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THE PROPHYLACTIC FORCEPS OPERATION*

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THE time is not yet ripe for a general recommendation of the procedure to be described in this paper. As obstetric specialists, we must lead the way in improvements of our art, for this is still capable of improvement. The public is demanding with a voice that becomes louder and more insistent each year, relief from the dangers of childbirth for the childbearing woman. As regards the pain, the rapid spread of the twilight sleep craze will show that the demand for "tokophobia" is spreading among women.

If we study our cases carefully the conclusion is inevitable that while we have decidedly improved the maternal mortality and morbidity and have reduced the fetal deaths somewhat, labor is still a painful and terrifying experience, still retains much morbidity that leaves permanent invalidism. The latter statement is also applicable to the child. Many efforts are being made to ease the travail of the woman and to better the lot of the infant. What follows is another such effort. Experience alone can decide whether it accomplishes its purpose.

The "prophylactic forceps operation" is the routine delivery of the child in head presentation when the head has come to rest on the pelvic floor, and the early removal of the placenta. Primiparous labors and those in which the condition of the soft parts approximates a first labor, are treated by this method, which really comprises more than the actual delivery of the child. It is a rounded technic for the conduct of the whole labor, with the defined purpose of relieving pain, supplementing and anticipating the efforts of Nature, reducing the hemorrhage, and preventing and repairing damage.

It is not a complete reversal of the watchful expectancy that is universally taught, but I cannot deny that it interferes much with Nature's process. Were not the results I have achieved so gratifying, I myself would call it meddlesome midwifery. For unskilled hands it is unjustifiable.

A typical case is treated as follows: As soon as the pains are well established and the cervix opened two to three centimeters, the parturient is given 1/6 grain of morphine and 1/200th of the scopolamine. After one hour 1/400 of scopolamine is given and in one or two hours occasionally a third dose of the same size. The room is darkened and suggestion used as much as possible to aid the medicines. This is really a modified twilight sleep and usually the cervix dilates and the head comes down on the perineum without the necessity of further drugs. Occasionally 15 grains of chloral and 40 grains of sodium bromide are given *per rectum* to aid the morphine, or gas and oxygen are administered by an expert. It is important to obtain complete *spontaneous* dilatation of the cervix, and the slower the better. The importance attached to this point, the natural dilatation of the cervix and the slow retraction of the pericervical connective tissues, cannot be exaggerated. We are unable to imitate this by art.

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When the head has passed the cervix and rests between the pillars of the pelvis and has begun, just begun, to part them and to stretch the fascia between them—a matter that is easily determined by rectal examinations, the patient is put to sleep with ether, and a typical perineotomy (soon to be described) is performed. Under the minutest possible control of the fetal heart tones—either the operator or an assistant listening every minute, with the head stethoscope—the forceps are applied and delivery accomplished. This is usually surprisingly easy. As soon as the child's head is born, 1 c.c. of Burroughs and Wellcome's Pituglandol is injected into the deltoid muscle. A nurse stands ready with 1 c.c. of aseptic ergot and this is injected into the outer thigh muscle as soon as the placenta is visible in the vulva. If there is hemorrhage, the placenta is removed at once, if not, we wait five to ten minutes. The operator then changes his gloves or disinfects them with antiseptics, and if the placenta is not already visible in the vulva, inserts the left hand into the vagina or the lower uterine segment, palm up, while with the outside hand the hard (puitrin) mass is pushed down on the already descended placenta. The placenta slides down the hand like a heel slides along a shoehorn. We call this method of expression of the placenta the "shoehorn maneuver," and it is the rare exception that the placental delivery needs more help than light pressure on the contracted uterus from above. Should there be any undue bleeding, another ampoule of puitrin is injected directly into the uterine muscle through the abdominal wall. Uterine tamponade is almost never needed.

The woman is now given $\frac{1}{4}$ grain of morphine and gr. 1/200 of scopolamine to reduce the amount of ether required for the repair work, to prolong the narcosis for many hours postpartum, and to abolish the memory of the labor as much as possible.

It is surprising how bloodless the operative field, especially the cervix, has become. The cervix is pulled down with specially constructed ring forceps and all tears immediately repaired. I have thus gained a large experience in cervical tears and find it necessary to revise my previous notions of their anatomy. The cervix tears often even in spontaneous deliveries. The body of the cervix frequently tears, leaving the mucosa, internal and external, intact. Later such cervixes show all the evidences of laceration, chronic inflammation, eversion, erosion, etc. Those lacerations which are open also show the separation of the muscle of the cervix at the sides, and the deep retracted portions of the wound must be pulled out and united, preferably with buried sutures. Our previous failures in cervical repair were, I believe, due to nonrecognition of this fact.

THE PERINEOTOMY

The technic of repair is one of the most important steps of the procedure. It is essential to have clear notions of the normal anatomy of the pelvic floor and how the structures are changed during delivery. The models (see illustrations) are intended to show these things. The head advancing through the hiatus genitalis (1) stretches the vagina radially and longitudinally—it also sometimes, wipes the vagina off its fascial anchorings, sliding it downward and

outward. (2) The head stretches the pelvic fascia over the levator ani, and between the rectum and vagina and the layer behind the rectum, also radially and longitudinally, and this also permits the rectum to be wiped downward and slid off its fascial attachments to the levator ani; (3) the head often tears, or over-stretches the fascia over the levator ani, especially those bundles which hold the pillars of the muscle in position at the sides of the rectum, spanning the hiatus genitalis, and this permits the pillars to separate,—a real diastasis of the levator pillars resulting. The pathology is similar to that of the diastasis of the recti abdominales. This diastasis of the levator pillars and the wiping or sliding of the

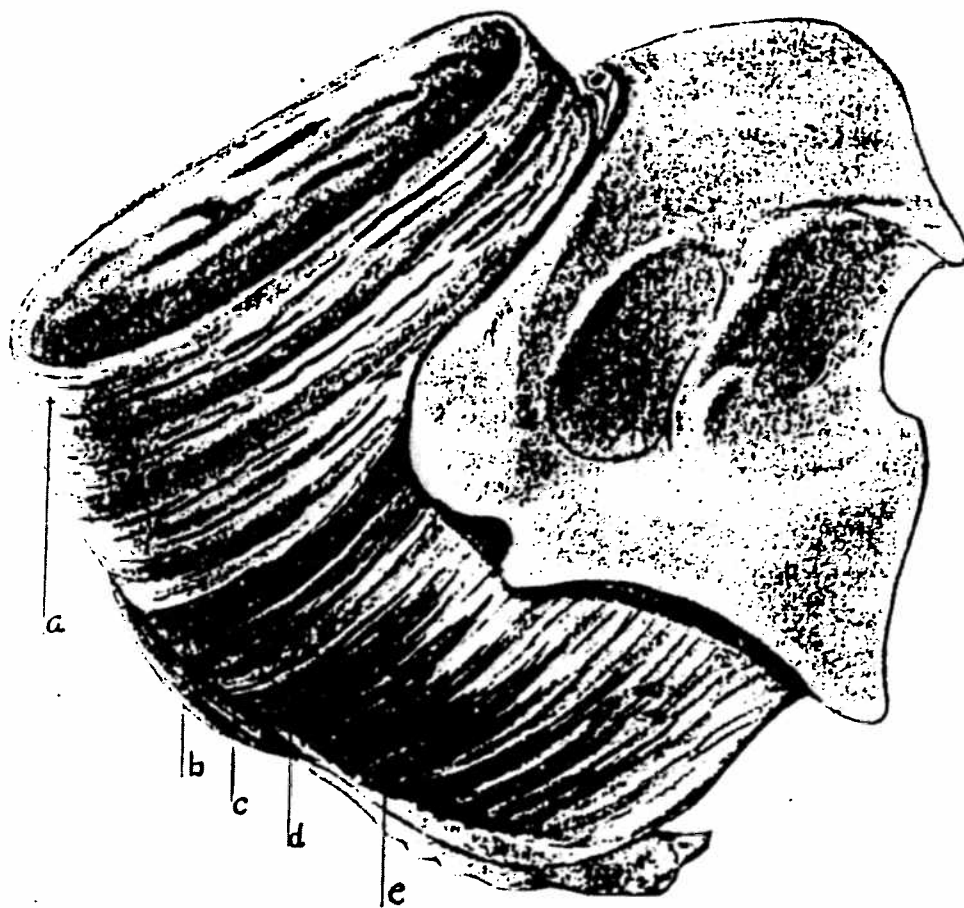


Fig. 1.—Partly diagrammatic to show the axial displacement, the distraction, and rupture of the fascia and muscles during the passage of the fetal head. *a*, Urogenital septum much distracted; *b*, usual site of rupture of levator ani; *c*, sphincter ani; *d*, levator ani pubic portion or "the pillars;" *e*, levator ani ischio-coccygeal portion.

rectum and vagina downward and outward are the essential features of most pelvic floor injuries have been, to my mind, the least noticed by current writers. (4) The tears in the levator ani muscle are usually due to improper treatment, and they occur least commonly near the insertion of the muscle on the pubic ramus (usually due to cutting by the forceps) and more commonly at the sides of the rectum, behind, near the raphé. (5) Labor always ruptures the urogenital septum, tearing it in all directions and also from its ramifications with the endopelvic fascia, both above and below the levator ani. (6) The fascia between the

Uterus and bladder is also stretched or torn, radially and in a downward direction, tearing the vagina and bladder off its anchorage to the upper surface of the deep pelvic fascia over the levator ani and posterior surface of the pubis.

Thus it is evident that most of the damage resulting from labor is due to laceration, rupture, distraction and displacement of the fascia, and less to tearing of the muscles.

Prevention, therefore, aims to preserve the fascia in its normal position throughout the parturient canal, and, where the overstretching or rupture can-

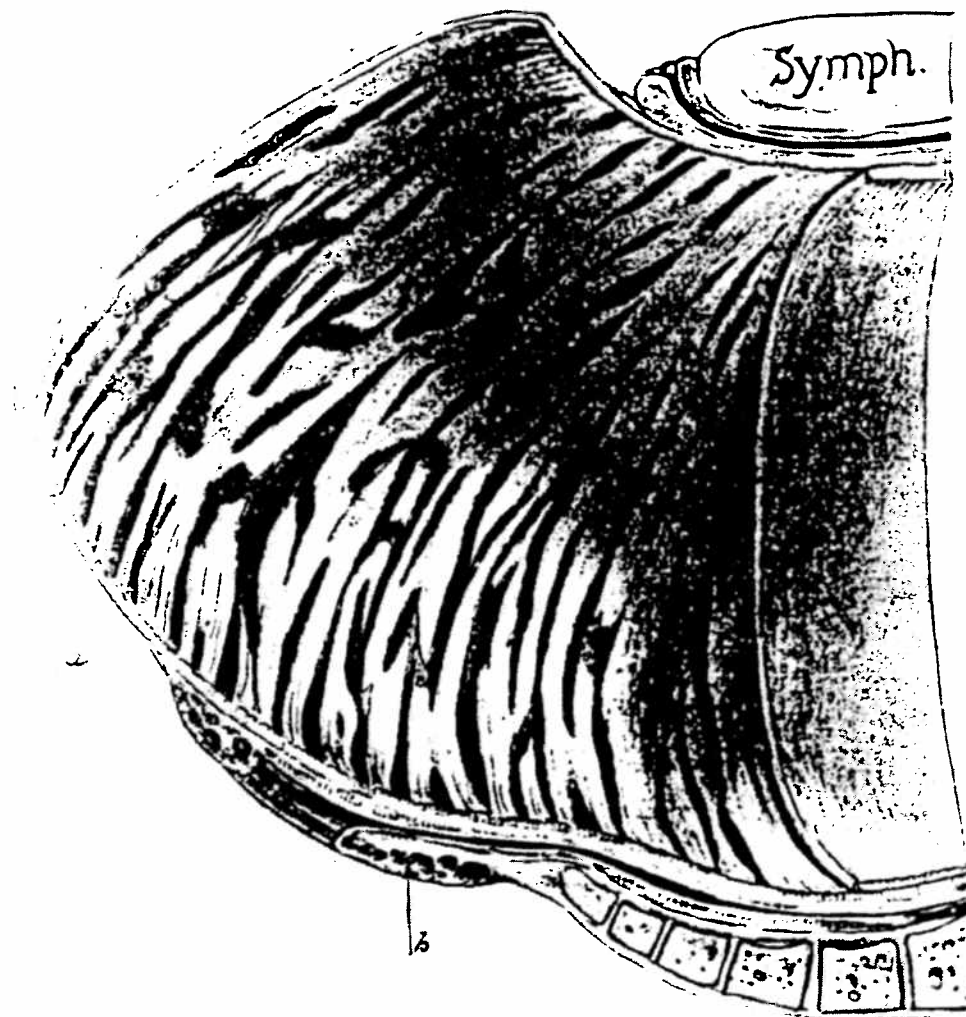


FIG. 2.—Purely diagrammatic, to show the interior layer of the levator ani fascia torn and distracted during the passage of the fetal head. *a*, Urogenital septum; *b*, sphincter ani.

not be avoided, to incise the structure at a spot where it can be repaired by suture.

We cannot do anything directly to save the pericervical connective tissues from radial and longitudinal overstretching and tears, but we can, indirectly, by avoiding all interference with the natural processes of dilatation of the cervix and restraining the natural powers if they are too violent. This means the avoidance of bags to hasten the dilatation, of manual stretching, of urging the

parturient to bear down before the head has passed the cervical barrier and especially avoiding pituitrin before complete opening of the cervix.

We can take direct action to save the fascial and muscular structures of the pelvic floor, in addition to practicing the measures just mentioned for preserving the connective tissues of the upper pelvis. By incising the fascia at its most vulnerable point, and reuniting it after delivery, we are almost always, not invariably, able to eliminate all damage to the pelvic floor.

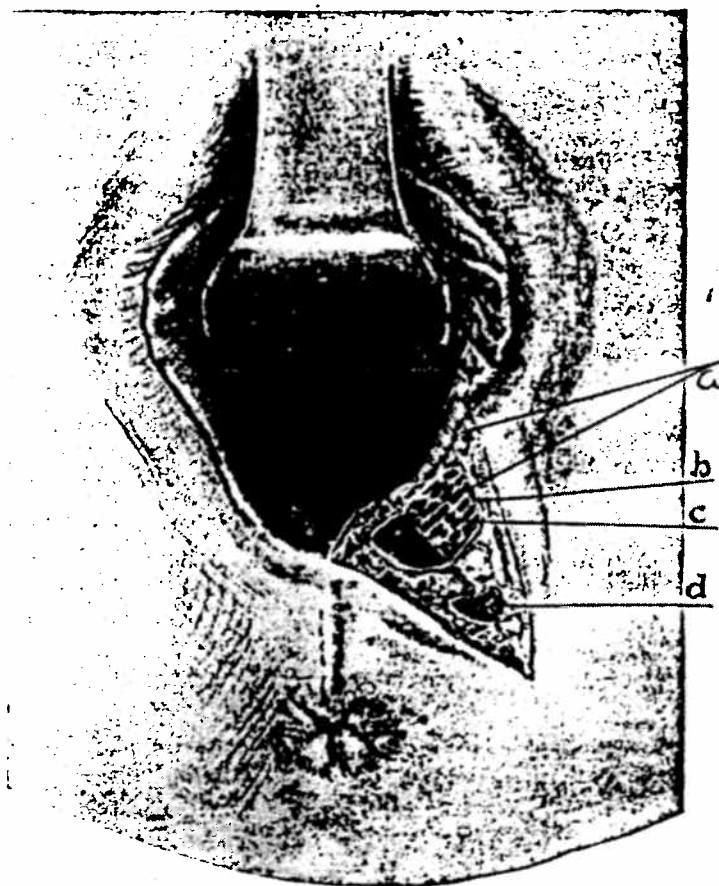


Fig. 3.—The perineotomy. Cut are the skin, the vagina, the urogenital septum, the outer layer of the levator ani fascia with its reflection over the deep transversus perinei muscle, the fascia over the levator ani both external and internal (the latter is called the fascia endopelvina). The portion of the fascia endopelvina between the levator ani pillars is called (by the author) the "intercolumnar fascia" and is shown at A. a. Urogenital septum; b, levator ani fascia; c, levator ani muscle or pillar; d, cut edge of deep transversus perinei muscle.

The first incision is through the skin and urogenital septum, exposing the pillar of the levator ani covered with the fascia endopelvina. Next the vagina is incised and with it the upper layer of the levator and fascia exposing the rectum, which is seen at the bottom of the wound covered with its fascia propria. Next the fibers of the fascia communicating with the urogenital septum are cut, which allows the perineal body with the sphincter ani and rectum to fall to the side opposite the cut. Simple episiotomy will not prevent injuries to the pelvic fascia. Where the disproportion between the head

If the pelvic floor is great, the muscular belly of the levator ani is also incised at a right angle to the length of the fibers. The models show these incisions better than descriptions.

Sometimes during the delivery the fascia tears and stretches more than we wish, but never so much that we lose the advantages of the preliminary incisions. By slow extraction we reduce this possibility very much. The repair is done with catgut, layer by layer, vagina, muscle, fascia, urogenital septum, subcutaneous fat and fascia and skin, all in anatomicosurgical fashion. Primary union is the rule and examination later shows that virginal conditions are usually restored.

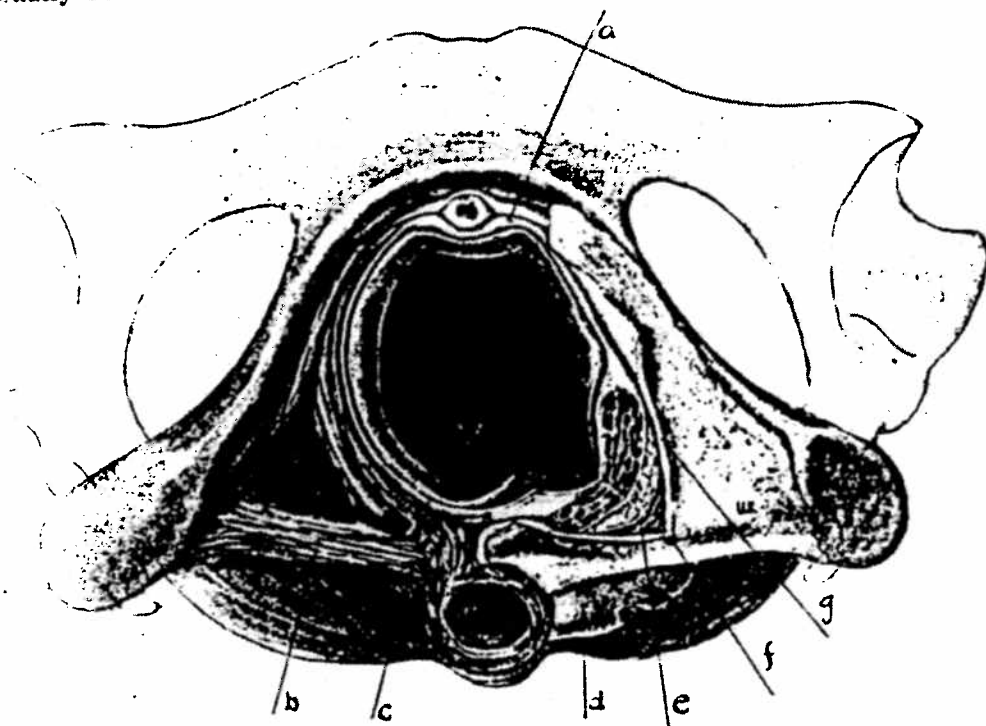


Fig. 4.—This model shows the dissection of the pelvic floor during the perineotomy. *U. S.*, Urogenital septum; *d*, the intercolumnar portion of the endopelvic fascia as it fuses with the urogenital septum; *e*, the centrum tendineum of the perineal body. On the left, the urogenital septum has been removed leaving the deep transversus perinei (enlarged) and showing the fusion of the levator ani fasciæ with the rectum. *a*, Vesicovaginal fascia (its destruction leads to cystocele); *b*, musc. transversus perinei profund. (enlarged); *c*, fascia endopelvina portion called "intercolumnar"; *d*, external layer of levator ani fascia; *e*, cut edge of deep transversus perinei muscle; *f*, levator ani pillar incised, fibrous portion; *g*, fascia of levator ani.

Now, should virginal conditions be restored? Did not Nature intend women should be dilated in the first labor so that subsequent children will come easily? Are not the lacerations normal?

Labor has been called, and still is believed by many to be, a normal function. It always strikes physicians as well as laymen as bizarre, to call labor an abnormal function, a disease, and yet it is a decidedly pathologic process. Everything, of course, depends on what we define as normal. If a woman falls on a pitchfork, and drives the handle through her perineum, we call that pathologic—abnormal, but if a large baby is driven through the pelvic floor, we say that it is natural, and therefore normal. If a baby were to have its head caught in a door very lightly, but enough to cause cerebral hemorrhage,

we would say that it is decidedly pathologic, but when a baby's head is crushed against a tight pelvic floor, and a hemorrhage in the brain kills it, we call this normal, at least we say that the function is natural, not pathogenic.

In both cases, the cause of the damage, the fall on the pitchfork, and the crushing of the door, is pathogenic, that is disease producing, and in the same sense labor is pathogenic, disease producing, and anything pathogenic is pathologic or abnormal.

Now you will say that the function of labor is normal, that only those cases which result in disease may be called abnormal. Granted, but how many labor

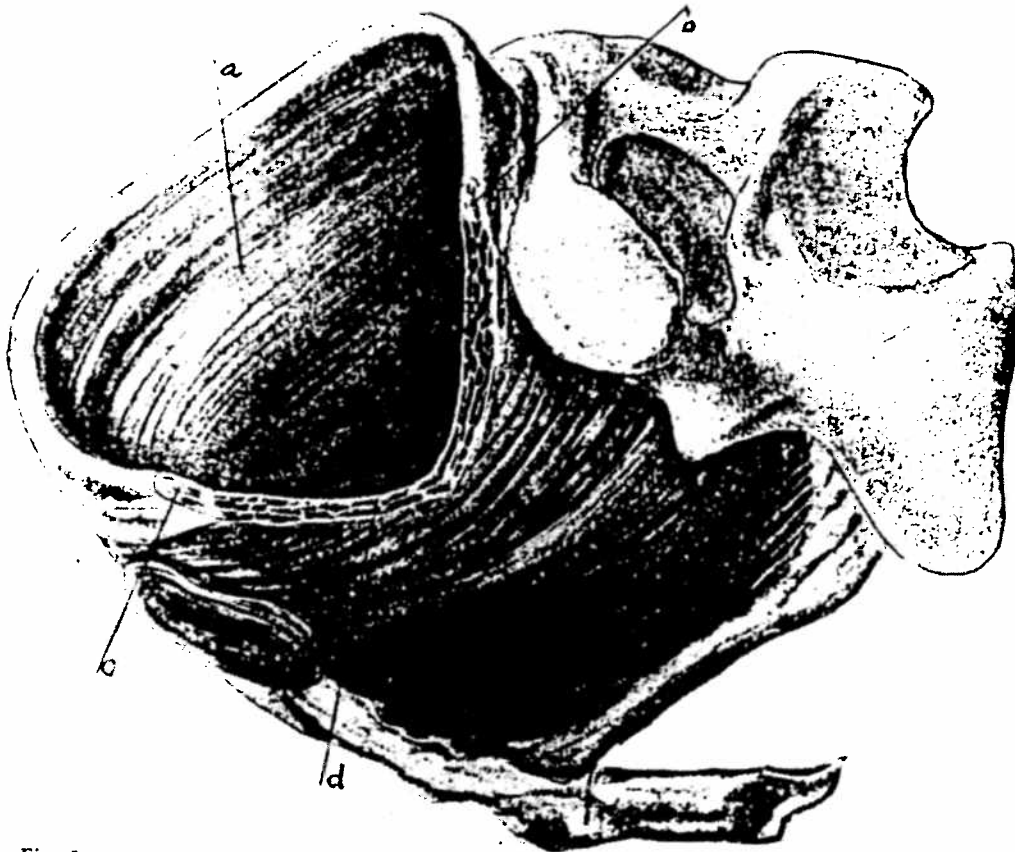


Fig. 5.—Condition of the muscles and fasciae at time of exit of head after a deep perineotomy has been made. Note the short perineum, the anus pushed to one side, the intact fascia over the levator ani. Partly diagrammatic. *a*, Fascia over levator ani not distracted or torn; *b*, urogenital septum not distracted; *c*, urogenital septum not distracted; *d*, levator ani pubic portion or "pillar" incised.

cases, measured by modern standards, may be so classified? Sir J. Y. Simpson, said that labor, in the intention of Nature should be normal, but that in a large proportion of cases it was not so. If the proportion was large in Simpson's days, during the middle of the last century, it amounts to a majority today. In fact, only a small minority of women escape damage during labor, while 4 per cent of the babies are killed and a large indeterminable number are more or less injured by the direct action of the natural process itself. So frequent are these bad effects, that I have often wondered whether Nature did not deliberately intend women should be used up in the process of reproduction, in a

mer analogous to that of the salmon, which dies after spawning? Perhaps laceration, prolapse and all the evils soon to be mentioned are, in fact, natural labor and therefore normal, in the same way as the death of the mother soon and the death of the male bee in copulation, are natural and normal. If you adopt this view, I have no ground to stand on, but, if you believe that a woman after delivery should be as healthy, as well, as anatomically perfect as she was before, and that the child should be undamaged, then you will have to agree with me that labor is pathogenic, because experience has proved such results exceedingly rare.

What are the factors that render labor so pathogenic? Dangers, immediate and remote, threaten both mother and child throughout.

First, for the mother. Infection is always a threat, even under the most favorable conditions. Virulent streptococci inhabit a large percentage of vaginae, and if the second stage becomes too prolonged, if the bruising of the parts is too extensive, if the woman's resistance is worn down by too much suffering and hemorrhage, they may invade the organism and prove fatal. The death may occur in a fashion that hides the cause from the unobservant accoucheur, as in a very mild sepsis, or even a single rise in temperature is shown, and, in the second week, death occurs from embolism.

Exhaustion is not infrequent in a second stage that may not be too long for a healthy woman, but in one whose nerve reserve is low, exhaustion may lead to immediate nervous shock, and later, pronounced neurasthenia. If the "slight sleep" propaganda taught us anything, it showed the actual value of preserving the nervous strength of the parturient.

Of greatest importance, because of greatest frequency, is the damage to the pelvic floor and perineum; next comes the injury to the vesicovaginal fascia and then the lacerations of the cervix and the connective tissue supports of the uterus, the so-called uterine ligaments. It is not necessary before this society to enumerate the immediate and remote effects of this destruction of tissue.

The dangers of the second stage of labor to the child are much greater than one who has not studied the matter, may think. It may surprise some present to know that the following injuries have been caused by the forces of natural, spontaneous labor: fracture of the skull; rupture of the tentorium cerebelli; intracranial hemorrhage (numerous minute and large ones); retinal hemorrhage; abruptio retinae, dislocation of the lens; facial paralysis; Erb's paralysis; rupture of the sternocleidomastoid muscle, already diseased, resulting in a stiff neck; fractures of all the long bones of all the extremities; rupture of the umbilical cord; tearing of the cord from its abdominal attachment, etc.

The most common dangers, however, and therefore the most important are asphyxia from abruptio placenta or prolonged compression of the brain and intracranial hemorrhages. Brothers, of New York, found that 5 per cent of children died during labor. Holt and Babbitt, of New York, 4.4 per cent; Schultz, 5 per cent and 1.5 per cent in 24 hours from the trauma of labor, Kerness, of Munich, found 5.2 per cent and Potter, of Buffalo, had 4 per cent fetal mortality. A certain portion of these deaths occurs in natural, unassisted labor. How many babies are hurt and damaged in operative delivery cannot be determined, but their number is legion, and the same must be said of the

effects of natural labor. Any one who has thoughtfully studied the head of a child moulded by strong pains through the tight pelvis of a primipara will agree that the brain has been exposed to much injury. The long sausage-shaped head means that the brain has been dislocated, the overlapping bones indicate that the sinuses have been compressed with resulting cerebral congestion; the caput succedaneum evidences the pressure to which the brain was subjected. If there is a caput on the outside of the skull what of the inside? The punctate hemorrhages in the skin confirm the last-mentioned finding; the subconjunctival ecchymoses show us the possibility of hemorrhage in the retina. From outward visible evidences, therefore, we can deduce that the brain has suffered distortion, congestion, edema, compression and hemorrhages, but we need not rely on deduction alone. Clinically, if you listen continuously to the fetal heart tones, you will be convinced that the child is suffering, and autopsies bring the final proof of the above assertions. Neurologists for many years have pointed out the connection between epilepsy, idiocy, imbecility, cerebral palsies and prolonged hard labors. Observant obstetricians have known this for so long that it is an accepted fact. In 1917, Arthur Stein, of New York, reviewed the literature on the subject; he studied 5,562 cases in various homes for feeble-minded children, and comes to the conclusion given above. Indeed, although the statistics are meagre, they seem to show that instrumental delivery is safer than prolonged, hard, unassisted labor. Stein's article is well worth reading, as it quotes numerous accoucheurs and neurologists of scientific standing who support this view. One may well ask himself whether the brief and moderate compression of the head in a skillfully performed forceps operation, is not less dangerous to the integrity of the brain than the prolonged pounding and congestion it suffers from a hard spontaneous delivery. If a late forceps operation is done on a head and a brain already infiltrated with small hemorrhages, the results are worse, compounded.

Anoxemia (anaërosis, the beginning of asphyxia) of the child in the second stage is a not uncommon condition, but fortunately most children are born before the asphyxia becomes fatal. In the Chicago Lying-in Hospital, hardly a month goes by but that one or more infants die from this cause. Either the child is stillborn or dies a few minutes after birth, or dies within the week from atelectasis. Most so-called blue babies are simply atelectatic. The asphyxia may be primary—from separation of the placenta, pressure on the cord, tetanic action of the uterus, etc., or it may be secondary to cerebral compression or hemorrhage. Its beginning and progress may readily and easily be determined by means of the stethoscope, industriously applied during the second stage. Another result of asphyxia in labor is infection of the fetus. In gasping for air the child inspires vaginal mucus and later develops pneumonia or intestinal sepsis.

Among the late effects of prolonged labor on the child must be mentioned permanent disorders of the special senses, sight and hearing, due to hemorrhages into the nerve endings, the nerve itself, or its nuclei. Fetal deaths and all the complications are more frequent in primiparæ, as would be expected, even if the statistics and the history of primogeniture did not bear out the truth of the statement.

If we review all these things and if we admit that they occur even in so-called normal labor, we ask ourselves, are we today doing all that our refined obstetric art permits, to prevent damage and avoid disease of both mother and child? In other words, shall we depart from our old trusty, time-honored "watchful expectancy," i. e., waiting for distinct signs of distress on the part of the mother or babe before interfering—or should we anticipate these dangers and, as a routine, make the first stage of labor less painful and shorter and terminate the second stage by a surgical delivery.

For the first stage, as stated before, we can do nothing safely except give narcotics, recommended in the form of a modified twilight sleep—unless we perform Cesarean section. It is surprising to me to receive requests from women for this method of saving them from even the pain of this part of labor.

The most radical apostle of early surgical delivery is Potter, of Buffalo. In all cases, as soon as the cervix is fully opened (and oftentimes before), he completes the preparation of the soft parts manually and performs podalic version followed by immediate extraction. This practice has, and in my judgment, justly, evoked a storm of disapproval. In Potter's hands (perhaps) the operation is safe, but in less skillful hands there will undoubtedly be a long train of dead and mangled babies, ruptured uteri, and torn soft parts. The same may be said, though with considerable less force, to what I recommend for the obstetric specialist—the operation of "prophylactic forceps."

The radical interference with the mechanism of the third stage is intended to reduce the amount of blood lost, shorten the anesthetic period and diminish the danger of infection from retained blood clots, membranes and insufficient uterine contraction.

Now the writer freely admits that this method of treating labor is a revolutionary departure from time-honored custom and must have really sound scientific basis for recommendation. This it has.

First, it saves the woman the debilitating effects of suffering in the first stage and the physical labor or a prolonged second stage, and in the nervous inefficient product of modern civilization, this is becoming more frequently necessary. The saving of blood already referred to, has much to do with the quick and smooth recoveries I have observed in my cases. In the combination with morphine and scopolamine in the first stage, gas or ether in the second stage, and operative delivery, we have robbed labor of most of its horrors and terrors, and we ought to thus favor the increase of the population.

Second. It undoubtedly preserves the integrity of the pelvic floor and introitus vulvæ and forestalls uterine prolapse, rupture of the vesicovaginal septum and the long train of sequelæ previously referred to. Virginal conditions are often restored.

Third. It saves the babies' brains from injuries and from the immediate and remote effects of prolonged compression. Incision in the soft parts not alone allows us to shorten the second stage, it also relieves the pressure on the brain and will reduce the amount of idiocy, epilepsy, etc. The easy and speedy delivery also prevents asphyxia, both its immediate effects and its remote influences on the early life of the infant.

There are three objections to the innovation and one is a real one, but it will be, let us hope, only temporary. Prophylactic forceps will be made an excuse by unskilled, conscienceless accoucheurs, for the hasty termination of labor, not in the interests of the mother or babe, but for their own selfish ends. I fear that there are already too many forceps operations, and therefore, I hesitated long before I decided to publish this method. But I have always felt that we must not bring the ideals of obstetrics down to the level of general, the occasional practitioner—we must bring the general practice of obstetrics up to the level of that of the specialist. Let us trust each man to do honestly according to his limitations. For the one, watchful expectancy, for the other, prophylactic forceps.

The other two objections are, the possibility of infection and the dangers to the child from an improperly performed forceps delivery, brain injury and compression of the cord. If the woman has an evident infection or if there is a suspicious leucorrhea, the operation is contraindicated. In clean cases the matter of infection should not deter us. We practice a technic as painstaking as for laparotomy and have no fear of the results.

As for the forceps operation, in skillful hands the danger is *nil*. By means of the head stethoscope we are able to recognize danger to the infant from asphyxia and since the resistance of the soft parts is gone, there is no compression on the child's brain. We should not blame the operation for faults made in its performance.

The results of this new method of treating labor are all that one could wish for. As yet, no mother or baby has died; there has been no case of infection or cerebral hemorrhage. The babies have thriven, the mothers have not shown the exhaustion and anemia of former days. The restoration of the parturient canal has been always perfect—indeed, too nearly perfect. I have the impression that involution is quicker and more complete, that retroversion of the uterus is rarer, and all in all, the recovery much more rapid and satisfactory than with the older treatment.

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