

CHAPTER TWO

A QUESTION OF INTELLECTUAL PROPERTY, CIRCA THE FIFTEENTH CENTURY

This controversy between midwifery and medicine may well be one of the first organized conflicts over “intellectual property”, occurring long before that concept found a voice in the late 20th century. The intellectual property in question belongs communally to childbearing women and their midwives. Midwifery as an organized body of knowledge and set of technical skills preceded the modern discipline of medicine by more than 5,000 years. From an ethical standpoint, one could argue that it rightfully belongs to humanity and should remain far above the idea of a proprietary knowledge that is restricted to the few, at the expense of the many.

To characterize the issue in techie-talk, it’s a bit like Microsoft appropriating the graphical interface developed by Apple (the mouse and iconic menus) with neither compensation or acknowledgment by MS of its original source. Then, after re-naming the concept as “Windows”, pretending that Microsoft alone had invented and thus owned the system and subsequently devoting massive amounts of corporate time, money and political influence to trashing the reputation of Apple. *With sufficient repetition, perception becomes reality.* Having amassed such an effective, well-financed political machine, Microsoft would then be able to get MS-friendly/Apple-hostile legislation passed, allowing Microsoft to use the court system to harass Apple. Eventually Apple’s business would be all tied up in legal knots. After MS “won” the OS war, the final blow would be to re-write history so that for the next entire century, generations of school children (who would soon enough be adult citizens/consumers) would hear that MS invented all good things in the computer world and that Apple was a dangerous infidel, vanquished by Microsoft as a selfless act of concern over the safety and satisfaction of *your* computing environment.



THE ALPHA AND OMEGA OF MIDWIFERY

Historically childbearing women themselves were the best (and only!) source of information about the biology and physiology of pregnancy and normal childbirth. For thousands and thousands of years, women gave birth normally with the support of their extended families and the help of experienced older women. For healthy women in safe surroundings, pregnancy and

birth was generally successful for both mother and baby. We know this statement is true because the human species has survived (and in fact, thrived) into the 21st century. Anyone alive in the 21st century is a direct descendent of women who were successful at giving birth normally -- without the need for drugs, forceps or cesarean surgery.

From the get-go of the human species (Eve 2.0!), older, experienced women always helped younger, inexperienced women during the hours of labor, at the moment of birth and to help care for the new mother for some days afterwards as she learned to care for her new baby. Eventually this type of experienced help become known as “midwifery”. Those women caregivers who developed specialized skills in managing childbirth and dealing with the needs of new mothers and babies were known as “midwives”. In old English ‘mid’ = “with” and ‘wife’ = “woman”, thus a ‘midwife’ is someone who is ‘with woman’ during the events of childbearing.

The first record of midwifery as an established discipline can be found in the hieroglyphics of ancient Egypt in 3000 BC. The first mention of midwives in Western culture (perhaps prophetically) is a story in the Old Testament of political intrigue and civil disobedience. The book of Exodus records the political clash between society and midwifery, when the Egyptian Pharaoh who ordered the midwives to kill all the first-born sons of the enslaved Hebrew population. The Egyptian midwives to the Hebrews, at the risk of their own lives, declined to carry out such orders.

Dr. Hardin, 1925: “The practice of midwifery is as old as the human race. Its history runs parallel with the history of the people and its functions antedate any record we have of medicine as an applied science. Midwives, as a class, were recognized in history from early Egyptian times.” [1925-A; p. 347]

Care provided to childbearing women during labor and birth was uniformly in the hands of midwives until the 17th century, a span of nearly 500 centuries. During this entire time the discipline of midwifery was empirically-based and organized around meeting the practical needs of laboring women, which are primarily psychological, emotional, and social. The care of midwives included ‘patience with nature’ and a commitment not to disturb the natural process. Again, we must accept as fact that this was a successful strategy, as the human species has survived and thrived under the care of their midwives.



Normal or Physiological Childbirth



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No medical drug or device or surgical instrument or procedure developed over the millennia of western culture has been able to make birth better or safe in healthy women with normal pregnancies than spontaneous labor and normal birth.

1932 "...that untrained midwives approach and *trained midwives surpass* (emphasis in original text) the record of physicians in normal deliveries has been ascribed to several factors. Chief among these is the fact that the circumstances of modern practice induce many physicians to employ procedures which are calculated to hasten delivery, but which sometimes result in harm to mother and child. On her part, the midwife is not permitted to and does not employ such procedures. She waits patiently and lets nature take its course."
1932 White House Conference on maternal and infant health

These protective methods are what we now refer to as “physiological management” – that is, “in accord with, or characteristic of, the normal functioning of a living organism”.

Its classic principles include a basic trust in biology and support for the normal process of labor and birth and a tradition that restricts the use of interventions to abnormal situations only. This non-interventive approach recognizes the mother’s need for physical and psychological privacy and to feel safe from unwanted intrusions and the prying eyes of strangers. Physiologic care encourages the mother to walk around at will and to be upright and mobile during both labor and birth. It also includes continuity of care by individuals known to the mother, one-on-one social and emotional support, non-drug methods of pain relief (such as movement, touch and warm water) and the right use of gravity.

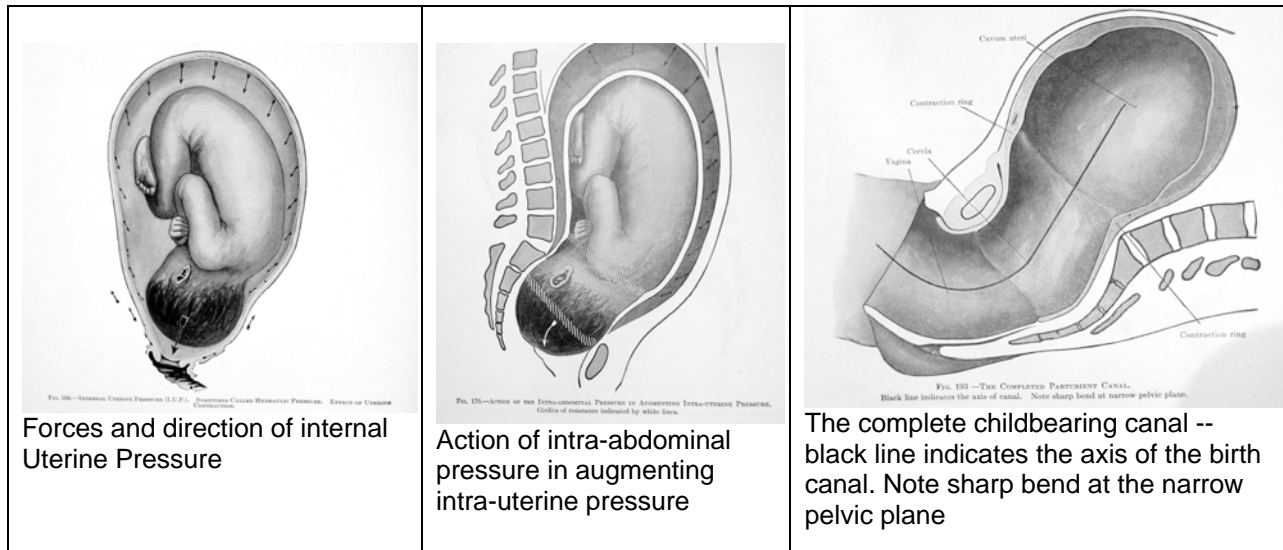


GRAVITY – WHAT A CONCEPT!

Physiological: “...in accord with, or characteristic of, the normal functioning of a living organism”.

Even though traditional midwives had no formal training in the science-based study of anatomy as we think of it today, they had ample opportunity to observe that childbearing women, when left to their own devices, almost universally chose to be mobile during labor and to assume some form of upright position during the birth of the baby. Midwives also noted that, on those rare

occasions that women choose or circumstances required them to be lying down, the labor was much slower and the mother had to push longer and harder to get the baby out.

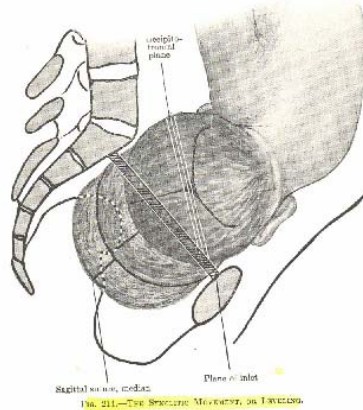


Sometimes she wasn't able to deliver unless or until she got back up into a gravity-friendly position. For a laboring mother, lying down is an anti-gravitational position that can reduce the pelvic outlet by almost a third, while simultaneously requiring the mother to push her baby up hill around a 60-degree bend. It's no surprise that it is harder and takes longer and sometimes doesn't work at all.

The childbearing pelvis – that is, the internal bones that the baby must pass through -- normally creates a hollow space shaped like a lower-case letter “j”. Most people erroneously think of the birth canal as a straight chute (lower-case ‘l’), going straight down thru the lower half of the mother’s body; in other words, if the mother was lying down and you were watching from the side, her baby would pass through the pelvis and out of her body the same way a train comes out of a tunnel – a straight cylindrical object passing thru a straight cylindrical container.

But this is not anatomically correct. Imagine instead that you are looking at an upright pregnant woman from the side as she labors and gives birth while still in an upright posture. If you had x-ray vision, you would see that the long stem of the ‘j’ tracks with the mother’s lower spine and the curved foot of the letter ‘j’ bends forward to track with the lower half of the birth canal. What this means is the pelvic outlet -- last 1/3 of the journey – bends at a 60-degree angle, which requires that the baby to go around a corner and emerge into the world going forward (into its mother’s arms!) instead of down (where it would be hard to reach and might be injured as it fell to the floor). Not doubt this “frontal delivery” is an important survival characteristic, as for 99.99% of human history predates hospital obstetrics, which meant it was the mother herself who was responsible for catching her own baby.

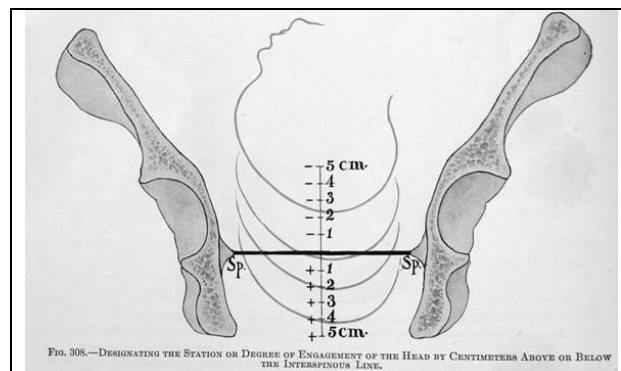
The **sacrum** (at left) the **pubic bone** (at right) & the relationship of the **baby's head** to these bones, as it travels down thru the **birth canal**.



The **baby's head** makes a **60 degree arc** down thru the birth canal and rotates under the **pubic bone**. When the mother is upright, the baby is **born going forward**, into the mother's (or birth attendant's) hands

Were you to look down into the pelvis from the top, you would notice that the big triangle-shaped bone of the lower spine -- the sacrum and coccyx -- encroach forward into the pelvic outlet about an inch or so. In this regard, the pelvis is like a hollow bowl with smooth walls on three sides but the fourth side is bent in, making it impossible for anything that is the same size and shape as its upper circumference to pass through its lower portion.

However, in the second stage of labor, after the baby is squeezed out of the uterus thru the cervix and starts its trek down into the birth canal, you would see something remarkable happen. In pregnancy the sacrum and coccyx are able to move somewhat and are actually pressed back out of the way by the baby's head as it descends lower and gets closer and closer to being born. The hormones of pregnancy also make the cartilage that holds the two sides of the pubic bone together become very elastic. Thus the pelvis can stretch and widen side to side, which can give the baby an extra 1-2 centimeters of room to negotiate its passage into the world.



Of course, this nifty trick **ONLY** works if the mother is standing, squatting or is in some other position that makes 'right use' of gravity and allows her sacrum to move back out of the way (similar to the way a pet door is pressed open by the dog or cat as it passes through). However, if the mother is bearing her own weight on her lower back, such as lying down with her legs held up in stirrups, the sacrum cannot move out of the way, and sometimes the trap door gets stuck in the closed position.



Right use of gravity for pushing



Vertical posture, with mobility of maternal pelvis



Head slowly crowning into midwife's hands

For a laboring mother, lying down is an anti-gravitational position that can reduce the pelvic size by almost a third, while simultaneously requiring the mother to push her baby up hill, and around a 60-degree bend. Not only does this require that she defy gravity, but she must do so with the doorway partially blocked, reducing the aperture of the pelvis. When the mother is bearing her own weight on her lower spine, such as lying back with her legs held up in stirrups, the sacrum cannot move back out of the baby's way.



This is graphic of a mother **giving birth *without* the added benefit of gravity**, that is, while lying on her back.

The baby must first negotiate its way under the **pubic bone** by rotating its head from sideways to an **up / down orientation**.

Then the **crown** of the baby's head **spins under the public arch** and will be **born pointing up, towards the ceiling**.

If the baby is small or the mother's pelvis is big, the forces of labor and extra effort on her part can overcome this impediment. However, for a mother who lying down, the baby will still have to be pushed uphill and will emerge in an upward angle (towards the ceiling). This is obviously a

lot harder and may require the use of forceps or vacuum extraction especially if the mother has had anesthesia.



Figure 1 applying forceps

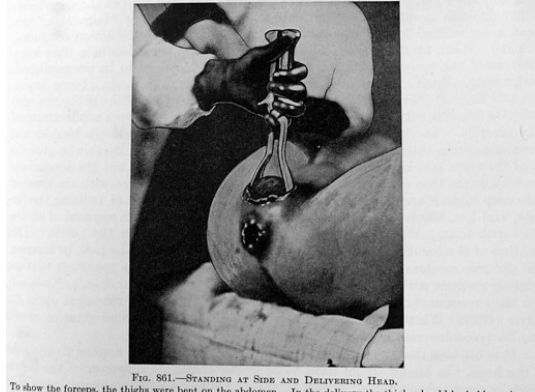


Figure 2 Using forceps to pull baby out

** Note that the direction of the pull of the forceps on the baby's head (figure 2) is straight up, towards the ceiling, which helps the observer to appreciate the direction of the pelvic axis

Unfortunately, if it is a relatively big baby and/or small pelvis, the baby can get stuck – the 'obstructed labor' of Old World fame but with a New World reason. In modern life, this would require a forceps delivery or a Cesarean.

In the ancient world or for women in poor countries without access to obstetrical services, cephalo-pelvic dystocia (CPD) eventually results in the death of the baby and may cause the mother to develop a fistula between her bladder or rectum or other debilitating forms of incontinence due to obstructed labor or associated with the use of episiotomy and forceps. It should be noted however, that CPD caused by positioning the mother on her back or other "wrong uses of gravity" in modern societies and the damage it may cause to the baby or the mother's pelvic floor, are iatrogenic in origin and therefore preventable complications.