

FACTS  
IN RELATION TO  
PLACENTA PRÆVIA,

WITH A

Review of the Various Opinions Respecting its Anatomy,  
Physiology, Pathology and Treatment.

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## PLACENTA PRÆVIA.

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The celebrated Nægele has truly observed: "There is no error in nature compared to this (placenta prævia), for the very action which she uses to bring the child into the world is that by which she destroys both it and the mother." What subject more pregnant with interest to the gynæcologist? What of more vital importance to the mother and her offspring? And how incumbent it is that the obstetrician should possess and entertain as clear, perfect and correct views and opinions as it is possible for him to obtain, in relation to the subject, in an anatomical, physiological, pathological and therapeutical sense.

The subject of placenta prævia has for the last few years been so amply and to all appearance so fully investigated, especially by Professor Simpson, to explain his own views and opinions on the separation of the placenta from the interior of the cervix uteri, in place of version, and by Dr. Barnes, of London, to illustrate his new theory—the True Physiology and Treatment—and by Dr. W. Read, of Boston, to advance his theory respecting the special cause of the hæmorrhage (and also to offer his most invaluable and extensive statistics on the history and treatment, which are the most complete that have as yet been given to the profession), that it might appear presumptuous for any one to undertake to offer further suggestions, or attempt any elucidation of the subject; but I hold that every member of the profession should lend his aid, and advance his views, if they will cast the slightest gleam of light from a different standpoint, in explanation, either of its anatomical, physiological, or pathological character and treatment.

True as the remarks of Nægele are, yet how emphatically true are the efforts of nature to avert the consequences of this dangerous complication in the parturient woman during utero gestation and actual labor; and how imperative it is that the obstetrician should be fortified with principles, springing from scientific and practical investigations, that will give confidence to him in those perilous emergencies, and compel him to trust to nature more than has been done; not meanly or stintedly, but with a full and just appreciation of her

powers and ability, and with his assistance and correct judgment, to lead the suffering patient through this critical period of her existence with security and safety. Thus educated, he learns the proper time to act, as well as when *not* to act, for it is the province of the medical man to endeavor to remedy where he cannot prevent.

Previous to entering on the subject of placenta prævia, I shall refer to an article I published in the June number of the American Medical Times, New York, for 1862, on the non-shortening of the supra and infra vaginal portion of the cervix uteri during pregnancy. I concluded by presenting the following propositions:

1. That the cervix uteri, supra and infra vaginal portion, does not unfold or lose itself during gestation in the body of the uterus, and the cervix uteri become obliterated or effaced, at the full term of pregnancy, as Baudelocque, Gooch, Dewees, Meigs, Scanzoni, Montgomery, Bedford and others believe.

2. That the cervix uteri is not lost or merged into the vagina by dilating from below upwards, and becoming obliterated by total effacement at eight to eight and a half months or full term, as Stoltz has taught, Caseaux promulgated, Chailly and others believe, but it remains of its natural length, and is sometimes even longer.

3. That the whole cervix, supra or infra vaginal portion, remains intact up to the full term of pregnancy, and for several hours during the first stage of labor.

4. That the shortening, as it is termed, is only apparent to the touch, consequent upon the ramollisement and physiological hypertrophy that takes place during gestation, the cellular tissue becoming infiltrated by the change incident to pregnancy, and hence its breadth is greater than natural, soft and flabby.

In multiparæ, where laceration of the os tinæ has occurred on one or both sides, and the glands enlarged, the labia are everted, and the os patulous, as is noticed in many cases of cervical leucorrhæa. Hence the finger can be introduced at seven, eight and nine months, to the internal os uteri and touch the membranes of the child; and should the cervix have undergone a more perfect softening, the os tinæ and cervix may be dilated a half to three-fourths of an inch in diameter, though the whole cervix uteri remains.

5. That in primiparæ the finger cannot be introduced into the external os uteri; but in exceptional cases it may reach through the cervix half way.

6. That the *external* os is always *felt first*, and *not* as some have supposed, according to Caseaux's views, the *internal* os, unless lacerated and everted.

7. That the secretion of the cervix uteri, which forms the so-

called mucous plug, does not remain to the full term, but changes from time to time, and could not exist in eversion of the cervix.

8. That the more perfect the ramollisement, the shorter and quicker the labor.

9. That when labor sets in, especially in a primipara, the cervix, even if obliterated, and the os tincæ the size of a five cent piece, can be clearly defined from the body by the difference it presents to the touch of the thick, round and soft portion of the body, and the tense thin membranous neck and os tincæ.

10. That after labor in primiparæ, if the neck has not been lacerated, the cervix uteri will return, supra and infra vaginal portion, to its natural length very soon, though it may be patulous and soft.

11. That these propositions are also corroborated by cases where the complete separation of the infra vaginal part of the cervix has taken place, and which could not have occurred if the neck was fully obliterated at term (as in cases of my own in Bellevue hospital); also in cases of excessive œdema of the cervix, where the cervix is one and a half and two inches in length.

12. That from these investigations, made during life at various periods of pregnancy at full term, and in the first stage of labor, and from post-mortem cases, *the cervix uteri does not undergo any shortening or effacement of the supra and vaginal portion, but retains its whole length*, and only becomes expanded or dilated at the commencement of labor, the cervix serving only as a channel between the body of the uterus and the vagina. This dilatation is accomplished through the combined operation of the softened condition of the neck, and by the descent and pressure of the child's head, through the contractions of the uterus, the internal os uteri commencing first to expand. The expansion thus begun, slowly passes to the external os uteri, and then the cervix is gradually unfolded to its full limit of expansion for the exit of the child; and no more perfect and practical every day illustration can be adduced than the gradual expansion of the *horse's anus* during an evacuation, and its contraction after an evacuation occurs. Cases in the hospital have shown these facts during the first stage of labor, while the membranes have been protruded through the os tincæ when it was only half an inch in diameter and the cervix long, and the infant delivered soon afterwards.

From these propositions I think it will be perceived that the views I entertain differ essentially from any that have been advanced on the behavior of the cervix uteri in utero gestation.

In the article referred to, I stated that I had exhibited, before the New York Academy of Medicine, in 1861, a morbid specimen presented to me by Professor C. R. Gilman, taken from a woman who died from

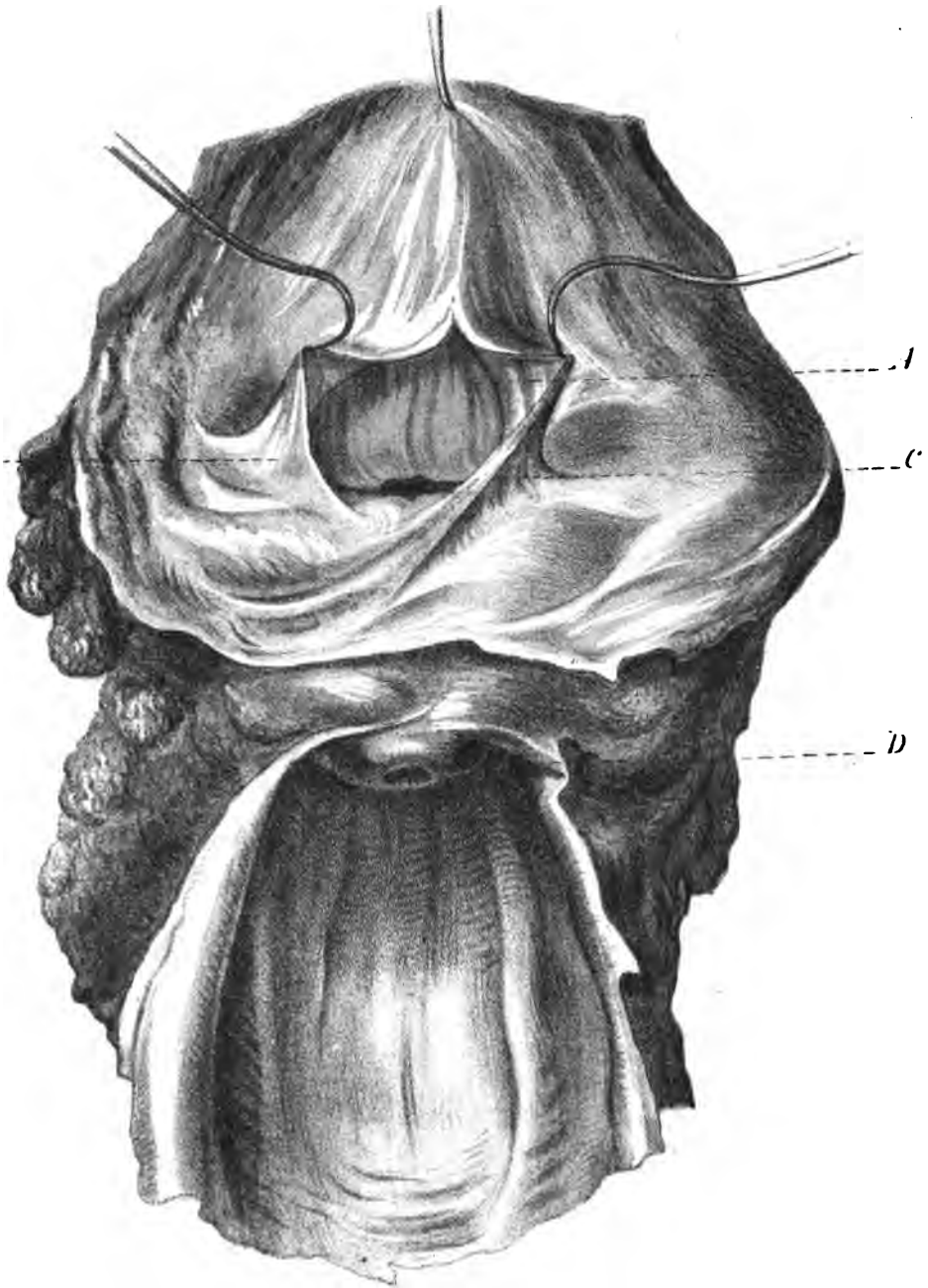
placental apoplexy or concealed hæmorrhage, in the first stage of labor at the full term. I also showed another specimen taken from a patient who died from post-mortem hæmorrhage, at seven months complete, and where the hand had been introduced to remove the placenta, by one of the house staff in Bellevue hospital, showing that the cervix uteri had returned almost immediately afterwards to its natural form and length, which it could not have done so soon after delivery, if the cervix had expanded itself into the body of the uterus.

Since the publication of that paper, several post-mortem specimens have come to my notice, three in the year 1864; one at eight months, primipara as per diagram, (plates No. 1 and 2) showing the decidua, vera and reflexa, over the internal os uteri; and the other two in multiparæ, (plates No. 3 and 4) exhibiting the difference in appearance in one of them in its thickness and breadth and large os uteri externum. The last was in a patient who died suddenly after six hours labor, full term, of puerperal convulsions, from uremia. This last specimen—the colored one—is the drawing of the uterus divided laterally, and shows the distinctive anatomical structures that exist in the body and the cervix—the body exhibiting the thick, reddish striated muscular elements, while the *cervix uteri is an inch and a quarter long*, with its white fibrous bloodless tissue, and the longitudinal and lateral folds, with cervical glands well developed; thus demonstrating, even in the first stage of labor, the significant *contrast* in breadth, length, color and structure, without any expansion or dilatation whatever of the cervix.

As it is possible that my previous paper may not have been seen by a large number of the profession, I consider it necessary to offer a few remarks from some of the latest authorities on this subject.

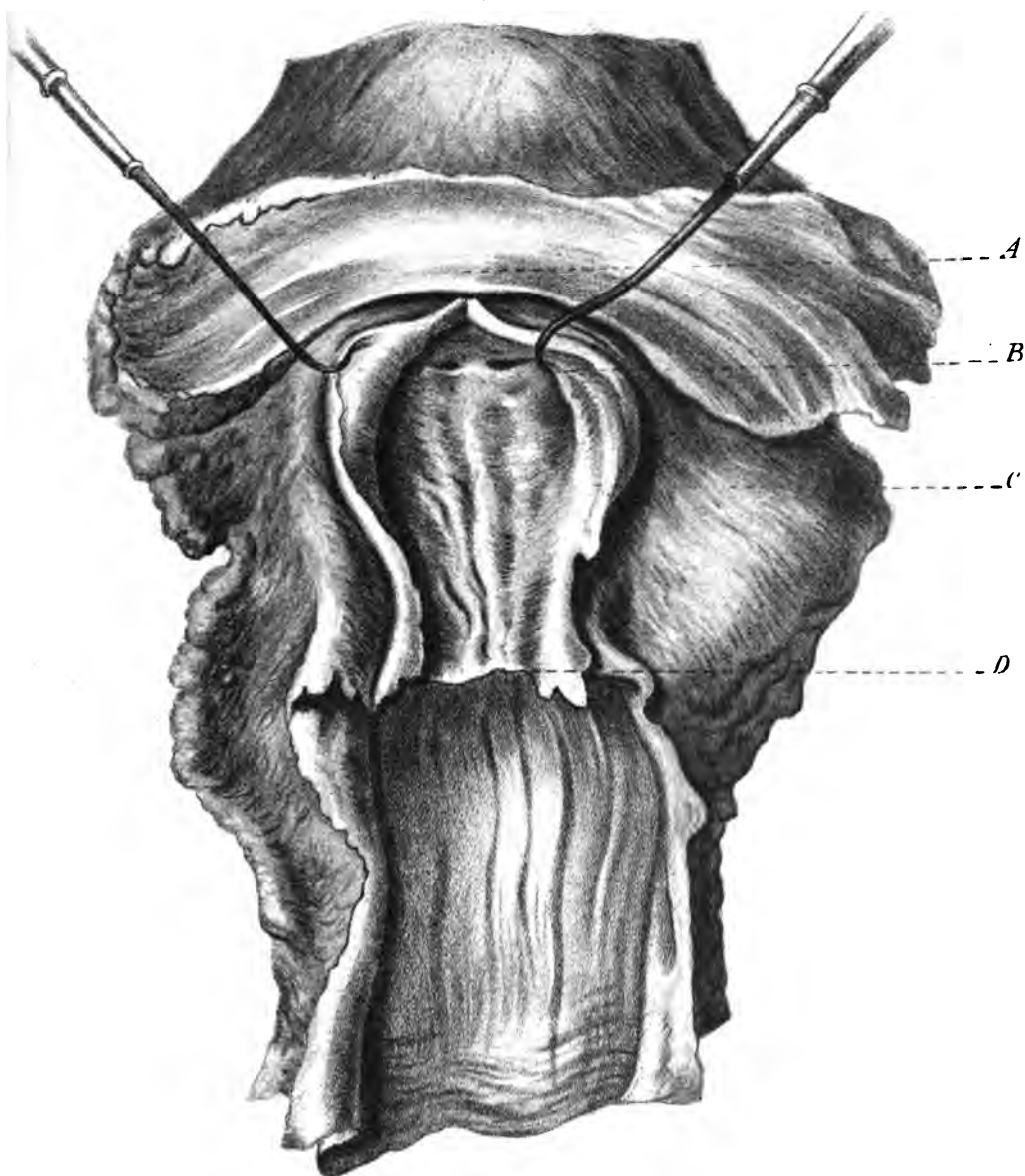
Since 1862 I have examined a very considerable number (880) of pregnant females in the Bellevue hospital and Island hospitals, from eight months to full term, and the first stage of labor, and it only confirms the views expressed in the propositions.

The opinions of Stoltz, adopted by Caseaux, in contrast with the older or more generally received opinion on this subject, I presented to the medical profession, when I edited Dr. Evory Kennedy's work on Obstetrical Auscultation, in 1842, and gave diagrams of the explanation in which I was instructed by M. Caseaux during my pupilage in 1840, shortly after M. Caseaux became acquainted with the views of Stoltz. They were the first that were ever given to the medical profession in America on this subject, although in 1840 and subsequently, they were taught to pupils attending my private classes at the New York Dispensary, on the diseases of females. It was as early as 1851, I became convinced from post-mortem investigations,



- A. Body of the Uterus.
- B. Membrana decidua.
- C. Os internum of Cervix. Length  $1\frac{1}{2}$  inch.
- D. Os linxæ.

Primipara 8 Months.

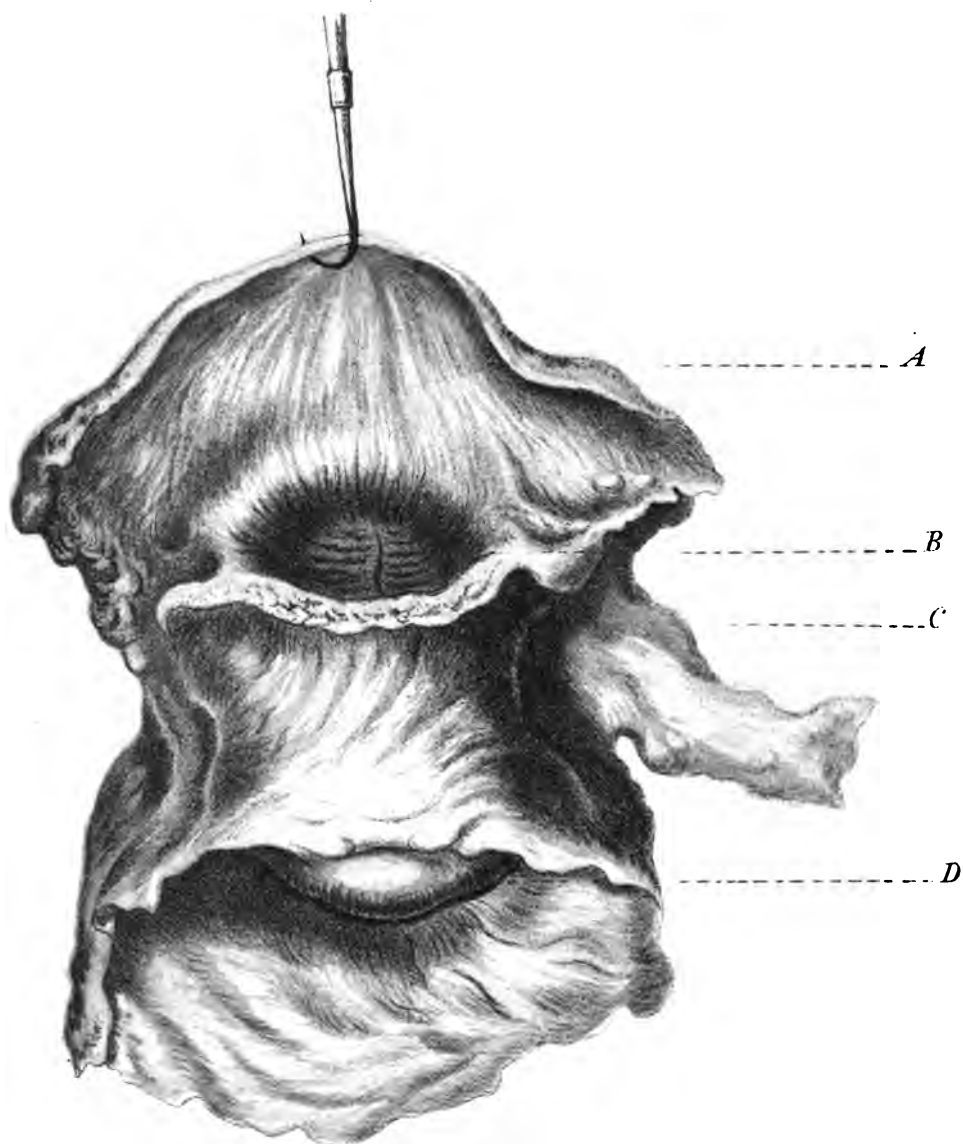


*A. Body of the Uterus*

*B. Os internum.*

*C. Cervix opened*

*D. Os tincae*



A. Body of Uterus.

B. Anterior Portion cut off.

C. Internal Os uteri. Length  $1\frac{1}{2}$  inch Meas<sup>g</sup> of Cervix.

D. Anterior Infra Vaginal Portion.

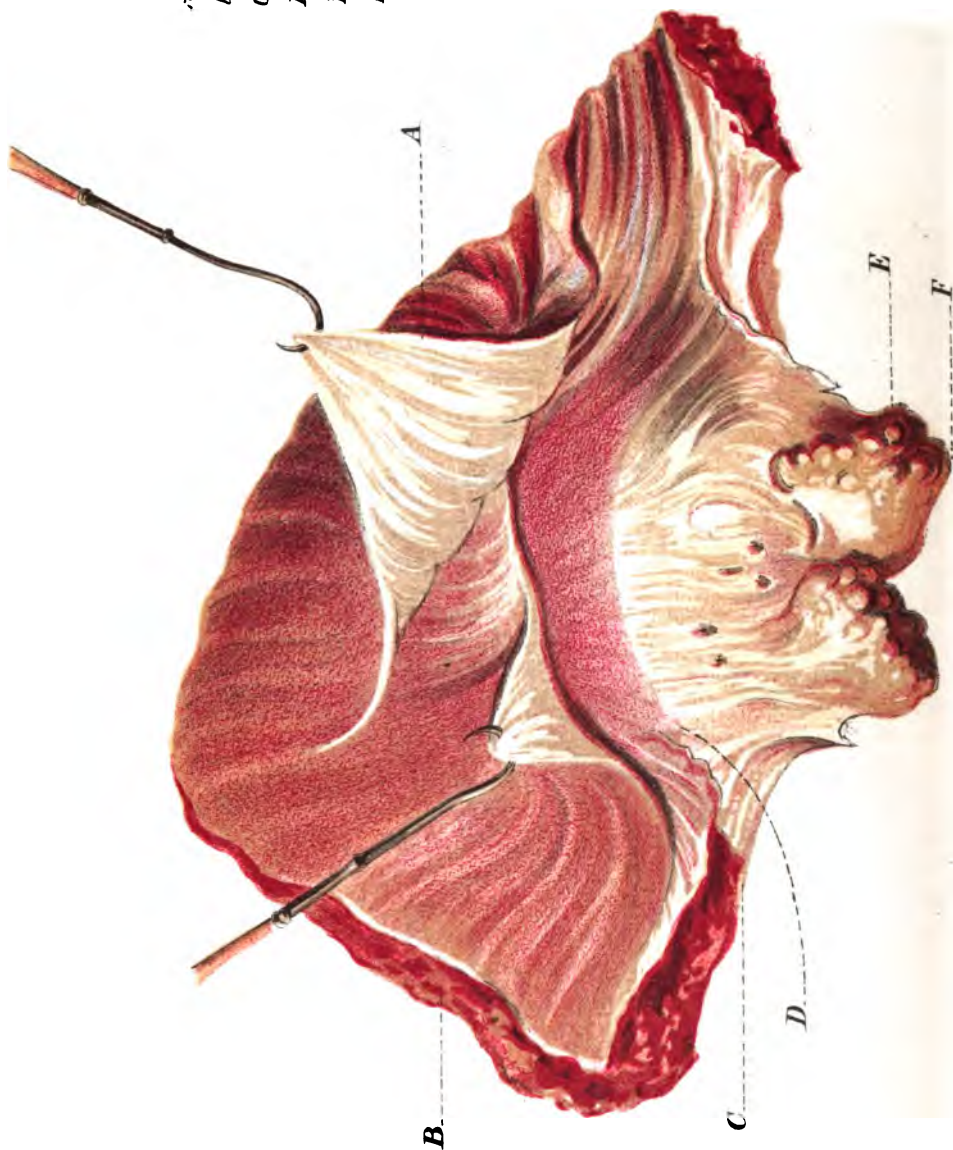
Multipara Uterus 9 Months by  
actual Measurement.

From nature by R. Kohler.

# Plate 4.

- A. *Decidua Reflexa.*
- B. *Decidua Vera.*
- C. *Body of the Uterus.*
- D. *Cervix opened laterally.*
- E. *Glandulae nabothi.*
- F. *Os tincae.*

*Multipara in Labor*  
*first Stage 6 hours.*  
*Fœtus 10 pounds.*



that the opinions I received from my preceptor were not any more correct than the older one, as both theories arrived at the same result or conclusion, whether the expansion takes place from above downwards, or whether the change occurs at seven months, or the last few weeks in gestation. Both these views rest on the Touch only, and thus the various theories are framed to answer to this method of investigation, while those I advance are from *ocular demonstration and morbid specimens*. All these specimens and diagrams have been exhibited to large classes of students attending the Bellevue hospital college and a number of my professional friends and colleagues. I cite a few passages from Caseaux, Duncan, Donkin, and others; as some have supposed, *without* comprehending the opinions I hold, that they were the same as Stoltz'. The 4th conclusion of M. Caseaux is, "*That the whole length of the neck disappears in the last fortnight, being lost in the cavity of the body; and 5th, it does not shorten from above downwards during the last four months, but the fusion of the neck with the body takes place only within the last few weeks of gestation.*" "*Up to the last two or three weeks, it develops from below upwards.*" And again, "*It (the cervix) diminishes very rapidly, and even disappears by a total effacement.*" And again, "*There is no projection (of the cervix) found at the upper part of the vagina, and in primiparæ only a short thin ring.*"

For several years Dr. Duncan says he has advocated the views of Stoltz and Caseaux, and he has published two articles on the cervix uteri during pregnancy. I desire to refer to his opinions. In the March number for 1859, Edinburgh Monthly Journal, Dr. Duncan states his object thus: "My present object is to inculcate the views of Stoltz with some modifications, and especially so to connect them with actual anatomical observations (Dr. D. gives outline diagrams from the 3, 4, 6, 7 and 8 months taken from Coste, Farre, Hunter and his own dissection,) as to make it imperative on obstetricians to accept them implicitly or disprove them by other observations, as carefully made." In discussing the subject, Dr. Duncan says: "*I intentionally omit the latter days of the ninth month of pregnancy. During those days, which are included in the full term of utero-gestation, silent and painless labor is often really going on; I mean that contractions of the uterus, usually without pain, are effecting the complete obliteration of the cervical canal.*" There can be no question from these quotations in the first article of Dr. D., that he arrives at the same conclusions as Stoltz and Caseaux; that there is complete obliteration, "total effacement" of the cervical canal before labor occurs. He is endeavoring to dispel the errors which Stoltz, he says, has the credit of first assaulting.

At a meeting of the Pathological society of New York, February, 1860, (the record of which was published in the New York Medical Journal for March,) Dr. Thomas presented a specimen of the cervix uteri taken from a patient who died in the seventh month of pregnancy, and after stating the different views that were entertained on the subject, the behavior of the cervix uteri on gestation, remarked; "when I first examined the cervix, I was inclined to believe that it went to prove Stoltz's theory to be the correct one; but subsequently making a more thorough investigation, I was forced to the conclusion, that by this specimen, neither theory was sustained; for the index finger could not be introduced *at all* into the os externum, and it was impossible to touch the foetus notwithstanding a considerable amount of force was employed;" and further, "the *os internum* was *perfectly distinct*, and the cervix had not *disappeared at all*, but was somewhat increased in length, and a trifle wider, at its upper than lower portion."

My colleague, Dr. B. F. Barker, in a paper published in the Medical Circular, London, April 24, 1861, (the subject of which was to shorten the duration, and diminish the pain of the first stage of labor), says, "during the last fortnight of pregnancy the cervix diminishes very rapidly, opening from above downwards until it is wholly effaced;" and to substantiate his views, quotes from M. Cascaux, and thus adopts his theory.

Dr. M. Duncan, in his second article published in the September number for 1863, Edinburgh Medical Journal, having changed his opinion, from his researches, as to who should be entitled to the credit of the discovery of the behavior of the cervix in pregnancy, remarks, "that henceforth it will be a grave error to consider the true account of the behavior of the cervix during pregnancy as modern; and as a discovery of Stoltz, rediscovered or confirmed by more recent authors." The credit he gives to Weitbrecht, an anatomist of 1750, who published his memoir, "De Utero Muliebris, Observationes Anatomica." From this memoir Dr. D. selects a passage in proof, and states that the diagram which Weitbrecht gives is from a dissection of the uterus of a woman *at seven months*, and that it greatly resembles the picture of the same part in the Icones of Roederer (Roederer's, I would remark, being only six months); and he also gives at the close of the paper a wood cut of the cervix of the uterus of a patient of his own, who died in the Edinburgh Maternity *at eight months*. Now, how Weitbrecht, as an anatomist, from a drawing of a uterus *at seven months* pregnancy only, could have the credit of attempting to illustrate or demonstrate the conduct of the cervix in utero gestation up to even eight and a half months, much less to nine months or from any practical

experience on the subject, either by touch or sight, I am unable to conceive, as his remarks show nothing of that nature. Stoltz has by the *toucher*, and by the *toucher* solely, and his practical experience demonstrated, as he believed, and as well Caseaux, that the cervix is not reduced in length until eight and a half months, and Stoltz is fairly entitled to the credit of the discovery, if these opinions and views had been or were sustained; but which we have demonstrated are *not* any more correct than the former view of Gooch, Ramsbotham, and others. No, there is no alteration of the cervix uteri during pregnancy; *it remains intact*. I think it will appear evident that Weitbrecht has *not* the slightest claim as a discoverer of the cervical changes during pregnancy, taking precedence of Stoltz in 1826; and to Stoltz belongs the credit of having before any one else, assaulted the former erroneous view. Yet Stoltz himself, as I have proved, *is erroneous* in *his* interpretation of the subject, and in response to all this, I refer to the propositions as given above. All the late obstetrical authorities who have embraced the views of Stoltz and Caseaux, as well as Dr. Duncan, arrive at the same conclusion, and therefore as the partisans of these views have to explain, how in placenta prævia, complete or incomplete, (but more especially central implantation of the placenta over the os uteri internum,) the placenta adapts itself to the cervix uteri from the eighth month to the full term of pregnancy. This now leads me to the special object I propose, in making some observations upon the anatomy, physiology, pathology, and treatment of placenta prævia centralis. In doing so, I shall be obliged to quote from the various authorities on these topics, to place the subject in its true and proper light, and as *there is a great difference of opinion on these points* (and hence the various theories that have been broached), I shall canvass those opinions, and leave it to the profession to judge whether correctly or not, founded as my remarks will be, on facts from ocular demonstration, on the living and dead subject, and not on theory.

#### ANATOMICAL VIEWS OF THE UTERUS AND CERVIX UTERI.

Sir C. Bell observes: "I have not succeeded in discovering circular fibres in the os tinæ, corresponding in place and office with the sphincter of other hollow viscera."

Dr. W. Hunter. "The cervix uteri where the penniform rugæ are situated, has not such regular fasciculæ as the rest of the uterus."

Dr. Murphy. "The existence of the circular fibres has not been found."

On the other side of the question, the latest and more thoroughly investigated, Cruvelheir says: "The neck of the uterus is composed

entirely of circular fibres, which intersect each other at right angles." This opinion is corroborated by Jobert, who affirms, "that the uterine neck is formed by fibres which constitute semicircles and decussate without mingling. The semicircular arrangement is more evident in women who have had children, than in others," and adds, "that the superficial longitudinal layers in the portion of the body, pass into the posterior surface of the cervix."

Kolliker, after describing three layers of muscular fibres, longitudinal and transverse, of the fundus and body, remarks: "whilst at the thinner cervix, transverse fibres especially, intermixed with isolated longitudinal ones, are met with, in the neighborhood of the os uteri externum, and in that part itself, highly developed transverse fibres lie immediately beneath the mucous membrane, and may be described as an *occluser* of it—*sphincter uteri*."

Dr. A. Farre. "The cervix uteri cannot be said to consist like the body, of three coats." but "consists of a muscular and mucous coat only." On account of the large admixture of fibrous tissue, with the muscular element here existing, this might be almost called the fibrous coat of the cervix. The large amount of white fibrous tissue, and the density and compactness of the laminae here found around the cervical canal, give to clean sections of this part an appearance of circles conveniently arranged."

Besides these observations of Dr. Farre, I would add, that it may be compared to the contractile fibrous tissue which forms the dartos of the external tunic of the vagina and perineum. In truth, the fibrous structure is the principal one that admits of the extension, expansion and elongation of the cervix, and *not shortening* during its dilatation for the exit of the child, whether through the neck, vagina and vulva, like the *horse's anus*.

It must be apparent therefore, that the uterus is ranged in the same class as the hollow muscular organs, and which structure is governed by general and fundamental laws of intercrossing. These intercrossings in the neck give rise to the peculiar duplications of the mucous membrane, which has been called *arbor vitæ*; and as the middle layer of the cervix uteri has its peculiar characteristic white fibrous tissue, capable of expansion to a considerable extent, so has nature admirably adapted the internal mucous membrane for its special and important office, from the longitudinal and lateral reduplications from the great sulcæ or fossæ, which become unfolded by the expansion of the cervix during labor, to the extent of from one and a half inches in length and breadth, to three inches in length and twelve or fourteen inches in breadth or circumference, as the limit of the child's head or the diameter of the pelvis, and can go no

further. This expansion or dilatation is accomplished at *full term* of labor, and only at that time and not before that important event is decreed, developing its expansibility, capacity and contractility of tissue solely.

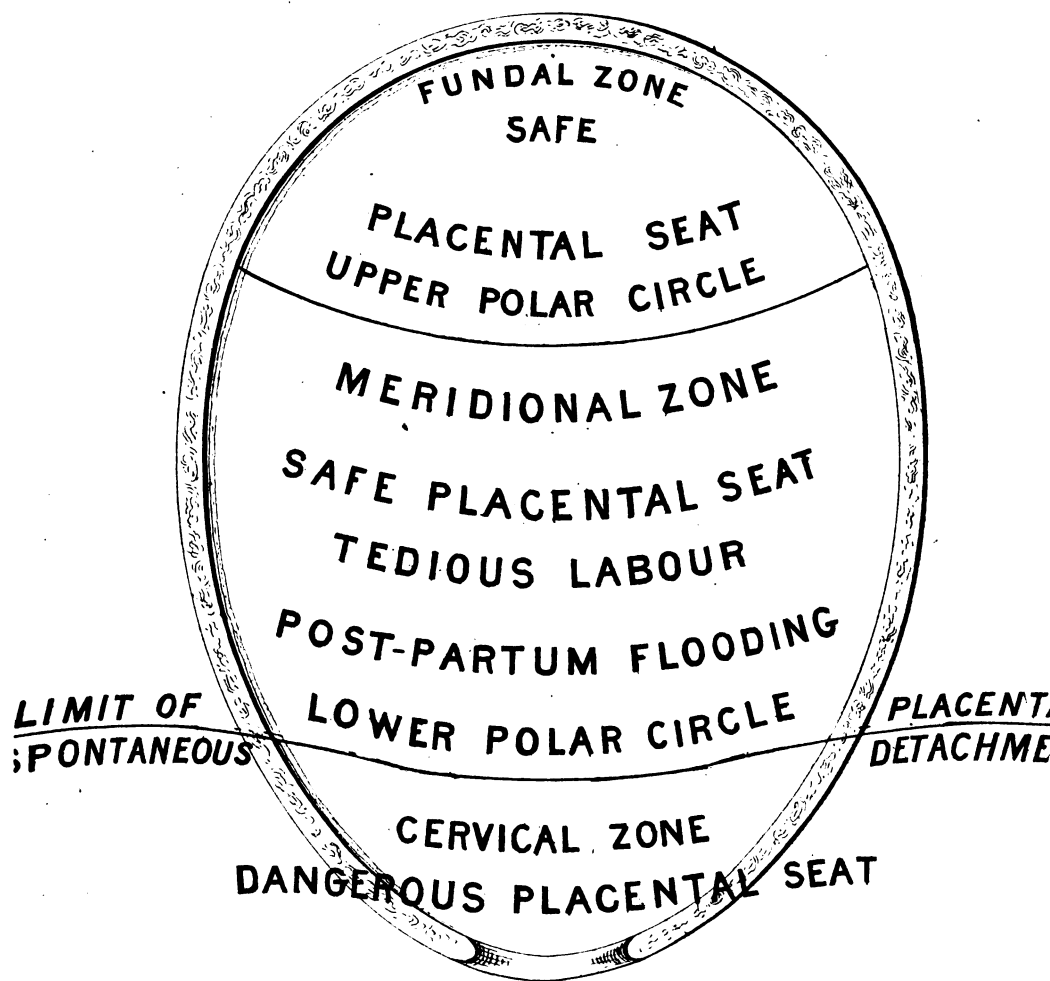
I have been minute on this anatomical and histological part of the subject, as Dr. R. Barnes, in his Lettsomian Lectures on the Physiology and Treatment of Placenta Prævia, has, to illustrate his new physiological views, theory and treatment, adopted and based his anatomical opinions on those of Sir C. Bell, on the uterus and its physiological action. The work of Dr. Barnes on Placenta Prævia, with some observations of Dr. A. Donkin, of New Castle-on-Tyne, on the same subject, published in the Edinburgh Medical Journal for 1859 and 1863, are the latest productions for the consideration of the profession. I shall be pardoned for quoting the whole passage taken from C. Bell, as I do not desire to misinterpret or misquote the remarks of Dr. Barnes. I shall take the quotation from Dr. B., but originally published in the Medico-Chirurgical Transactions, Vol. V. Sir C. Bell says: "It has been proved by the sections of the uterus, made in different states of its contraction, that the order of the muscular fibres is calculated so as to close the vessels, that where nature has provided for the attachment of the placenta, there the broken vessels are guarded by the provision of the surrounding muscular texture; but we know also that during this contraction of the superior part of the womb, the lower part dilates and relaxes. Now if the contraction of the womb be essential to the safety of the mother, what will be the effect of the attachment of the placenta to a part of the womb, which must relax during the labor! Every one knows the peculiar danger of placenta prævia, that each labor pain, as it returns, increases the violence of the flooding instead of checking it. I have been led to conclude that the placenta cannot be partially separated, if it be attached in a regular circle to the fundus of the uterus; it cannot be partially separated and cannot be bodily separated until the uterus is permitted to have a great degree of contraction by the delivery of the child; the circular muscles of the fundus being agents in a double capacity, that is, both in expelling the child and in constricting the uterine vessels by the time the child is expelled, the vessels of the fundus are greatly diminished in diameter. Further, the place and strength of these vessels being perfectly uniform and regular, their actions must have the effect of equally drawing the surface of the uterus, which is in correspondence with the margin of the placenta. But no one part of it will be separated until the general restriction is nearly completed. This will not be the case when the margin of the placenta extends irregularly, or when the placenta is attached to

the site of the uterus. After the delivery of the child in cases of flooding it is not uncommon to find a part of the placenta low down in the uterus and separated while the greater part remains attached to the uterus. In examining the most surface of the uterus by dissection I have seen the part setting aside with the placental irregular in its form and extending towards the side and neck of the uterus.

In such circumstances of the attachment of the placenta the retraction of the lower part of the womb being to a greater extent than the fundus, it is liable for the too early separation of that margin of the placenta which stretches towards that border, and also for the hæmorrhage which is a consequence of this partial separation. But in progress of labour and after the discharge of the waters, the more powerful efforts of the uterus draw the muscular fibres more closely around the blood vessels, and then the flooding ceases." Dr. Barnes says: "I am entitled to rest the anatomical foundation of my views upon his authority," and then proceeds to illustrate his own views with diagrams as follows: plates 5 and 6:—The inner surface of the womb may be divided into three zones or regions by two latitudinal circles. The upper circle may be called the upper polar circle. Above it is the fundus of the uterus. This is the seat of funicular placenta, the most natural position. It is the zone or region of safe attachment. The lower circle is the lower polar circle. It divides the cervical zone or region from the meridional zone. The space comprised between the two circles is the region of lateral placenta. When attached to this region, the placenta is not liable to previous detachment. Below this circle is the cervical zone, the region of dangerous placental attachment. All the placenta fixed here, whether it consists of a flap overreaching downwards from the meridional zone, or whether it be the entire placenta, is liable to previous detachment. The mouth of the womb must be pulled open to give passage to the head. This enormous contraction or retraction of the longitudinal cervical fibres is incompatible with the preservation of the adhesion of the placenta, which is within its scope. In every other part of the womb there is an easy relation between the contractile limits of the muscular structure and that of the cohering placenta; within the cervical region this relation is lost. The lower polar circle is then the physiological line of demarcation between prævial and lateral placenta. It is the *boundary line*, below which you have spontaneous placental detachment and hæmorrhage—above which, spontaneous placental detachment and hæmorrhage cease."

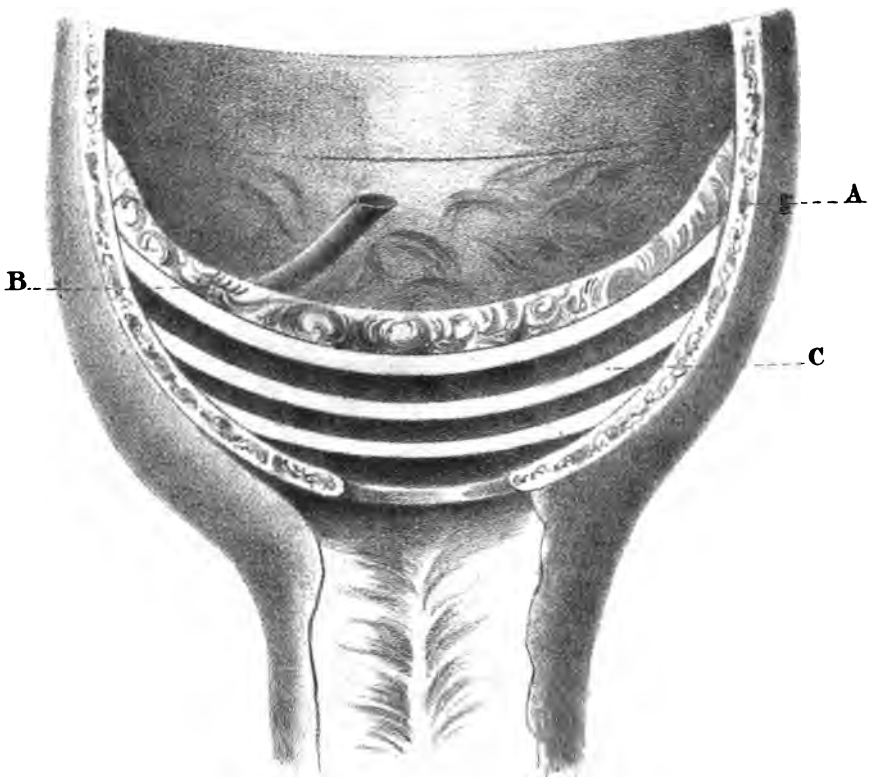
The extent of this polar circle is by Dr. Barnes described as a circular line, three inches distant in all parts, from the os uteri, (os

# VARIOUS PLACENTAL



## BARNES PLATES.

Fig 8.



*A. Body of the Uterus. B. Zone of safe Attachment.  
C. Cervix Placenta separated.*



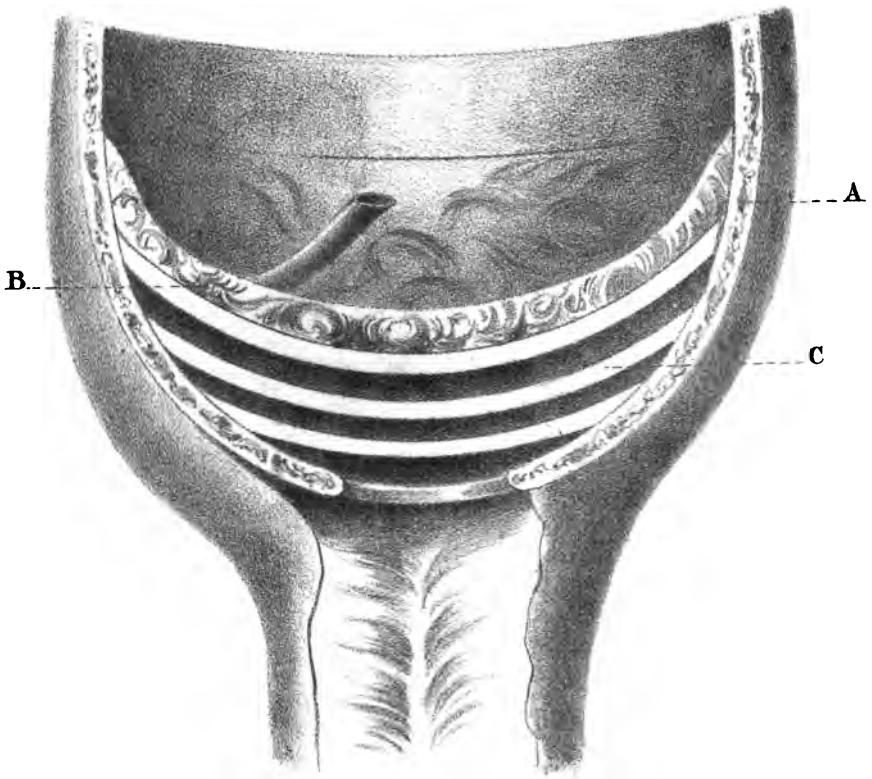
*A. Os Internum*

*B. Os Tincæ*

*From Simpson & T. Smith's Plates*

## BARNES PLATES.

Fig 8.



*A. Body of the Uterus. B. Zone of safe Attachment.  
C. Cervix Placenta separated.*



A. Os Internum

B. Os Tincæ

From Simpson & T. Smith's Plates

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R. Kohler, fecit.

tincæ,) and is then twelve to fourteen inches in circumference. In the diagrams of Dr. Simpson and Dr. Tyler Smith (plate 7), on the attitudes of the fœtus, the same view is given and opinion entertained, the os uteri internum being expanded to twelve or fourteen inches, and the os tincæ closed. Dr. Simpson, after giving a description of a pregnant uterus, belonging to Professor Goodsir, at full term, says: "across the cervix, about three inches above the os, it is four inches in breadth, in circumference twelve to fourteen inches." Dr. Tyler Smith, "in the fœtus one oval is formed by the head, and the other by the body and limbs of the child. These parts correspond with the two ovals into which the *developed cervix*, and developed body of the uterus may be divided;" and still later the opinion of Dr. Donkin, April No. 1859, Edinburgh Medical Journal, in his article on the Pathology and Treatment of Placenta Prævia: "in speaking of the nature of cervical shortening, and the cause by which it is produced, we will find that it is merely the sequence and result of the gradual dilatation of the walls of the cervix, and the *amplification of its cavity*." In other words, Dr. Donkin says: "it is neither more nor less than beginning to end the *first stage* of that passive expansion which the cervix undergoes during the last stage of labor."

In not one of the several specimens of post-mortem investigations that I have seen, (numbering twelve,) was the cervix expanded, but were as natural in length, but broader and softer than natural. Now according to Dr. Barnes, assuming that the detachment is limited to this extent of the placenta, how is the hæmorrhage from this surface restrained, or bleeding checked? And he informs us, "by precisely the same mechanism as that which stops the flooding after normal detachment of the placenta from its normal seat at the fundus. The *longitudinal* muscular fibres of the lower cervical segment, *must contract to pull open* the mouth. *Expansion, dilatation* of the mouth, is *contraction* of the cervix. This contraction by shortening the cervical portion of the womb, casts off the placenta, and exposes the ruptured mouths of the utero-placental vessels. The first effect is bleeding. The second is to stop the bleeding." Dr. Barnes goes on to remark: "that zone after zone is bared by recurring contractions, and successively sealed up until that physiological limit, that line of demarcation between normal and abnormal placental implantation, the boundary line of placental detachment which *I claim* to have discovered, has been reached. This zone attained, the labor is a natural one." I believe this gives a correct transcript from Dr. Barnes, of his views on the anatomy, physiology and treatment of placenta prævia, and before making any comments on them I shall merely refer to the remarks of Dr. Donkin, where he differs from Dr.

Barnes on the subject of "expansion, dilatation of the mouth of the uterus is contraction of the cervix." Dr. Donkin considers the cervix as expanded during gestation, and the *two* cavities become *blended* perfectly with each other, yet the cervix does not lose its histological character, and is only passive during labor, and does not *contract* like the body of the uterus.

I think it is evident from the opinions of the celebrated anatomists, Cruveilhier, Jobert, Farre, and especially Kolliker, whom I have quoted, and from the diagrams of specimens from post-mortem examinations, taken by (my artist) M. Kohler: that the anatomical and physiological opinions and views of Dr. Barnes are incorrect, and the treatment based on such views cannot be substantiated to embrace a practical application. The Dr. appeals from authority to observation, and claims to have developed the *true* theory, the *true* physiology of placental presentations, and thus to have supplied a scientific clue in the treatment of flooding from unnatural position of the placenta." For myself I appeal to closely observed facts, from ocular demonstration, both on the living and dead subject to the very terminus of pregnancy, and during labor. Beyond this it is apparent we cannot go, and the various theories must bend to *facts*, not speculation. The object to subserve is truth, truth in its unvarnished and beautiful simplicity, divested of all theoretical views, to square and adapt itself with supposed true physiological views, (and I ask a thorough and careful clinical investigation to prove or disprove them,) which I have sought to establish from extensive experience and opportunities, for the benefit of our profession and humanity.

At this period of my subject I must take the liberty of remarking that there is no evidence from the cases given by Dr. Barnes in his work to illustrate his theory and method of treatment, of their being placenta prævia centralis at all; (except case 10, appendix;) for they may be considered simply as cases of *placenta lateralis*, and where the placenta came down to the edge, or nearly or partly over the os uteri internum, when expanded, according to his diagrams. It is in central implantation that there is the most difficulty and danger, and where, at least in the large majority of cases, the labor could not merge into a natural one, even if the flooding was stopped by Dr. Barnes' method, as case 10 and case 33, Obstetrical Transactions, Vol. 1, negative the Dr.'s views, for hæmorrhage occurred after the separation had been completed. Unless experience of cases of central implantation can be adduced, and not partial lateral cases, the true boundary line, the true theory, the true physiology cannot be demonstrated, but by the method of Dr. Cohen, (lateral separation), instead of by Dr. Barnes's.

The manner of explanation of Dr. Barnes is *similar* to the views of Dr. Murphy, although Dr. Murphy holds that the natural means of arresting unavoidable flooding is the separation of the whole placenta from the cervix uteri, and then the uterine contractions sustain the arrest, and the labor progresses; for without the separation, as Dr. Simpson has proved, the hæmorrhage would have continued. Dr. Murphy says: "That dilatation of the os uteri is in fact the contraction of the cervix," and then goes on to explain what contractility of the cervix is.

Dr. Barnes holds, "that expansion, dilatation, of the mouth is contraction of the cervix," and that it is "not the separation of the placenta, which secures immunity from flooding, but the contraction of the womb."

There is, therefore, this material and important difference between the opinions of Drs. Barnes, Murphy, Donkin, and others, and myself, that *they* consider the cervix uteri *expanded*. Dr. Murphy and Dr. Barnes believing that expansion, dilatation of the cervix, or os uteri, is contraction of the cervix, and the placenta is cast off; Dr. Donkin, that the cervix is passive; *whilst my own opinion is, that there is no expansion*, and the cervix is at rest entirely during utero gestation and labor, and is only a passage or channel for the child at that time. Well and truly has the celebrated and acknowledged physiologist, A. Kolliker, in his manual on Human Histology, remarked, "that in the act of parturition, the cervix and the *os uteri* are at rest, whilst the fundus and body contract, contractions of the former parts, and of the vagina, not ensuing till subsequently;" but on this point, (the passive contractions of sphincters,) Todd and Bowman, in the Cyclopædia of Anatomy and Physiology, page 191. vol. 1, say, "when the excretions at length excite the contractions in the walls of the cavity containing them, this overcomes the passive contractions of the sphincters, and evacuation occurs." No, the cervix is at rest, before and during parturition, and only unfolded for the exit of the child, and by its natural contractility closes afterwards; and I might add, although Dr. Barnes holds a different opinion, that even Sir C. Bell admits this point, as the latter says, "that during the contraction of the superior part of the womb, the lower part dilates and relaxes."

#### SPECIAL CAUSES OF THE HÆMORRHAGES.

There are several different propositions entertained to explain the cause of the hæmorrhage.

1. That of the mechanical school, Gooch, Dewees, and others; and Dr. Barnes, adds, "the increased irritability of the os uteri independent of spasmodic action."

2. That of M. Caseaux, which is, "a want of correspondence in growth between the placenta and the uterus at the point of their attachment, thereby inducing separation."

3. That of M. Velpeau, who thinks, "that the growth of the placenta and the uterus at their point of contact is equal, and attributes the hæmorrhage at eight months, to the rapid dilatation of the os uteri, and that a portion is detached from the uterus, and thus ruptured. That this separation creates a congestion of the womb, in that region, and that the general efficient cause is added to the special cause, which creates the flooding."

4. That of Jacquemier, who attributes it to a double cause, "unequal growth and development, and mechanical distention."

5. That of Dr. Read, of Boston, in his invaluable work on the History of Placenta Prævia:

"The attachment of the placenta to any portion of the uterus causes a development at that place, which proceeds *pari-passu* till the limits of growth in the placenta having been reached, the enlargement is continued, and kept up by the pressure constantly exerted on the uterine walls by the growing contents, till the time of parturition."

I shall more particularly refer to the opinions of Caseaux, Jacquemier and Read, as illustrating this point, and then advance my own from the facts I have presented.

Caseaux, page 665, ed. 1863, "But when the afterbirth is inserted over the cervix uteri, flooding must necessarily ensue, because the growth of the placenta is nearly completed, whilst a more considerable extension of the lower third of the womb has yet to take place;" and further, "by it we can also comprehend the possibility of a circumstance that is inexplicable under the theory generally received. I allude to the hæmorrhage when the placenta is attached to the lower third of the womb, or some point adjacent to the internal orifice; for it is not because the afterbirth is implanted over the cervix that a flooding takes place during the latter months of pregnancy, but because it is in relation with the inferior third of the uterus." The explanation is true only with regard to those sanguineous discharges that come on in the latter weeks of gestation or during parturition; for then the spreading out of the cervix and its complete effacement must necessarily have a great influence over the production and profuseness of the flooding in those cases where some parts of the circumference of the placenta is in relation with the neck.

Dr. Miller, of Lexington, Ky., adopting Caseaux's views of the shortening of the neck, remarks, page 243, on this point: "That when it, the placenta, is inserted on the neck or over, the matured

placenta cannot follow the rapidly expanding parietes of the uterus, and hence the stretching, and rupture of the utero-placental vessels, and the unavoidable production of the hæmorrhage." From this explanation it appears that whether we suppose that the placenta is attached to the interior of the cervix or to the inferior part of the pyramidal body of the uterus, the mechanism of hæmorrhage is the same. In either case the development of the uterine parietes taking place more rapidly than the placenta can follow, causes a separation of the maternal from the foetal tissues; rupture of the connecting vessels and hæmorrhage are the inevitable consequence."

Jacquemier : "That it is the rapidity of the development of the inferior segment of the body of the uterus and the mechanical distention during the last months of pregnancy which makes it descend in a short space of time so deeply in the pelvic cavity, particularly when the head of the foetus presents, constituting the ordinary cause of hæmorrhage up to a period very near the end of gestation, and that in those cases in which, after the hæmorrhage has come on, it ceases, and does not return before delivery, the result is due to the fact, that the distention has been relieved by this separation, and the edge of the placenta removed from the internal os, by the *gradual approximation* of this orifice with the os externum, or at the time when the distinction between the os internum and externum has disappeared," which according to M. Jacquemier, is between eight to eight and a half months. Dr. W. Read remarks on his proposition: "Now, if we supposed the *development to commence* at the place where the placenta attaches itself at the lowest part of the cervical portion of the uterus, at the very os for instance, and keep pace with the growth of this organ, *i. e.*, placenta, the difficulty in a great measure disappears, for in those cases where complete presentation exists by the time when the placenta ceases to grow, the *synchronous development* of the cervical portion and the placenta may have obliterated the distinction between the internal and the external os, and thus have anticipated the changes which, under a normal arrangement, would be going on at that place during the last months of pregnancy," and refers for an explanation to case 50, table 1, which I find is a case reported by my brother, Dr. O. H. Taylor, Camden, N. J., Boston Medical Journal and Medical Reporter, New Jersey, 1853 : Dr. R. remarks on it, "hæmorrhage in this case did not occur till about the time when the internal os, according to Jacquemier, begins to open," eight and a half months.

Now all these theories are mechanical. They all admit the separation of the uterus from the placenta, and the opinions are framed in consonance with the view of expansion of the neck, whether com-

mencing at the seventh month from above downwards, or at the eighth to eight and a half months, rapidly, according to Caseaux, Jacquemier and others. As no further evidence since the opinions of Stoltz have been presented, as to whether the cervix expands or not during gestation, the profession accept and adopt these views, and have of course taken for granted they were correct. Now, from the facts I offer to the profession, and which are of so clear and demonstrative a nature and character, some other explanation must be given to elucidate the manner in which the hæmorrhage occurs, or its special cause.

I think it is patent, that the development of the womb may commence at any part of it, and go on "not according to any arbitrary laws, but in connection with the increasing growth of the ovum, and its obedience to ordinary physiological laws," for who is there of us can tell how the bones of the child do grow in the womb? As this question cannot be answered, no more can we determine the exact point of departure of growth of that organ when conception occurs and expands in the manner of its growth. Hence theories have arisen and culminated for awhile, then they are forgotten or changed by the authors of them, without having advanced science in one essential point or benefit.

From the evidence I have adduced from my investigations, we must bear in mind the peculiar connection of the placenta to the maternal structures, and also the structure of the placenta, being such as to admit of its expansion, and contraction, without breaking those in connection with the uterus, and the softened condition of the parietes; the delicacy of the intervening spaces of the cotyledons; the great vascular condition of the placenta, composed entirely of maternal and foetal blood vessels, in close proximity, and dovetailing into each other; the exceeding great tenuity of only a single diaphanous membrane, and the large reticular tissue or lacunæ of that organ, in truth nothing but blood; the slowness with which the blood moves through the curling arteries, and the quantity that exists there for the special function of sustaining the child, before its passing into the venous sinuses; the abnormal position of the organ, its complete inversion; the oblique and upward course of the bloodvessels, and the weight of the child; (although the placenta may yield in its expansion or stretching whether its head or breach present;) the enlarged and dilated sinuses, and, in many cases, the varicose condition of the lower part of the body of the uterus, (not the cervix especially;) the physiological congestion of the whole uterus, also the general activity of the circulation through various sources and circumstances; the hæmorrhagic tendency in many pregnant females; and the upright posi-

tion of the female in standing or walking. (Hunter's plates 27 and 28 show the compression of the cervix.) I think it must appear evident that it would be more singular that some exhalation from these delicate fibrils should not take place, or even rupture of some of the capillaries; than that it does, and thus as coagulation would follow, the coagula creating an interruption to the regular circulation of the placenta, further hæmorrhage is likely to ensue, and finally a greater flooding and larger coagula; uterine contractions commence, and a separation of some part ensues, and then a profuse and dangerous hæmorrhage follows, whether this occurs at the seventh or eighth or ninth month. I find that out of 543 cases, there are more reach the full term of gestation than previous months; 222 from the ninth to full term; 164 at the eighth month, and only 109 at the seventh month, and 48 at the sixth month; and that out of 537 cases, 330 cases were complete, and only 207 partial. With the evidence before me I think there is a more satisfactory opinion of what the special cause is, than any of the theories that have been advanced, to square with the expansion of the neck during pregnancy, whether it be from above below, or below upwards, gradually or rapidly—for we would still be framing theory upon theory to account for it, according to the imagination of physiological or mechanical truths, and resting on the *toucher* only as the basis of these theories.

#### SOURCE OF THE HÆMORRHAGE.

On this point I have to refer to three theories entertained by the profession:

1. Those who hold to the opinion that flooding comes from the placenta—Hamilton and Simpson.
2. When the flooding proceeds from the uterus.
3. When the flooding takes place from the placenta and uterus.

On this part of the subject of my paper, I desire to be as practical and curt as my observations and investigations will admit of.

Dr. R. E. Bland observes in his remarks, taken from the essay of Dr. Trask, on the Statistics of the Placenta Prævia: "Whenever I placed my fingers upon the placenta, and gradually and firmly pressed upon the parietes of the uterus, from which it was separated, I completely arrested the discharge. For some half hour the hæmorrhage was completely controlled by these means."

Dr. Legroux, in a case attended by him, in May, 1847, says: "In exploring the os uteri, with the finger carried as high as possible to the left, between the internal face of the neck, and the placenta detached on this side only, I found the following facts: during the diastole of the uterus, the finger easily penetrated between the de-

tached portions, but at that time the blood ran along its side into **the** vagina. During the systole, the finger was pushed back by the **mem-**branes, made tense and closely applied and pressed against the **inter-**nal face of the neck, the blood ceased to flow, but what had **been** poured into the vagina during the diastole was forced down **outside** by the pressure of the uterus." From my investigations I **propose** advancing a step farther than Drs. Bland or Legroux, and relate **the** following, taken from a record of a case that occurred during **my** service, in December, 1861, in Bellevue hospital:

A. M., aged 34 years, nine months pregnant, born in Germany, was taken in labor December 29th, seven A. M. Duration of the first stage forty-one and a half hours, second stage four hours, **third** stage not complete. (This patient was one of the number stated in my former article.) History.—The patient was first seen at nine A. M., December 29, by the House Physician, on duty in the obstetrical ward. She was in very good condition—pulse 80—respiration 11. Abdomen noticed to be very protuberant, and abnormal in shape. The long diameter extending from near the ensiform cartilage to the symphysis pubis, while the transverse was very much diminished. On making a vaginal examination, it was noticed the patient was losing a considerable amount of blood. The hæmorrhage it appears had lasted since the night before, but in a moderate degree. In the vagina was found quite large clots. These being removed, and the finger introduced into the os tincæ, it was thought that the placenta presented. As the hæmorrhage was not very excessive, it was considered advisable, for fear of more blood being lost, to tampon. The pains up to this time, eleven P. M., December 29, were slight and irregular. Dr. Isaac E. Taylor now saw the patient, and on careful examination recognized a soft and somewhat yielding mass, covering the os uteri internum, which with the previous hæmorrhage, and the increased flow, led to the diagnosis of placenta prævia, but whether at that time complete or partial—as the cervix was not obliterated. Continued treatment. Tampon, and watched the case closely. The patient went on without much change, but slight flooding, till eleven A. M., December 30, when Dr. Taylor saw her again. Os tincæ opened size of a dollar. Head of child felt—to the right side membranes filled and presenting—placenta attached left side. Membranes tapped—liquor amnii passed, and the uterus assumed a more natural appearance. Rupturing the membrane did not have the desired effect, till afternoon, when the placenta was separated laterally by the contractions of the uterus, and on examination protruding slightly through the os tincæ. On *examination by the speculum* (plate 8), placenta was seen on the left side; the bleeding noticed coming from



the *uterine side*, and *not* from the placenta, though it was partly over an instrument of the largest size, and during the relaxation of the uterus. The pains continued feeble, though regular, and not much hæmorrhage. Head presenting and filling up the cervix, until about seven P. M. She became somewhat restless, and at nine P. M. had a pulse of over 90, of an irritable character, and weak. Dr. Taylor was again summoned and arrived at eleven P. M., and finding the patient in the condition above described, ordered an infusion of ergot. The effect being to increase the duration and strength of the pains, and then delivered her by the forceps, and as the head passed the perineum, the patient sank, the pulse ceased, a single gasp, and the patient died just as the body of the child was delivered. Diagnosis—air in the veins.”

Autopsy, two P. M., December 31, in the presence of the class. Rigor mortis complete, abdomen much distended with gas, and slight effusion of serum in the peritoneum. On removing the uterus, found the placenta attached to the left side, about the lower third, the lower portion projecting in the cervix to the os tincæ—body in an emphysematous state, and right ventricle distended with air.

This is an additional evidence of a more tangible nature than either Dr. Legroux' or Bland's. The patient lost very little blood after the membrane was ruptured, and as the head of the child blocked up the vessels and tamponed the placenta, it was decided that nature would possibly accomplish her work. Had I been called earlier I should have delivered with the forceps. There was no difficulty in the application of them, and if the untoward circumstance of the air passing into the veins had not taken place, the patient might have recovered. The interval of time between my former visit and delivery was twelve hours.

In the article referred to by Dr. Legroux, “he has become convinced that the flow of blood from the vessels—the true hæmorrhage, was diastolic, that the expulsion of the blood externally, *apparent* hæmorrhage, was indeed *systolic*, but coincident with the cessation of the actual hæmorrhage. The cessation of the hæmorrhage was the manifest result of the uterine contraction, from the tension of the membranes forcibly applied to the surface of the interior of the neck.”

With the case I have cited, as well as that of M. Legroux by the touch, it will be apparent that *contraction* of the uterus suspends the flooding, and that during the *relaxation* of the uterus, the hæmorrhage takes place. The force of the contractions of the womb drives the presenting part of the child, (and especially if the cephalic part presents,) against the upper portion of the cervix, pushes the placenta aside, gradually obstructs and expands the cervix, puts it upon the

uttermost limit of its expansion, so that (as the placenta was not in the cervix originally,) the blood vessels coursing through can no longer be filled with blood during its expanse by the head of the child, and thus express from the placenta the clotted or coagulated blood, and arrests its flow into it. After *contraction*, the *diastole* or *relaxation* takes place, the cervix uteri, and the body of the uterus relaxes, the vessels are again filled up, and the hæmorrhage ceases.

Dr. Simpson entertaining the opinion that the flooding proceeds from the placenta, holds this language: "That the blood issues principally if not entirely, from the uncontracted and uncontractable maternal orifices, that belong to the external surface of the separated portion of the organ, and that the maternal blood is supplied more or less freely to these orifices, in consequence of the free communication existing among the different maternal cells, and from these cells being kept filled with blood, through the utero-placental vessels of that part of the placental mass, which continues to remain fixed, and attached to the uterus," and on these views argues "that if in placenta prævia the hæmorrhage proceeded from the vascular orifices, laid open in the *interior* of the *uterus*, it ought to be *diminished*, and not increased in quantity, during the pains, as these orifices will necessarily be temporarily diminished under the contraction of the uterine fibres."

Now the case I have presented is from actual observation; the blood was seen to issue during the diastole, and the blood which passed from the commencement of the uterine contraction to its terminus, was the blood which remains and fills up the reticulate texture or lacunæ, and pressed out by the head of the child, and during the compression by the presenting part, causing the placenta to be further separated, and during this compression of the placenta and vessels of the uterus, and the contraction of the uterus—the venous sinuses retract, (caused by the longitudinal muscular elements in them, with the colossal fibre cells, as described by Kölliker,) and in the further closure by the oblique falciform projections, consequent on the separation, the blood does not flow into the placenta freely, but passes outwards during the diastole of the womb.

The credit is due Mr. Legroux for the practical suggestion that the *true hæmorrhage* was diastolic—that the first hæmorrhage was systolic, and which my observations confirm by the sight.

But further corroborative proof can be given, and which many of my professional brethren have seen in some of the patients examined during the first stage of labor. The membranes projected into the speculum during the systole, an inch long and through the neck, and

that after the systole, the membranes would recede, and the cervix return into the instrument again. In some instances of supposed placenta prævia, on account of the flooding, by the house physician, (refer to my former paper) the examination would reveal a varicose condition of the cervix, where the bleeding could be seen percolating through the distended and enlarged vessels without rupture, as the cervix was not yet developed, and therefore could not be pressed upon by the head of the child. Cases of this nature which I have observed, (case 5 and 6, former article,) verify, practically, the supposed cases which occur, of cervical hematocoele of the cervix uteri.

Different opinions have also been expressed as to where the separation of the placenta in complete presentation takes place, whether at the *os uteri*, at the *centre*, or at the *edge*. The doubt must be removed when such facts as I have presented are recognized. It could occur at *no other place or point than the centre*, as the *os uteri internum* is the *first* to yield, and not the *os tincæ*, as Caseaux, Barnes, Simpson and others believe. But Dr. Donkin, with Dr. Ramsbotham, thinks otherwise; for Dr. Donkin holds the opinion that the expansion of the cervix is really the first stage of labor; and on page 894, in his article on the Pathology and Treatment of Placenta Prævia, says: "And if the cervix expands as I have endeavored to show, not only *before*, but *during labor*, from *above downward*, it follows that the detachment of the placenta must follow the same course. It must therefore commence at the *upper portion of the cervix*, and by the agency of each succeeding uterine contraction, travel downwards. When the placenta is centrally attached, its severance will proceed from its *margin* downwards, to its centre." The facts observed need no comment, and I shall pursue this point no further. I propose now entering upon the different methods of treatment, existing before the profession, for their adoption or rejection.

#### TREATMENT.

Four methods seem to claim the consideration of the profession.

1. The more usual, and I may say the generally received method, that of version, tamponing and rupturing the membranes as soon as it is deemed possible to be accomplished.

2. That of Dr. Simpson, who recommends "the total detachment or separation of the placenta under certain circumstances, in place of version," from the cervix uteri.

3. That of Dr. R. Barnes, the latest method, "To separate all that part of the placenta which adheres within the cervical zone or region of dangerous placental seat," and is therefore favorable under

the precise circumstances which preclude turning or total detachment.

4. That of Dr. Cohen, of Hamburg, which consists in detaching a segment of the placenta, which adheres on one side of the cervix, converting a central into a lateral placenta, in those cases where the symptoms are too urgent to warrant trusting to the efforts of nature.

I shall reserve the first method of treatment to make some remarks upon, grounded on the facts I have offered to the profession, and shall therefore touch upon the proposition of Dr. Simpson first, "the total detachment of the placenta" from the cervical canal, as Dr. Simpson terms it. I have demonstrated that the placenta could not exist in the cervical canal by the growth of the uterus, as the body of the uterus and the cervix are totally distinct in character, anatomically and physiologically, though in union with each other.

From a large number of cases given by Drs. Read and Trask, and Professor Simpson himself, and the individual opinions of many prominent obstetricians, (Dr. Waller amongst others,) on the separation of the placenta artificially or spontaneously, (but particularly artificially,) it has been recognized and proved, that there was flooding as a general rule after the separation of the whole placenta, and thus time was gained in the cases of extreme exhaustion before turning was resorted to, and the mother spared. The propositions of Dr. Simpson have not been, I think, fully appreciated by the profession, for it is generally believed that his treatment was to be applicable in nearly all cases where turning might be or had been adopted, except transverse presentations, and I think by none more so than by Dr. Barnes in his writings. Now Dr. Simpson *expressly* states that he submits to his obstetrical brethren "only an *additional* principle, and that cases occur in practice in which neither the artificial rupture of the liquor amnii are suitable, and where forced delivery by turning is inapplicable;" and further, "that there are very many cases of placental presentations, in which artificial delivery or turning of the foetus will still remain as the most proper and legitimate plan of treatment."

Dr. Simpson's method is applicable, when the recognized modes of treatment were insufficient or unsafe, or altogether impossible of application, and are particularly suitable in great emergencies of extreme exhaustion, where to turn and deliver would prove the death of the mother, instead of saving her. He has therefore established a great physiological fact by the experience of a large number of cases from numerous authors, (and which I can testify to,) that the separation of the placenta from the lower part of the uterus does arrest

the flooding, when it has been resorted to. The facts, and the evidence that have been presented to the profession, where a just appreciation of his views has been entertained, cannot well be gainsaid by "*dogmatism*," when statistics are rejected. I do not desire to be the special advocate of Dr. Simpson's views, but I think an important principle of treatment has been enunciated, applicable to certain cases only, that imperatively claims the attention of the obstetrician in the responsible position he holds to his patient; a principle I believe, which if it had not been adopted in some cases, valuable lives would have been lost. Although Dr. Simpson has merited the credit of having suggested the treatment of detachment, still the originator of it, was Dr. Kinder Wood, of Manchester, in 1822; and Dr. Charles Clay being a pupil of his, adopted the method of treatment, and bears this testimony in its favor: "I have for nearly forty years continued the same practice, with almost entire success, except in one or two solitary instances, when the distance traveled was great, and the loss of blood and time had produced an unquarable amount of prostration. I am convinced from long experience, that the danger of version and hæmorrhage, may in a great measure be done away with by the simple detachment of the placenta. I have never known it to fail, nor do I believe it will ever fail if the detachment is completely and properly effected. We have also the highest authority for stating that the arrest of hæmorrhage is complete in 19 out of 20, and I have never witnessed any bad consequence from detaching the placenta."

I am aware this opinion is opposed to that which has been expressed, "that there is no *specific virtue* in total detachment of the placenta in arresting hæmorrhage. The arrest is due to some *other cause*. It stopped not because the placenta was wholly detached, but because the detachment had reached the physiological limit—the *boundary line*," which Dr. B. has attempted to point out. The object of my paper is one of facts, and I must deal with them accordingly, and I trust I shall not wittingly transcend them in my remarks based on those presented. Time will develop that the physiological fact thus advanced by Dr. Simpson, will be received and accredited. What treatment, I may ask, can be *certain* of a favorable result in all these extremely trying and perilous cases? The prerogative of man with all his wisdom, cannot go beyond its own limitation, and nature will give way.

"With just enough of life to show,  
That life will soon be gone."

I now pass to the third proposition, that which is advanced by Dr. Barnes. "The separation of all that part of the placenta which ad-

heres within the *cervical zone*, to the lower polar circle or boundary line of safe attachment." Dr. Barnes remarks, that, "We have then here, a *new* remedy, one applicable at the very juncture, when ordinary means are impossible or dangerous, as contrasted with the operation of totally detaching the placenta, it has the further advantage of not endangering the life of the child. As contrasted with forced delivery, it has also the advantage of being less hazardous to the child." As the opinions of Dr. Barnes are urged with so much tenacity, and presented in such a confident manner, let us ascertain whether we can find such a new remedy as Dr. Barnes inculcates with his anatomical and physiological views.

It is not necessary I should rehearse the views of Dr. B. The principle of his physiological views is according to the diagrams I have given, and explanations of the same. The separation of the placenta from the dangerous placental seat—the *cervical zone*—up to the lower polar circle, the limit of placental spontaneous detachment, the labor is then in all respects a natural one. Now, what is this boundary line, or lower polar circle, between hæmorrhage and safety? It is thus described, page 80 : "If we now describe a circle within the womb at *three inches distant from the os*, we shall have drawn the lower polar circle, or boundary line, between hæmorrhagic and non-hæmorrhagic placental attachment." It is demonstrable and clear, not only from the diagrams of Dr. Barnes, but his own descriptions, that he places the placenta, if perfectly central, according to the diagram (not partial), in the cervix uteri, when it is fully expanded to its very limit before the full term; and therefore the *os tincæ* or *os uteri externum*, must be the first portion of the womb to be *pulled* open, to allow the placenta to pass through; that the placenta must be, (if the placenta is eight inches or seven inches in diameter), only attached by one to two inches all around the lower polar circle, the seat of safe attachment. When this is reached, there is no more flooding, and the case can be left to nature to terminate it, as it is according to Dr. B. then a "*natural one*." I think the verification of this theory is entirely set aside by the morbid specimens I have exhibited, and their diagrams. They are in marked contrast to those of Dr. Barnes. *They testify* to the *non-expansion* or *dilatation* of the *cervix uteri* during *gestation*. Therefore if in any case it is recorded that the *cervix uteri* is an *inch* long when labor commences, it is plain there *was no expansion* of the cervix, but it retains its natural size, length and breadth. From diagrams of my own it is demonstrable that the placenta is attached to the inferior part of the *body* of the uterus and *not* in the cervix, and it does not enter the cervix uteri, for it is closed, and if it is found there during the

first stage of labor, it is by its having been *detached*, from the body of the uterus as it expands and distends the cervix. These facts, it is not easy to gainsay; they require as full and ample experience on the same points of investigation *to disprove them*; and if they cannot be disproved, then the "new theory and the true physiology of placental presentations" have not the slightest ground for support. They show and advance no *new remedy* for treatment of placenta prævia centralis. Dr. Barnes, at page 81, remarks thus: "I have observed that the *hæmorrhage* has completely *stopped* when the os uteri had opened to the size of the *rim of a wine glass*, or even to a *lesser size*." This I consider an *important admission* on the part of Dr. Barnes, and which I shall avail myself of, in illustration of the views I shall advance from the facts offered, which militate against the views of Dr. B., as his remedy to "control the hæmorrhage, is *the separation of the placenta from the cervix uteri* all round by the finger, which adheres within the cervical zone, up to the boundary line, the lower polar circle." There is an important difference therefore between Dr. B. and myself from such evidence as I have adduced—that the whole placenta, instead of being placed *in* the the cervical zone, is *not* there, but *absolutely* at the lower polar circle in Dr. B.'s diagram. It does *not* enter the cervical zone, the dangerous seat of placental presentation, until the contractions of the uterus have forced it down into it, and *then* the os uteri internum reaches the limit of the size of the head of the child, or the presenting part, and can stretch or expand *no further*. *This is the limit of expansion of the cervix*—the supposed boundary line of Dr. B.—and becomes the limit of safety to the mother, if the contractions are continued while the os tincæ is opened *only* to the size of a wine glass, The cervix uteri, from being *an inch or an inch and a quarter long just previously, has reached three inches in length, and four inches or three and a half inches in diameter, and from ten to twelve inches in circumference*, and in stretching from say, one-half inch in thickness, it becomes almost diaphanous, and then the placenta is detached fully two-thirds, whilst the os tincæ or os uteri externum is only opened as above stated. The placenta then presents its mamelon appearance from its location in the cervix, and, should the uterine contractions be active, the placenta is fully detached from above, as the os uteri externum expands, and the child follows and is delivered—spontaneous separation having occurred. But on the contrary, should the pains not be active after the os uteri externum has reached the size of the rim of a wine glass, and the head of the child presenting, the feeble pains have *no power* to separate the placenta any further,

owing possibly to the firm adhesion of the membranes around the circumference of the placenta, and the limit of expansion of the cervix uteri internum obtained. No hæmorrhage will be likely to result till more active contractions ensue, and then the hæmorrhage will occur again until it is further or completely separated, or the upper and lateral part separated by the finger, according to Dr. Cohen's method, converting a *complete* into a *lateral* one. The *error* of Dr. Barnes is in *placing* the placenta in the cervix uteri, and therefore when the hæmorrhage continues, and the os uteri externum is opened to the size of the rim of a wine-glass, the Dr., to control the hæmorrhage, separates the placenta, as he *supposes*, when it has been *detached* or *separated* by the uterine contractions.

No. *Nature* has accomplished *her task* before Dr. B. *has commenced his*, and then appeals to us, from the facts as I have revealed, (when this limit of the os tincæ has reached the size of the rim of a wine-glass,) to aid her further, if she is incapable of accomplishing still more perfectly her future task. Thus (what Dr. B. has also supposed), instead of the boundary line being reached or accomplished, it has been reached by the uterine contractions,—the head of the child tamponing the vessels by its compression from above, and by its gravity. The zone of safe attachment of Dr. B. is only the extent of the expansion of the os uteri internum, and if permitted to remain through feeble pains or through atony consequent upon the flooding, it would, to my mind, in the views as I have stated, create no exemption or immunity from hæmorrhage. The principles therefore laid down by Dr. B. to rest or act upon, are unsafe, and he himself has not rested upon them solely. (See case 33, appendix (not case 3,) London Lancet, June 1, 1861, page 527, which case I shall refer to.) With the principles of Dr. B. in cases where there are no pains, and where there are no uterine contractions, can we be certain of his remedy to warrant our resting confident on it, as with total detachment, or even Dr. Cohen's method, which I shall refer to shortly? Turning has been adopted in a greater number of his cases, after rupture of the membranes, and ergot given. I must frankly confess that whilst I am open to conviction, and would wish to do all justice to him, nay, am solicitous for it, I do not think that in *any* of the cases of Dr. B., whether recorded in his work on the physiology and treatment, or in his paper in the Obstetrical Transactions, or in the Lancet for June, 1861, (and the typical case, case five of his work, which he dwells upon so much as that which suggested to the author's mind the views he has given to the profession through his Lettsomian lectures, and

published first in the *Lancet* for 1848. *was one where the detachment did not of itself stop the hæmorrhage.* The opinion I express is also entertained and recognized in the reviews of his lectures in the *Medico-Chirurgical Review* for July, 1858, and the *Dublin Medical Journal* for May, 1858. If the principle as laid down by the "new theory" is so true and correct, and if it can be substantiated, it ought to be adopted by the profession for the sake of humanity. Let us proceed a step further, and for this purpose look at the typical case, page 49. I shall only quote the important part, that relates to the subject more directly. The patient has had four children at full term; in this pregnancy was suddenly seized with profuse flooding at full term: "Case 5th, Jane W.; called to see her June 1, 1846, 4 P. M.; she is a robust woman, pulse 80, having pains in the loins, and violent pains in the belly; great anxiety and restlessness. Examination per vaginam; os uteri directed back to the promontory of sacrum; the *cervix nearly an inch long*; the os barely admits the tip of the finger; the quaggy sensation communicated by placenta is perceived; presenting part of the child not ascertainable (supposed not the head). Hæmorrhage is still profuse. Plugged the vagina with a sponge dipped in vinegar, so as to fill it completely; enjoined quiet and cool air. 11 P. M. (7 hours after the first visit); some considerable oozing has escaped through the sponge; pains continue; left the sponge *in situ*, as the patient did not seem much exhausted. June 2 (8 hours after last visit, 15 hours after first), 7 A. M.; some oozing still going on; removed plug for examination; os uteri now size of a *crown piece*, and lips thinner, but still rigid; the placenta is felt, *detached* from posterior lip and back of cervix; anteriorly the membranes are felt, and the presenting part of child, recognized to be the feet" (child living). "At noon" (5 hours afterwards), "I removed the plug; *there has been no further flooding*; os uteri the size of the rim of a wine glass; no urgency. 1½ P. M.—Os uteri more dilated; ruptured the membranes during a feeble contraction of the uterus, just anteriorly to the border of the placenta, and seized the feet, which readily descended. Delivery was effected at 1:45" (ten minutes after the membranes were ruptured.)" From this case Dr. B. deduces his physiological views and new method of treatment. On referring to this case *where the placenta was located over the posterior part of the cervix only*, it will be remarked that the hæmorrhage, which had been profuse, ceased when the os tinæ was dilated to the size of the rim of a wine glass, but at 7 A. M., June 2, was dilated to the size of a crown piece, child living. Why was this flooding stopped? Let Dr. B. answer (page 51). "The detached portion of the placenta had become plugged up by coagula, and the remainder

of the placenta, being attached to the body of the uterus, was not liable to become separated during the contractions of that organ. It was, in fact, reduced to the normal condition in which the placenta is attached wholly to the fundus uteri." He (page 53) insists upon the fact, in this case, "that the flooding could not be arrested by pressure from within. The flooding stopped whilst the membranes were entire; moreover, the feet presented, which could not exert the requisite pressure." Now, how Dr. B. can frame his new theory and new method on this case, I have not been able to understand. *On the contrary, it is one that can be adduced to verify the facts I have brought forward.*

1. At 4 P. M., June 1, the *cervix was an inch long*, therefore the cervix uteri was *not* expanded to form the cervical zone. It was in the lower polar circle; safe flooding.

2. Tamponed, as is usually done; left tampon in the vagina for 15 hours; then,

3. At 7 P. M., June 2, os uteri opened to the size of a crown piece; no flooding; pains feeble; placenta partially detached by himself.

4. At 1½ A. M., 6½ hours after the last visit, ruptured membranes and delivery by feet.

The simple explanation of this is, that from the stand point I have taken, under the uterine contraction, the os uteri internum expanded sufficiently to separate the placenta from its attachment, and opened the os tincæ at 7 P. M., 15 hours after labor set in—the very limit it could reach, because the breech of the child with the feet presented. (The Dr. informs us that no pressure could be made by the feet, as they presented, but I believe it is very rare for the feet to present without the breech being close by). As the pains were feeble, and the placenta detached, the lower part of the child, with the feet, made some pressure against the separated part; but if it did not, that would not be absolutely necessary. The limit of the circumference of the os uteri internum had been reached; pains feeble,—and what nature demanded, and called for at a much earlier period, (7 A. M.,) was, when the os uteri externum had opened to the size of a crown piece,—to tap the membranes *at that time*, and let the feet or breech come down naturally, or give small doses of ergot to excite the uterus to contraction, if necessary; for it appears as soon as the liquor amnii passed away, at 1½ he delivered by turning, which might have been accomplished earlier or not at all. The Dr. "missed,"—to use his own expression—the appreciation of nature's method. But how could it be otherwise, as he rests his anatomical and physiological views on Sir C. Bell, and appears to ignore the physiological investigations and researches of Kölliker and others; and not the least

by any means of these prominent and celebrated physiologists, those of his fellow townsman, Dr. A. Farre? I must believe he has established a false theory on false physiological and anatomical facts. In one of his diagrams to illustrate his views, he presents a drawing from Dr. Hunter's plates on the gravid uterus (plate 12), of the placenta lying in the cervix uteri, but on investigating and referring to the plate of Dr. Hunter, Sydenham's edition, Dr. H. states it was *detached*, and plate 11 represents it as attached to the body of the uterus, marked letter R, and it therefore had been separated from the lower part of the body of the uterus by the contractions of the uterus, and passed into the cervix, as the patient had been in labor some time. This case from Dr. Hunter can not be offered as one where the placenta had existed in the cervix, but as one where it was detached from above, according to Dr. H.'s own statement.

Dr. B. gives, in his Lettsomian lectures, six cases: three cases by turning; two had natural deliveries, and were all partial; one complete. In his paper in the Obstetrical Transactions, vol. 1, fourteen cases of placenta partialis; twelve cases—seven delivered naturally, five turned; one post mortem; one of no account—eighteen cases in all; eight turned, nine naturally delivered, and one by ergot. Since the publication of his Lettsomian lectures, Dr. B., in his remarks before the Obstetrical Society, July 6, 1864, in answer to the paper read by Dr. Robt. Greenhalgh, says he has seen, since 1858, fifty-nine cases. These certainly could not be all complete presentations; and if not, the principle of Dr. B. could not fairly be established, as the treatment in placenta partialis is so clear and definite, (generally so successful,) that it hardly applies to the cases of treatment by Dr. B., for the detachment of the placenta from the whole cervical zone, and really exemplifies the treatment of Dr. Cohen by lateral separation. I am aware that statistics show us the frequency, and therefore the more natural position or location of the placenta is at the sides. Out of 934 cases, sixteen were at the fundus; 565 at the sides; 145 in the vicinity of the os tincæ; 11 on the os; 187 undetermined.

Thus we have 710 at the sides and near the os uteri externum; and when we consider the size of the placenta, when it is attached to the uterus, (its peculiar formation, composed of so many cotyledons, so as to allow its expansion and diminution during the various movements of the body of the child,) being much larger by expansion internally, than when delivered, (its length measuring 7 to 10 inches,) it must reach from the upper part of the uterus to the vicinity of the os uteri internum, and not *externum*. Hence, from the frequency with which Dr. B. appears to have met with placenta prævia—fifty-nine cases in six years—I think he has considered many of his cases as

true placenta prævia, which were only naturally located in the lower part of the body of the uterus, and he claims the rate of mortality as one only to fourteen, with the addition of 24 others to his own, making 83 cases in toto.

Independent of his method of separating the placenta, whatever part of the placenta was in the cervix, partial or complete rupture of the membranes was adopted, and contractions of the uterus created. If the rupture of the membrane did not succeed, then he gave ergot, or proceeded to turn. Let us take case 10, vol. 1, page 90, *Obstetrical Transactions*: "On the 9th, saw patient, rather free hæmorrhage, os, size of the rim of a wine glass, and dilated; bulk of placenta attached posteriorly, but stretched across os three inches anteriorly. I swept the finger around *inner cervix*, *detaching* placenta from the lower zone. The uterus felt hard, but there was not sufficient contraction to cause tension of the membranes; head presenting. No hæmorrhage followed the operation. A third dose of ergot aroused moderate contractile energy, but still no bulging of membranes. Seeing no prospect of active contraction, and midwife being absent, I determined to deliver, and proceeded to turn." This case certainly does not illustrate Dr. B.'s views. If he separated the placenta from the lower zone and the head presented, (which it did) why give ergot and proceed to turn? Why was version, forced delivery attempted, if his principle was correct? What is this but the older method of treatment? Had the Dr., when the os uteri externum was on the 9th instant, opened to the size of a wine glass, lacerated the membranes, adopted lateral separation according to Dr. Cohen, and *then given ergot*, he *could have imitated nature more perfectly*, and more in accordance with the *facts* I have demonstrated: as the placenta *was*, and *must* be, detached from its seat above, in the lower part of the body of the uterus.

But we may take almost any of the cases he has reported, and the same course is pursued. Turning is frequently resorted to by him. But I desire to present one more instance, from the *London Lancet*, June 1, 1861. This is a case of complete presentation. "The placenta quite over the centre of the os. The cervix was *more than an inch long*. The os externum uteri was sharp, size of a *half crown*. Little bleeding at the time of examination, but copious before; had yawned and tossed her hands, and was faint and anemic. As I feared bleeding might return, and seeing the patient too much exhausted to bear further loss, I considered it necessary to expedite delivery. I therefore, detached the placenta from lower zone, and dilated the os tincæ with the caoutchouc dilator. The cervix was freely expanded in about five minutes, (*which we might expect*) but pains not excited.

I was, however, enabled to pass my hand by the placenta, reach the membranes, which I ruptured with the skewer. The head presented, a foot was seized and the child delivered." Dr. B. remarks on this case: "If I had not used the dilator I should have been compelled to stretch open the cervix uteri with my fingers, at the risk of injury or to encounter the alternative risk of renewed flooding, &c. By accelerating labor, the patient was quickly placed in security." I must draw the inference in this case, that if the membranes had been ruptured as early as 4 A. M., when the os uteri externum was the size of a *crown piece*, and secale cornutum given, the os tincæ would have opened by the contraction produced by the ergot, the *vis a tergo*. Nature required assistance at that time, as the limit of expanse of the cervix uteri had taken place, and the placenta being detached, forced delivery could have been prevented. From all I have noticed in regard to Dr. Barnes' treatment, I am unable to appreciate his theory—his physiology—his anatomical views, or his method. He holds to one grand, *universally received opinion*, that uterine contractions are requisite in these great and important cases, and which principle is entertained and conceded by the profession. The method of obtaining it by the course he has proposed I cannot perceive, as I believe his cases disprove, and therefore I think he has "missed" the true interpretation of nature.

Dr. Cohen's method is so perfectly simple, clear and practical, that it claims especial attention from the profession, and I doubt not it will be adopted in a great many cases where version was formerly resorted to. His method is, to "rupture the membranes during a pain, and tear them freely from the border of the placenta, sweep the finger around *half* of the circumference of the os uteri internum, so as to detach the placenta completely from that side of the uterus to which the lesser portion adhered. This done, there is nothing to prevent the os uteri from expanding and carrying the liberated portion of the placenta over to the side where the bulk of the organ adheres. In many cases this will be enough to arrest the hæmorrhage." Dr. Cohen says he has never lost a mother, and rarely a child. *What an encomium on this practice!*

I now pass to consider the first proposition, and shall speak of the plan I have adopted for several years; and which is,—to resort to the tampon if the flooding is profuse or active, and the cervix not yet expanded, the os tincæ closed. Whether this occurs at the seventh, eighth or ninth month, or full term, I prefer using the ordinary *rolled surgical bandage*, two inches wide, which is easily introduced. The vagina can be packed with it fully and completely, pressing the soft, long, flabby cervix against the placenta (thus acting as a

free compressor—and preventing any hæmorrhage taking place internally or externally—and also as an oxytotic), and permitting the plug to remain, till pains are increasing or becoming more active, or sometimes even till it may be cast out from the vagina. An examination will find the os tinæ opened to the size of a crown-piece, or rim of a wine glass. The internal os uteri will then be expanded to its greatest capacity, the limit of its fullest expansion, four inches in diameter, and twelve or fourteen in circumference, and the placenta then detached and pressed into the cervix uteri. The expansion could proceed no further unless the membranes are ruptured by the natural power; but if not, and they are feeble, rupture the membranes,—as there is no need of waiting any longer. Nature has done all she is capable of doing, or going to perform, and it is an admonition for our aid and assistance; and when this point has arrived,—the os tinæ as wide as described above,—rupture the membranes, separate the placenta laterally (according to Dr. Cohen's plan), let the waters flow off, and if the head presents, and the uterine contractions are active, the labor will progress; the placenta will be compressed, as well as the venous sinuses at the side it was separated from, and the child delivered. But should the contractions be feeble through the loss of blood, or any other ordinary cause, then give the secale cornutum to advance the labor, and trust the rest to nature. *There is no call for turning in cases of this character.* Should there be very feeble pains before the rupture of the membranes, secale cornutum may be given in moderate doses to increase the pains, and when they have commenced, tap the membranes and proceed as before mentioned. Should there be commencing exhaustion, and the os tinæ only opened to the size of a two shilling piece, and the hæmorrhage profuse, resort to Dr. Simpson's method,—allow the patient time to rally, by giving stimulants; apply warmth to the extremities, and adopt the ordinary means to restore her nervous system and the faulty circulation; and when she has rallied, attempt version. Should there be extreme exhaustion, and the os uteri irritated and the placenta complete, the same course is to be pursued and abide the events. For I think I would much rather see my patient die, without attempting version (as that is considered the secundum artem method at that perilous time), than undertake it; for if my patient did not die by it, she would most certainly by the shock to the nervous system, when she is almost moribund. Should there be a transverse presentation, (which presentations are frequent, for out of four hundred and twenty cases one-fifth of them may be transverse,) before the membranes are ruptured, undertake external version; restore the head to

its natural position, at the superior strait; have it retained there by an assistant, and when contraction of the uterus occurs, remove the tampon, tap the membranes, if not by the finger, by a stylet, and if the head should remain after the liquor amnii has passed, give the ergot in proper doses to sustain the contractions more efficiently, and leave the rest to nature. In truth it is our duty to imitate *nature* as far as it is possible in these cases. Should the case presented exist, and could not be rectified by external version or the internal with external, then adopt the internal version, by the foot or knee. The method of tamponing or plugging I have adopted, is easy and simple in its introduction, as well as its removal from the vagina, without disturbing the patient in the least; for the whole or part may be removed by merely pulling out the end gently. I have made trial of this method for several years, (although I have tried the colpuryster,) not only in cases of this nature, but in various forms of flooding occurring in the young or married or parturient female. The quantity used may be in reference to the capacity of the vagina, according to its distensibility. I find that Dr. R. Greenhalgh, who read a paper on placenta prævia before the Obstetrical Society of London, July 6, 1864, entertains views of treatment almost similar to my own, only he uses the air ball, covered with spongiopiline.

In presenting the facts which I thought might be of some value to the profession, for their consideration, and investigation, I have endeavored to establish a few points in regard to a more just interpretation of *nature*, in a practical aspect, during such a critical and momentous course of events in pregnancy, when nature appears to be suicidal. These investigations, although presenting no novel method of treatment, but mapped out according to the circumstances of the case, fortify and strengthen the confidence and judgment of the accoucheur. This method of tamponing and rupturing the membranes, teaches us to *trust* more decidedly and implicitly *than ever to nature*, and not to rob her of any of her own rights and to avoid as much as possible, (only to be employed as a dernier resort), version. But if *this* is imperative, *duty* demands its accomplishment. The facts brought forward by myself instruct us that a stage in the labor arrives in every case of placenta prævia centralis, when the os tincæ is opened to the size of a *dollar* or *rim of a wine glass*, that the *placenta is detached*, one-half and sometimes even two-thirds, and if the pains are feeble will not be separated any further. Therefore, *nature asks for*, nay, *demand*s our aid. Nature has done her task to the utmost limit of her power and ability, and we are taught that our duty then commences to assist her in the delivery.

I shall conclude by giving the following propositions on the various points at issue, and I think it must be apparent that on these different theories, there have existed wide differences of opinion, without any adjustment. If the facts I have presented have any tendency to throw new light on some of them, I shall have reaped much pleasure therefrom, and subserved the interests of our profession.

1. Proposition. There is perfect integrity of the cervix uteri during the full period of utero gestation in its *whole* length, without developing from above downwards, or from below upwards, but modified by physiological softening to prepare it for the office of expansion at the time of labor and *not before*, for the exit of the child.

2. That in placenta prævia centralis the placenta is over the os uteri internum, and not in the cervix uteri, before labor commences, as is believed or demonstrated.

3. That the limit of spontaneous detachment of the lower polar circle, (the boundary line of Dr. Barnes,) is *not* the zone of safe attachment, after separation of the placenta, by Dr. B.'s method.

4. The cause of arrest of the flooding in general is the limit of expansion of the os uteri internum to the extent of twelve or fourteen inches in circumference, and three and a half to four in diameter, and three inches long.

5. That the boundary line thus reached by nature is only safe, so far as separation occurs by the contractions of the uterus.

6. That the hæmorrhage comes from the uterus, as seen, and not from the placenta.

7. That the flooding is *diastolic*, not systolic.

8. That the method of separation of the placenta by the uterine contractions is *from the centre* and *not* from the margin.

9. That the method of Dr. Simpson is preferable in cases of extreme exhaustion, to version, until nature can be restored in some degree to perform it.

10. That external version should be adopted first, in transverse presentations of the shoulder, neck, or face, before rupturing the membranes. If not successful, then internal and external version together; then true version, but not rapidly, if the other methods fail.

11. That the former and usual methods are confirmed by these investigations, in their value, such as tamponing and rupturing the membranes, and giving ergot.

I will conclude what I have to say on this important subject, aware I may have been more prolix than the subject may have demanded; but from the nature of the resumé of the various theories and

opinions, it could not well have been avoided. *To such as object, because opposed to all innovations*, I will only repeat the words of one of the patriarchs on obstetrics, Mauriceau—"I desire if you mean to profit by my remarks, you will read and examine them without critical envy, free from all pre-occupation that may obscure your judgment, and hinder your acknowledging the truth of what I profess to teach; therefore follow not such as condemn a conception when they understand it not, and believe it false because it is *new*."