fully completed, is found in some cases of partial placental presentation, which will hereafter be examined.

3d. The second stage of labor must be so far advanced that the labor can be terminated by efficient uterine action within one hour. The reasons for this law are based on considerations relative to both mother and child. As regards the mother, it requires no elaborate argument to prove that the violent, persistent, and continuous compression of the soft parts beyond this period of time, must be attended with great hazard. Professor Meigs, in the following quotation, has, with his usual felicity of expression, thus made this point: "A labor is effected by the contractions of the muscular fibres of the womb, aided by that of the abdominal muscles. If all the powers employed in a labor could be accumulated in a single pain, lasting as long as all the natural pains do, no woman, probably, could escape with life from so great an agony, except that small number who are met with, and whose organs, happily for them, make no resistance, but open spontaneously, like a door, to let the fœtus out. By a beneficent law of the economy, the pains of of labor are short, not lasting more than thirty or forty seconds in general, and returning once in three or six minutes." The exhibition of ergot is safe only in those cases where the presentation is natural, the pelvis is well formed, the os uteri well dilated, the vagina and vulva lax and moist, and in short *everything is prepared for delivery, nothing being wanting but efficient action of the uterus.* The dangers resulting from its use are, first, *rupture of the uterus.* In the most excellent monograph on this subject by Dr. J. D. Trask, of White Plains, the imprudent use of ergot is mentioned as one of the prominent causes of this accident, and quite a number of cases are referred to in illustration of the fact. Dr. Trask very justly remarks, "the medical journals, for obvious reasons, contain but few cases of rupture from the imprudent administration of ergot. There can be no doubt that the injudicious exhibition of this drug has been the source of infinite mischief. It is dif-

ficult 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." The number, however, of such cases that have been reported are sufficient to show that this is by no means an unfrequent cause of this fearful accident. Laceration of the os uteri is another result of the injudicious use of this article. Rupture of the perineum is also a frequent consequence. Dr. Barnes mentions, also, prolapsus and procidentia of the uterus and bladder, as resulting directly from the violent dislocation occasioned by ergot contractions. Other injurious effects upon the mother's system, besides these direct lesions, have been ascribed to the ergot.

Dr. Hardy says, that in several cases where the circulation of the patient had undergone depression from the action of ergot, the effect continued for several days, notwithstanding that, in some instances, inflammation of the uterus followed the delivery, and the uterine tumor not unfrequently remained much larger than natural, even when there was no inflammation. He quotes, also, the eminent authority of Dr. Johnson, to the fact that "the volume of the uterus is often found much greater than after ordinary labor, imparting to the hand almost the feel of a uterus, before the expulsion of the placenta."

The fatal effects of ergot on the child, when the delivery is not completed within a limited period of time, are now established beyond all controversy. Dr. Hardy found that in forty-eight cases where the ergot had been given, thirty-four children were still-born—nearly three-fourths. The concurrent testimony of those of the profession, who have not only had experience in the use of this article, but have honestly watched the results on the child, confirm the evidence as to the great danger in its use, although the proportionate mortality is not usually so great as that mentioned by Dr. Hardy. I may mention, as an interesting historical incident, that I have been informed, from an authentic source, as I suppose, that Dr. Stearns, to whom the profession is indebted for the introduction of an article that obstetricians at the present day would find difficult to dispense with, suffered so much in his practice from the mortality among children, charged to the use of this article, that he left Albany and removed to New York on this account.* It

* From Dr. Willard's Semi-Centennial Address before the Medical Society of the County of Albany, published in the Transactions of 1857, we copy the following:

"In a somewhat extensive and successful practice, Dr. Stearns became unfortunate in losing a series of cases of puerperal fever. It was not then, as now,

is probable enough, that the enthusiasm of a discovery may have led to some errors in practice, before an accumulated experience had established the laws which should govern its administration, and it is also probable that rival practitioners did not hesitate to take advantage of any such impression. But as showing that Dr. Stearns fully understood the action of the article, and to a great degree appreciated the contra-indications for its use, I again refer to the letter of Dr. Stearns to Dr. Ackerly. (See note, page 2.)

A variety of opinions have been entertained, as to the action of the ergot on the child. Some have believed that it possesses some special noxious property, which is absorbed and transmitted to the child. Others think it acts perniciously, owing to the uninterrupted pressure of the uterus upon the brain of the child, or that the long-continued compression of the trunk, by the uterus, produces a fatal cerebral congestion; but at the present day the best received theory is, that the violent and continued ergotic contractions arrest the utero-placental circulation, and the death of the fœtus results from the want of proper oxidation and decarbonization of its blood.

I have thus far spoken of the value of ergot as a means of assisting delivery, and it will be readily seen that I would restrict its use to a *very limited* class of cases. I will now examine its value for other purposes, connected with parturition.

1st. *As a means of preventing hæmorrhage.* We are safe from the dangers of post partum hæmorrhage only in those cases where the permanent contraction of the uterus is secured. Ergot has often and naturally been relied upon to obtain this result, and of its value for this purpose there can be no question, except in those cases where the labor has been so prolonged that not only the nerve power of the uterus, but also that of the general system, has been exhausted. In these cases our greatest security is found in the liberal use of opium, or of some of its preparations. The time when the ergot should be administered as a means of preventing hæmorrhage, is a matter of a good deal of importance. Some have advised that it should be given when the head of the child is on the perineum, and about to be expelled. Others delay its use until after the head has cleared the os externum, but before the shoulders have passed. McClintock and Hardy prefer to give it

understood that this disease is contagious, and may be communicated from one lying-in patient to another by the hand or clothing of the accoucheur. The mystery of its appearance in his practice only, and the fatality of its termination, keenly oppressed his truly sensitive mind, and led him at length to abandon his practice in this city."—*Com. of Pub.*

as soon as the insertion of the cord into the placenta can be felt. Dr. Hardy remarks, that, "by giving the ergot before the child has been expelled, some time may be gained; but should the placenta be morbidly adhering to the uterus, the difficulty of introducing the hand for its removal will be greatly increased. By adopting the third plan this source of apprehension is avoided." But morbid adhesion of the placenta is not a very frequent occurrence, and in those cases there is reason to apprehend danger on account of previous hæmorrhages. I should not hesitate to use the ergot at an earlier period.

2d. *As a means of arresting hæmorrhage.* In partial presentation of the placenta, the ergot is often strikingly beneficial in controlling the hæmorrhage. It is in these presentations only that I would ever use ergot in the first stage of labor. The tampon is to be relied upon, until the os is considerably dilated; but this is no longer efficient when the os is tolerably open, thin and soft, as the yielding membranes will not afford a counter-pressure. The membranes are now to be ruptured, to allow the head to descend so as to compress the placental vessels; and now, to secure the permanent tonic contractions of the uterus, and thus prevent further loss, the ergot becomes invaluable.

The ergot has been strongly recommended by some as a means of arresting the hæmorrhage which occurs after the delivery of the child, but before the expulsion of the placenta; and if we could always be sure that the retention was the result of uterine inertia alone, the propriety of its use would never be doubtful. The indication in these cases is, the prompt removal of the placenta. Now, if the placenta is morbidly adherent, the use of the ergot would render its detachment much more difficult. If, on a careful examination, this condition is ascertained to be absent, the ergot may be used with advantage, not so much for the purpose of facilitating the expulsion of the placenta, (for this must be effected at once by a manual operation,) as for the sake of securing the permanent contraction of the uterus after its delivery.

As regards the hæmorrhage which occurs after the delivery of the placenta, the distinction made by various authors (first clearly pointed out, as I believe, by Dr. Beatty, of Dublin,) as to the two opposite conditions which favor this formidable accident, I regard as very important. "The first is the full, plethoric habit, where the heart is in strong and rapid action, and all the vessels are gorged with blood, as is indicated by the flushed skin, headache, thirst, and bounding pulse. The second is the weak, delicate, lax fibred state, characterized by pale countenance, spare limbs, slow and weak labor pains, and feeble, though it may be rapid pulse." In the first class, hæmorrhage within

certain limits may be beneficial, and it is in these cases that the use of ergot proves especially valuable, from its known power of lowering the circulation, as well as of securing the permanent contractions of the uterus. We have no fear of its depressing influence, and we can rely with a good deal of certainty upon its power, in these cases, of securing the latter object.

But the propriety of its use in hæmorrhage occurring in the second, is often doubtful. In these cases it does nothing to excite the contractions of the exhausted uterus, its depressing influence producing just the opposite result. I must especially protest against the large doses which are in these cases sometimes administered, with the vain hope of stimulating the exhausted organ, the only effect of which is, still more to debilitate it. I can positively aver, that in more than one instance I have seen death result from its injudicious administration under these circumstances. Without stopping to describe the various methods to arrest the hæmorrhage, which should be resorted to in these cases, I will simply remark, that the ergot should never be administered except in conjunction with opium, or until the exhausted powers of the nervous system have been restored by the use of opium. "In these cases," says Dr. Lever, "where there is great exhaustion, alarming syncope, great irritability, severe vomiting, and pain, evident and undeniable indications of great depression of the sanguiferous and nervous systems, or, to use the graphic language of Dr. W. Griffin, 'when the countenance is sunk, the eye hollow and glassy, the lips blanched, the skin cold, and the whole person corpse-like; when the pulse is all gone at the wrist, when the beat of the heart is scarcely perceptible, and stimulants, even brandy, are vomited or useless, opium will act like magic, and save the patient from an untimely grave.' But to do good, it must be exhibited in full doses of one or two drachms of the tincture, or three or four grains, repeating two grains every half hour or hour until the pulse becomes distinct, the breathing calm, and the jactitation allayed; whatever may be the 'ratio medendi,' whether the congestion produced in the brain be what is necessary to maintain the proper tension of the cerebral vessels, whether it restore the loss of nervous power in the brain itself, is still a point *sub judice*; but no man of much obstetric experience, will deny its value under the circumstances thus detailed. As pertinent to the foregoing remarks, I may be excused for making the following quotation from Prof. Murphy: 'The paradox has been proposed, how can opium cause the uterus to contract in hæmorrhage and to relax in other cases? for instance, when given for this purpose in arm presentations. The same medicine cannot pro-

duce opposite effects on the same structure. In this query, the condition of the nervous system, a most essential element, is totally overlooked, and the influence of opium, where nervous irritability is almost exhausted, is compared with its effects when the same power is excited to the greatest degree. It is assumed that the operation of opium must be the same when the uterus has lost all power to contract, and when it has contracted spontaneously. The question, therefore, might be easily answered, by stating that opium is both a stimulant and sedative, and that one effect or the other is produced, according to the relation existing between the nervous energy of the uterus and the dose of the medicine given. If nervous irritability be not impaired, or if it be increased, a very small dose of opium would stimulate—a larger one would exhibit its sedative effects; but if, on the contrary, that irritability is destroyed, and the uterus atonic, the same large dose would only act as a stimulant; nor will the sedative property of the medicine be observed until the nervous energy is restored. In the use of opium, therefore, strict attention should be paid to the degree of hæmorrhage, and its effect upon uterine contractability. When the loss of blood is slight, or at least not sufficient to impair the tone of the uterus, a large dose of the opium would be dangerous, lest it might act as a sedative, overcome the influence of the nerves, and cause the uterus to relax. When the loss is great, and followed by exhaustion of the uterus, then the very same quantity of the medicine will produce an opposite effect—it will act as a stimulant, and cause contraction of the uterus."

As a remedy for retention of urine after labor.

This is generally the result of a temporary paralysis of the muscular coats of the bladder, arising from over-distension during labor. For some years I have not had occasion to use the catheter on account of this condition, the ergot in every instance having proved efficient. I usually give the tincture in doses of 20 drops, repeated every half hour, until the bladder is relieved.

The forceps in labor.

It is not my province in the present paper either to give the history of the discovery of these instruments, or to describe their mode of application, but solely to discuss the indications for their use, the dangers attendant upon their use, and thus to contrast their value in labor, as compared with the use of ergot. There is a great difference in the

teaching of different obstetric schools, relative to the indications for their use, and the comparative frequency with which they are required. Before discussing the disputed points, let us briefly examine those where all agree:

1st. As to the functions of these instruments, all are agreed, that they are to be used as a means of assisting the uterus to expel its contents, by their tractive powers, and also for the purpose of correcting any defective mechanism in the labor. Traction alone, is far from being the most important aid to be accomplished by them. Flexion, extension, or rotation of the head is in many cases more important and necessary than traction.

It is unnecessary for me here to insist upon the great importance of thoroughly understanding the normal mechanism of labor. I suspect that by far the most frequent mistake made in the use of the forceps, is in employing them simply as tractors, and that to this cause is due most of the unfortunate results which have followed their injudicious use.

2d. All schools teach that the forceps are to be used where the conditions of the labor will permit, in all those cases where the powers of nature have been well ascertained to be insufficient to accomplish the delivery with safety to the mother and child. I will subsequently allude to the differences of opinion as to the conditions which admit the use of the forceps.

3d. All agree that, where the forceps afford the most feasible and safest mode of accomplishing the delivery, they should be used in all those accidents of parturition which require a speedy termination of the labor.

Thus, in severe puerperal hæmorrhage, it is a settled rule of practice, that delivery should be speedly effected by means of the forceps, when the os is well dilated, the head is in the pelvic cavity, and there is no mechanical obstacle either from pelvic deformity, tumors in the cavity, or abnormality of the fœtal head. So in puerperal convulsions, if after a careful investigation, it is evident that the convulsions are excited by the reflex irritation of the peripheral extremities of the nerves of the cervix uteri, or of the soft parts, there is no hesitation as to the propriety of using the forceps at once, if their use is practicable. For example, where the pains are feeble, infrequent, and inefficacious, or even if the contractions are energetic, but the convulsions are frequent and prolonged, with coma in the interval of the paroxysm, the safety of both the mother and child require the immediate application of the forceps.

When rupture of the uterus occurs, the os being dilated or dilatable, and the head remaining in the pelvic cavity, the forceps must be applied at once and speedy delivery effected.

In cases of prolapsus of the cord, accompanying vertex presentations, the safety of the child requires that delivery by the forceps should be accomplished before the pulsations of the cord cease. It would be a waste of time to discuss these points, as there is no difference of opinion in the profession as to the propriety of the rules above enumerated.

Dangers resulting from the use of the forceps.

The only danger to the mother results from the increased liability to hæmorrhage from inertia, on account of the rapid evacuation of the contents of the uterus, and this liability can always be prevented by proper precautions, and the use of the known means to secure immediate and permanent contraction of the organ. Injury to the soft parts of the mother can only result from the abuse of the instruments, and not from the proper use of them. The rules for their use are now as well established as any principles in obstetric practice, and to condemn any resource of art on account of its liability to abuse, is not only illogical, but opposed to the progress of science. This point will be examined more in detail in a subsequent part of this paper.

The dangers to the child are more numerous. The necessary compression by the instrument may inevitably cause contusion, laceration, and even partial separation of the scalp, and possibly cerebral effusion, depression and fracture of the cranium. These dangers are not to be forgotten in any case, when the propriety of using the forceps is under consideration; but they are not to overweigh the question of safety to the mother. Quite recently the attention of the profession has been called to the danger of facial paralysis in the child, resulting from the pressure of the blade on the seventh pair of nerves. This accident is very rare, and in all cases hitherto reported the paralysis fortunately has proved only temporary in its character.

I have thus far spoken only of those points in regard to which all obstetricians are agreed, as to the indications for the use of the forceps, and the dangers attendant upon their use. There remains to be discussed the rules for practice, which have not yet been established; and the great diversity of opinion will be striking, from the following statement as to the comparative frequency with which these instruments are used by the most celebrated obstetricians in Europe. Ramsbotham used the forceps once in seven hundred and twenty-nine cases, Joseph Clark

once in seven hundred and forty-two, Collins once in six hundred and seventeen, Churchill once in five hundred and forty-six, Lever once in five hundred and eighteen, Simpson once in four hundred and seventy-two, Lachapelle once in two hundred and ninety-three, Beatty once in one hundred and thirty-one, Merriman once in ninety-three, Nægele once in thirty-one, Carus once in fourteen, Siebold once in seven, G. Hamilton once in seven. One explanation of the great difference is found in the fact that the great majority of British obstetricians resort to craniotomy in all those cases where the head of the child has not passed completely down into the pelvic cavity, while the continental obstetricians in the same class of cases would use the forceps. Thus Collins used the perforator once in one hundred and forty-one cases, Churchill once in one hundred and forty-nine, while Nægele used the perforator once in one thousand seven hundred and eleven cases, Mad. Lachapelle once in one thousand eight hundred and fifty-four, and Siebold once in two thousand and ninety-three. Professor Simpson has shown, from a comparison of the statistics of the three great lying-in hospitals of Vienna, Paris and Dublin, that the proportion of cases of operative or artificial delivery is very nearly the same: "In the Vienna hospital, under Beer, one out of every fifty-five women was delivered either by the forceps, vectis, craniotomy or version, and during the time of Dr. Arneth's report, one out of every sixty-nine cases. In the Paris hospital, Mad. Boivin reports one out of every sixty-one labors as requiring delivery by operation. Mad. Lachapelle found that in the ten years preceding 1810, one in fifty-seven mothers were delivered artificially, and during the subsequent ten years, one in eighty-two required such a procedure. In the Dublin Hospital, Dr. Collins reports one out of every eighty-six women as having been delivered artificially, and Drs. McClintock and Hardy describe one out of every fifty-two of their cases as having been similarly assisted." The difference of practice, then, consists not so much in difference of opinion as to the propriety of rendering artificial aid, as in the choice of means for this purpose. The laws which must govern the decision as to the choice of means, cannot be drawn from statistical tables, but must be deduced from certain general principles; and following these laws, it may happen that one who has a large consultation practice may find the forceps necessary once in every ten cases of labor that he meets with, while if his consultation cases are excluded, the proportion of forceps cases will not be more than one in a hundred. Or again, an obstetrician may meet with five cases requiring the forceps in every hundred cases of labor, during the first ten years of practice, when a large percentage

of his cases are primipara, when in the second ten years he may not find the forceps necessary oftener than once in a hundred cases, as the proportion of primipara cases changes in the same ratio. I think it sufficient merely to state the above proposition to show the fallacy of relying upon statistical tables to establish the principles which should govern practice.

It is, however, evident, from the statistics before given, that there is a wide difference of opinion among our obstetrical authorities as to the class of cases requiring the forceps, one class never using them except when the evidence of positive arrest at the lower strait is already demonstrated, by the time which the labor has occupied, and the urgent symptoms accompanying it. They require from six to eight hours of ineffectual struggle on the part of the uterus, and the development of symptoms indicative of danger either to mother or child. Without stopping to discuss in detail the special teachings of different authorities, I may say that the plain, practical question to be decided in the lying-in room is, which is safer for mother and child, *the use of instruments or further delay?* The dangers resulting from the use of the forceps have already been noticed, and in my judgment are sufficiently strongly enforced in our systematic treatises, while the dangers of delay have received but slight attention, as compared with the importance of the subject.

Prof. Simpson has shown that the maternal mortality attendant upon parturition increases in ratio progressive with the increased duration of the labor. He has made out the following table, showing the proportion of 138 natural deaths in relation to the duration of labor in 15,850 cases of delivery recorded by Dr. Collins:

Duration of labor.	No. of deliveries.	No. of deaths.	Proportion of deaths.
Within one hour	3,537	11	1 in 322
From 2 to 3 hours	6,000	26	1 in 231
From 4 to 6 hours	3,875	29	1 in 134
From 7 to 12 hours	1,672	21	1 in 80
From 13 to 24 hours	502	19	1 in 26
From 25 to 36 hours	134	8	1 in 17
Above 36 hours	130	24	1 in 6

So also the infantile mortality attendant upon parturition increases in ratio progressive with the increased duration of the labor, as is shown in the following table of the proportion of still births, in reference to the duration of labor in 15,850 cases of delivery:

Duration of labor.	No. of deliveries.	No. of still born.	Proportion.
Within 2 hours	7,050	347	1 in 23
From 3 to 6 hours	6,362	346	1 in 18
From 7 to 12 hours	1,672	151	1 in 11
From 13 to 24 hours	502	88	1 in 6
From 25 to 36 hours	134	42	1 in 3
Above 36 hours	130	71	1 in 2

It will thus be seen that the dangers of delay, both to mother and child, become a question of the gravest importance. Among our systematic authors, Burns has more strongly, and I think more truly pointed out these dangers than any other of our English writers. He says the continued pressure of the head on the soft parts is productive of further diminution of the capacity of the pelvis, for inflammation is excited, and at the same time the return of the blood by the veins is obstructed, and of serum by the lymphatics. This impairs the power of the soft parts, and renders the inflammation of the low kind, so that even when delivery is accomplished sloughing succeeds, whereby very dreadful or loathsome effects are produced, if these, indeed, be not prevented by the death of the patient, in consequence of a similar low inflammation being communicated to the peritoneum. This swelling of the parts contained within the pelvis may take place, although the head be not impacted, but the head cannot long be impacted without producing that.

Here, then, is one effect of a most formidable and alarming nature, which we apprehend in the case under consideration. But this is not the whole of the evil; for the upper part of the vagina, or the cervix uteri, may be lacerated in consequence of this debilitated state, or any part of the uterus may be ruptured by strong and spasmodic action; or uterine or peritoneal inflammation may be excited previous to delivery, proving fatal in a few hours after labor is terminated; or hæmorrhage may occur, to a fatal degree, from want of energy in the uterus after delivery; or general ininition and exhaustion are produced; the pulse becomes frequent, and at last feeble; the mouth parched; the skin hot; the mind confused, and the strength sunk; or the powers of life may be worn out, so that the patient shall die without any decided inflammation or disease referable to a common nosological system. In the Clinical Midwifery of Dr. Robert Lee, who is no advocate for the frequent use of the forceps, and, indeed, who never uses them except when the head is at the lowest strait, occurs the following statement, which seems to me very significant: "In thirty-eight cases of this re-

port the labor continued from forty to seventy hours. In the cases of spontaneous rupture of the uterus and convulsions only was the delivery effected before the labor had lasted upwards of thirty hours. In a very large proportion of the cases the difficulty arose from distortion, or a contracted state of the pelvis. Rupture of the uterus took place in three before perforation; and the inflammation and sloughing of the uterus, vagina and bladder, which proved fatal in eight hours, were chiefly or solely produced by the long-continued violent pressure on the soft parts, by the head of the child before it was opened and extracted. In those who recovered with vesico-vaginal fistula, or contraction of the vagina from cicatrices, the unfortunate occurrence arose from craniotomy being too long delayed." In eighty-seven of Dr. Lee's cases, where craniotomy was performed, local lesions on the part of the mother are noted as having occurred in several instances. Out of the eighty-seven cases, eight, or about one in every ten, suffered from vaginal inflammation and sloughing; four, or nearly one in every twenty, were left with vaginal fistula. In a paper on the subject of "Urethro-vaginal and vesico-vaginal Fistulas," published in the North American Med. Chir. Review for July and November, 1857, by Dr. N. Boseman, of Montgomery, Alabama, he states that in nineteen cases of these fistulas "the shortest duration of labor in any one of these cases was thirty-six hours, and the longest eight days; the average being about four days. In nine of these cases instruments were employed to aid in the delivery; in six no artificial means were resorted to." He adds: "Judging from the nature of the fistulous openings in the cases where instruments had been used, and where they had not, I am forced to the conclusion that nearly, if not all of them, were the result of sloughing." In further confirmation of the views advanced as to the danger of delay in labor, I add a note from Dr. Sims, who has undoubtedly had a larger experience in the lesions resulting from parturition than any man living:

79 Madison Ave., *Jan.* 30, 1858.

My dear Doctor—Out of about one hundred and twenty cases of vesico-vaginal fistula, I have had time to look over the histories of only seventy. Of these forty-one were delivered by instruments, the rest being left to the unaided efforts of nature.

These fistulas are sometimes produced by larceration, but most commonly by a slough which is generally in proportion to the duration and degree of impaction, whether instruments are used or not. Instruments are often blamed for injuries which are produced, not by

their use, but by the want of their timely application; in other words, by the prolonged pressure resorted to.

The cases left entirely to the unaided efforts of nature, other things being equal, suffered the greatest loss of structure; those in which instruments were used, sustained, as a rule, less loss in proportion as they were resorted to early or late, thus showing that the mischief was the result of prolonged pressure.

With great regard,

Ever sincerely yours,

J. MARION SIMS.

Prof. FORDYCE BARKER.

In conclusion, I must state my conviction that the more enlarged is the clinical experience, and the more accurate the observation, the more rarely will the ergot be used before delivery, and furthermore, that the fear of delay in labor will be greater than the apprehension from the use of forceps. McClintock and Hardy gave the ergot in the second stage on account of inertia in nineteen cases, after which it was necessary to deliver with one or both blades of the forceps. In ten of these cases the child was lost. The death of the child could not have resulted from the use of the instruments, and must have been due either to the ergot or the protracted labor.