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The Technological Model of Birth

This article investigates the paradigm that provides the underlying rationale for the obstetrical management of birth in the United States. This paradigm, the technological model of birth, utilizes the assembly-line production of goods as its base metaphor for hospital birth. The basic tenets of this model, which include the Cartesian doctrine of mind-body separation and the concept of the female body as a defective machine dependent on technology for successful reproduction, are both enacted and transmitted through routine obstetrical procedures; these serve as the rituals through which American society seeks to draw the individual belief systems of birthing women into conformity with its dominant reality model.

"But is the hospital necessary at all?" demanded a young woman of her obstetrician friend. "Why not bring the baby at home?"

"What would you do if your automobile broke down on a country road?" the doctor countered with another question.

"Try and fix it," said the modern chauffeuse.

"And if you couldn't?"

"Have it hauled to the nearest garage."

"Exactly. Where the trained mechanics and their necessary tools are," agreed the doctor. "It's the same with the hospital. I can do my best work—and the best we must have in medicine all the time—not in some cramped little apartment or private home, but where I have the proper facilities and trained helpers. If anything goes wrong, I have all known aids to meet your emergency."

—*Century Illustrated Magazine,* February 1926

Anybody in obstetrics who shows a human interest in patients is not respected. What *is* respected is interest in machines.

—Rick Walters, M.D.

WHY IS A BIRTHING WOMAN LIKE A BROKEN-DOWN CAR, and whence comes this mechanistic emphasis in obstetrics? For the past six years, I have been studying the sociocultural implications of the obstetrical "management" of birth in American society. This research has led me to conclude that both of these questions have the same answer: since the early 1900s, birth in the United States has been increasingly conducted under a set of beliefs, a paradigm, which I believe is most appropriately called "the technological model of birth." I use the word *paradigm* here in the sense of both a conceptual model of and a template for reality. Such a template can only mold reality to fit its

conceptual contours when these contours are specifically and consistently delineated and enacted through ritual. In this article, I will attempt to explicate this paradigm, to hint at its historical roots, to demonstrate how it is both delineated and enacted through the rituals of hospital birth, and to consider its sociocultural implications.

Data for this article were obtained through interviews with 85 mothers and many obstetricians, midwives, and nurses in Chattanooga, Tennessee, Austin, Texas, and elsewhere in the United States. The majority of the people in my study group were middle-class, mainstream American citizens. I was seeking to understand the processes at work in childbirth as it is experienced, not by any particular minority, but by the majority of American women. Although my study group included few women from lower socioeconomic groups, I can say with certainty that the technological model analyzed here is applied even more intensively to the poor than to the women I interviewed, for middle-class women who pay for private obstetricians can afford to have some choice in their birthways, while poor women who must go through hospital clinics must simply take what society chooses to give them (Lazarus 1987; Scully 1980; Shaw 1974).

The birth process as it is lived out in American society today constitutes an initiatory rite of passage for nascent mothers (Davis-Floyd 1986b). Rites of passage are accomplished through ritual. A ritual may be defined as a patterned, repetitive, and symbolic enactment of a cultural belief or value. Such enactments may be both ritual and instrumental or rational-technical (Leach 1979; Moore and Myerhoff 1977:15). In my analysis of hospital birth, I shall show that the obstetrical routines applied to the "management" of normal birth are also transformative rituals that carry and communicate meaning above and beyond their instrumental ends.

Ritual works by sending messages through symbols to those who perform and those who receive or observe it. The message contained in a symbol will be felt holistically through the body and the emotions, not decoded analytically by the intellect, so that no conceptual distance exists between message and recipient, and the recipient cannot consciously choose to accept or reject the symbol's message. Thus the ultimate effect of the repetitive series of symbolic messages sent through ritual can be extremely powerful, acting to map the model of reality presented by the ritual onto the individual belief and value system of the recipient, thereby aligning the individual cognitive system with that of the larger society (Munn 1973:606). Below, I will demonstrate how routine obstetrical procedures, the rituals of hospital birth, can work to map a technological view of reality onto the birthing woman's orientation to her labor experience, thereby aligning her individual belief and value system with that of American society.

The Technological Model and American Obstetrics

Because the belief system of a culture is enacted through ritual (McManus 1979; Wallace 1966), an analysis of ritual may lead directly to an understanding

of that belief system. Analyses of the rituals of modern biomedicine (Fox 1957; Henslin and Biggs 1971; Miner 1975; Parsons 1951) reveal that it forms a microcosm of American society in which our society's deepest beliefs stand out in high relief against their cultural background. American biomedical cures are based on science, effected by technology, and carried out in institutions founded on principles of patriarchy and the supremacy of the institution over the individual. These core values of science, technology, patriarchy, and institutions derive from the technological model of reality on which our society is increasingly based.

As Carolyn Merchant demonstrates in *The Death of Nature* (1983), this model, originally developed in the 1600s by Descartes, Bacon, Hobbes, and others, assumes that the universe is mechanistic, following predictable laws, which those enlightened enough to free themselves from the limitations of medieval superstition could discover through science and manipulate through technology, in order to decrease their dependence on nature:

> These philosophers transformed the body of the world and its female soul . . . into a mechanism of inert matter in motion. The resultant corpse was a mechanical system of dead corpuscles, set into motion by the Creator, so that each obeyed the law of inertia and moved only by external contact with another moving body. . . . Because nature was now viewed as a system of dead, inert particles moved by external, rather than inherent forces, the mechanical framework itself could legitimate the manipulation of nature. [1983:193]

In this model, the metaphor for the human body is a machine:

> The application of a technological model to the human body can be traced back to René Descartes's concept of mind-body dualism. . . . The Cartesian model of the body-as-machine operates to make the physician a technician, or mechanic. The body breaks down and needs repair; it can be repaired in the hospital as a car is in the shop; once fixed, a person can be returned to the community. The earliest models in medicine were largely mechanical; later models worked more with chemistry, and newer, more sophisticated medical writing describes computer-like programming, but the basic point remains the same. Problems in the body are technical problems requiring technical solutions, whether it is a mechanical repair, a chemical rebalancing, or a "debugging" of the system. [Rothman 1982:34]

After my stepfather's recent heart attack, a cardiologist gave me an update on this metaphor of the body-as-machine:

> Don't worry about him! Just think of it this way—he's like an old Cadillac that has broken down and needs repair. He's in the shop now, and we'll have him just as good as new in no time. We're the best Cadillac repairmen in town!

As it was developed in the 17th century, the practical utility of this metaphor of the body-as-machine lay in its conceptual divorce of body from soul, and in the subsequent removal of the body from the purview of religion so it could be opened up to scientific investigation. At that time in history, the dominant

Catholic belief system of Western Europe held that women were inferior to men—closer to nature, with less-developed minds and little or no spirituality (Ehrenreich and English 1973). Consequently, the men who established the idea of the body-as-machine also firmly established the male body as the prototype of this machine. Insofar as it deviated from the male standard, the female body was regarded as abnormal, inherently defective, and dangerously under the influence of nature, which due to its unpredictability and its occasional monstrosities, was itself regarded as inherently defective and in need of constant manipulation by man (Merchant 1983:2). The demise of the midwife and the rise of the male-attended, mechanically manipulated birth followed close on the heels of the wide cultural acceptance of the metaphor of the body-as-machine in the West, and the accompanying acceptance of the metaphor of the female body as a defective machine—a metaphor that eventually formed the philosophical foundation of modern obstetrics. Obstetrics was thus enjoined by its own conceptual origins to develop tools and technologies for the manipulation and improvement of the inherently defective and therefore anomalous and dangerous process of birth:

> In order to acquire a more perfect idea of the art, [the male midwife] ought to perform with his own hands upon proper machines, contrived to convey a just notion of all the difficulties to be met with in every kind of labour; by which means he will learn how to use the forceps and crotchets with more dexterity, be accustomed to the turning of children, and consequently, be more capable of acquitting himself in troublesome cases. [Smellie 1756:44]

> It is a common experience among obstetrical practitioners that there is an increasing gestational pathology and a more frequent call for art, in supplementing inefficient forces of nature in her effort to accomplish normal delivery. [Ritter 1919:531]

The rising science of obstetrics ultimately accomplished this goal by adopting the model of the assembly-line production of goods—the template by which most of the technological wonders of modern society were being produced—as its base metaphor for hospital birth. In accordance with this metaphor, a woman's reproductive tract is treated like a birthing machine by skilled technicians working under semiflexible timetables to meet production and quality control demands:

> We shave 'em, we prep 'em, we hook 'em up to the IV and administer sedation. We deliver the baby, it goes to the nursery and the mother goes to her room. There's no room for niceties around here. We just move 'em right on through. It's hard not to see it like an assembly line. [4th year resident]

The hospital itself is a highly sophisticated technological factory; the more technology the hospital has to offer, the better it is considered to be. As an institution, it constitutes a more significant social unit than the individual or the family, so the birth process should conform more to institutional than personal needs. As one physician put it:

There was a set, established routine for doing things, usually for the convenience of the doctors and nurses, and the laboring woman was someone you worked around, rather than with. [Peter Kozlowski, M.D.]

This tenet of the technological model—that the institution is a more significant social unit than the individual—will not be found in obstetrical texts, yet is taught by example after example of the interactional patterns of hospital births (Jordan 1980; Scully 1980; Shaw 1974). For example, Jordan describes how pitocin (a synthetic hormone used to speed labor) is often administered in the hospital when the delivery-room team shows up gowned and gloved and ready for action, yet the woman's labor slows down. The team members stand around awkwardly until someone finally says "Let's get this show on the road!" (1980:44).

The most desirable end product of the birth process is the new social member, the baby; the new mother is a secondary by-product:

It was what we all were trained to always go after—the perfect baby. That's what we were trained to produce. The quality of the mother's experience—we rarely thought about that. Everything we did was to get that perfect baby. [Rick Walters, M.D.]

This focus on the production of the "perfect baby" is a fairly recent development, a direct result of the combination of the technological emphasis on the baby-as-product with the new technologies available to assess fetal quality. Amniocentesis, ultrasonography, "antepartum fetal heart 'stress' and 'nonstress' tests . . . and intrapartum surveillance of fetal heart action, uterine contractions, and physiochemical properties of fetal blood" (Pritchard and MacDonald 1980:329) are but a few of these new technologies.

The number of tools the obstetrician can employ to address the needs of the fetus increases each year. We are of the view that this is the most exciting of times to be an obstetrician. Who would have dreamed, even a few years ago, that we could serve the fetus as physician? [Pritchard and MacDonald 1980:vii]

The conceptual separation of mother and child basic to the technological model of birth parallels the Cartesian doctrine of mind-body separation. This separation is given tangible expression after birth as well, as the baby is placed in a plastic bassinet in the nursery for four hours of "observation" before being returned to the mother; in this way, society demonstrates conceptual ownership of its product. The mother's womb is replaced, not by her arms but by the plastic womb of culture.[1] As Shaw points out, this separation of mother and child is intensified after birth by the assignment of a separate doctor, the pediatrician, to the child (1974:94). This idea of the baby as separate, as the product of a mechanical process, is a very important metaphor for women, because it implies that men can ultimately become the producers of that product (as they already are the producers of most of Western society's technolog-

ical wonders), and indeed it is in that direction that reproductive technologies are headed, as Gena Corea so dramatically exposes in her book, *The Mother Machine* (1985).

The Enactment and Transmission of the Technological Model through the Rituals of Hospital Birth

Hospital delivery as a whole may be seen as a ritual enactment of this technological model of birth. Once labor has begun, a variety of "standard procedures" may be brought into play in order to mold the labor process into conformity with technological standards. These various interventions may be performed by obstetrical personnel at different intervals over a time period that varies with the length of the woman's labor and the degree to which it conforms to hospital standards. The less conformity the labor exhibits, the greater the number of procedures that will be applied in order to bring it into conformity. These interventions, aimed at producing the "perfect baby," are thus not only instrumental acts but also symbols that convey the core values of American society to women and their attendants as they go through the rite of passage called birth. Through these procedures, the natural process of birth is deconstructed into identifiable segments, then reconstructed as a mechanical process. Birth is thereby made to appear to confirm, instead of to challenge, the technological model of reality upon which our society is based.

Shortly after entry into the hospital, the laboring woman will be symbolically stripped of her individuality, her autonomy, and her sexuality as she is "prepped"—a multistep procedure in which she is separated from her husband, her clothes are removed, she is dressed in a hospital gown and tagged with an ID bracelet, her pubic hair is shaved or clipped (returning her body to a conceptual state of childishness), and she is ritually cleansed with an enema. Now marked as institutional property, she may be reunited with her husband, if he chooses to be present, and put to bed. Her access to food will be limited or prohibited, and an intravenous needle may be inserted in her hand or arm. Symbolically speaking, the IV constitutes her umbilical cord to the hospital, signifying her now-total dependence on the institution for her life, telling her not that she gives life, but rather that the *institution* does.[2]

The laboring woman's cervix will be checked for degree of dilation, at least once every two hours and sometimes more often. If dilation is not progressing in conformity with standard labor charts, pitocin will be added to the intravenous solution to speed her labor (80% of the women in my study group were given pitocin, or "pitted"). This "labor augmentation" indicates to the woman that her machine is defective, as it is not producing on schedule, in conformity with production timetables (labor time charts). The administration of analgesia and/or anesthetia further demonstrates to her the mechanicity of her labor; epidural anesthesia, which can numb a woman from the chest down, produces an especially clear physiological separation of her mind from

the body-machine that produces the baby. This message is intensified by the external electronic fetal monitor, attached to her body by a large belt strapped around her waist to monitor the strength of her contractions and the baby's heartbeat. For one obstetrical resident, "The vision of the needle traveling across the paper, making a blip with each heartbeat, [is] hypnotic, often giving one the illusion that the machines are keeping the baby's heart beating" (Harrison 1982:90). The internal monitor, attached through electrodes to the baby's scalp, communicates the additional message that the baby-as-hospital-product is in potential danger from the inherent defectiveness of the mother's birthing machine.

If we stop a moment now to see in our mind's eye the images that a laboring woman will be experiencing—herself in bed, in a hospital gown, staring up at an IV pole, bag, and cord on one side, and a big whirring machine on the other, and down at a huge belt encircling her waist, wires coming out of her vagina, and a steel bed—we can see that her entire visual field is conveying one overwhelming perceptual message about our culture's deepest values and beliefs: technology is supreme, and you are utterly dependent on it and on the institutions and individuals who control and dispense it.

> At Doctor's Hospital I attached the woman to the monitor, and after that no one looked at her any more. Held in place by the leads around her abdomen and coming out of her vagina, the woman looked over at the TV-like screen displaying the heartbeat tracings. No one held the woman's hand. Childbirth had become a science. [Harrison 1982:91]

These routine procedures speak as eloquently to the obstetrical personnel who perform the procedures as to the women who receive them; the more physicians, medical students, and nurses see birth "managed" in this way, and the more they themselves actively "manage" birth this way, the stronger will be their belief that birth *must* be managed this way:[3]

> Why don't I do home births? Are you kidding? By the time I got out of residency, you couldn't get me *near* a birth without five fetal monitors right there, and three anesthesiologists standing by. [Kate Carmichael, M.D.]

As the moment of birth approaches, there is an intensification of actions performed on the woman, as she is transferred to a delivery room, placed in the lithotomy position, covered with sterile sheets and doused with antiseptic, and an episiotomy is cut to widen her vaginal opening. These procedures cumulatively make the birthing woman's body the stage on which the drama of society's production of its new member is played out, with the obstetrician as both the director and the star (Shaw 1974:84). The lithotomy position, in which the woman lies with her legs elevated in stirrups and her buttocks at the very edge of the delivery table, completes the process of her symbolic inversion from autonomy and privacy to dependence and complete exposure, expressing and reinforcing her powerlessness and the power of society (as evi-

denced by its representative, the obstetrician) at the supreme moment of her own individual transformation. The sterile sheets with which she is draped from neck to foot enforce the clear delineation of category boundaries, graphically illustrating to the woman that her baby, society's product, is pure and clean, and must be protected from the fundamental uncleanness of her body. The delineation of basic social categories is furthered by the episiotomy, which conveys to the birthing woman the value and importance of the straight line—one of the most fundamental markers of our separation from nature. Of equal significance, the episiotomy transforms even the most natural of childbirths into a surgical procedure; routinizing it has proven to be an effective means of justifying the medicalization of birth. (Estimates of episiotomy rates in first-time mothers (primagravidas) range from 50% to 90%; large teaching hospitals often have primagravida rates above 90%. Multigravida rates are estimated at 25%–30% [Thacker and Banta 1983].)

The obstetrician instructs the mother on how to push, catches the baby and announces its sex, then hands the baby to a nurse, who promptly baptizes "it" through the technological rituals of inspection, testing, bathing, diapering, wrapping, and the administration of a Vitamin K shot and antibiotic eye drops. Thus properly enculturated, the newborn is handed to the mother to "bond" for a short amount of time (society gives the mother the baby), after which the nurse takes the baby to the nursery (the baby really belongs to society). The obstetrician then caps off the messages of the mother's mechanicity by extracting her placenta if it does not come out quickly on its own, sewing up his episiotomy, and ordering more pitocin to help her uterus contract back down. Finally the new mother, now properly dubbed as such through her technological anointings, is cleaned up and transferred to a hospital bed.

These routine obstetricial procedures work cumulatively to map the technological model of birth onto the birthing woman's orientation to her labor experience, thereby producing a coherent symmetry (Munn 1973:593) between her belief system and that of society. Diana experienced this process as follows:

> As soon as I got hooked up to the monitor, all everyone did was stare at it. The nurses didn't even look at me any more when they came into the room—they went straight to the monitor. I got the weirdest feeling that *it* was having the baby, not me.

In Diana's statement we can observe the successful progression of conceptual fusion between her perceptions of her birth experience and the technological model. So thoroughly was this model mapped onto Diana's experience that she began to *feel* that the machine itself was having her baby, and that she was a mere onlooker. Soon after the monitor was in place, Diana requested a cesarean section, stating that there was "no more point in trying."

Merry's internalization of one of the basic tenets of the technological model—the defectiveness of the female body—is observable in the following excerpt from her written birth story:

It seemed as though my uterus had suddenly tired! When the nurses in attendance noted a contraction building on the recorder, they instructed me to begin pushing, not waiting for the *urge* to push, so that by the time the urge pervaded, I invariably had no strength remaining, but was left gasping, dizzy and diaphoretic. The vertigo so alarmed me that I became reluctant to push firmly for any length of time, for fear that I would pass out. I felt suddenly depressed by the fact that labor, which had progressed so uneventfully up to this point, had now become unproductive.

Merry does not say, "the nurses had me pushing too soon," but "my uterus had suddenly tired" and labor "had now become unproductive." These responses are reflective of a basic tenet of the technological model of birth: when something goes wrong, it is the woman's fault.

Yesterday on rounds I saw a baby with a cut on its face and the mother said, "My uterus was so thinned that when they cut into it for the section, the baby's face got cut." The patient is always blamed in medicine. The doctors don't make mistakes. "Your uterus is too thin," not "We cut too deeply." "We had to take the baby," (meaning forceps or Cesarean) instead of "The medicine we gave you interfered with your ability to give birth." [Harrison 1982:174]

The obstetrical procedures briefly described above fully satisfy the criteria for ritual: they are patterned and repetitive; they are symbolic, in that they communicate messages through the body and the emotions; they are enactments of our culture's deepest beliefs about the necessity for cultural control of natural processes, the untrustworthiness of nature and the associated defectiveness of the female body, the validity of patriarchy, the superiority of science and technology, and the importance of institutions and machines. These procedures are also transformative in intent—they attempt to contain and control the inherently transformative natural process of birth, and to transform the birthing woman into a mother in the full social sense of the word—that is, into a woman who has internalized the core values of American society: who believes in science, relies on technology, recognizes her inferiority (either consciously or unconsciously) and so at some level accepts the principles of patriarchy, who will conform to society's dictates and meet the demands of its institutions, and will raise her children to do the same. These birth rituals also transform the resident who is taught to do birth in no other way into the obstetrician who performs them as a matter of course: "No—they were never questioned. Preps, enemas, shaves, episiotomies—we just did all that; no one ever questioned it" (Dr. Stanley Hall).

Of course, there are many variations on this theme. Many younger doctors are dropping preps and enemas from their standard orders (although several complained to me that the nurses, also strongly socialized into the technological model, frequently administer them anyway). Increasing numbers of women opt for delivery in the birthing suite or the LDR (labor-delivery-recovery room), where they can wear their own clothes, do without the IV, walk around during labor, and where the options of side-lying, squatting, or even standing for birth are increasingly available. (The fact that many of the

procedures analyzed above can be instrumentally omitted underscores my point that they are rituals.) Yet in spite of these concessions to consumer demand for more "natural" birth, a basic pattern of high-technological intervention remains: most hospitals now *require* at least periodic electronic monitoring of all laboring women; analgesics, pitocin, and epidurals are widely administered; and one in five will be delivered by cesarean section. Thus, while some of the medicalization of birth drops away, the use of the most powerful signifiers of the woman's dependence on science and technology intensifies.

To understand one of the communicative functions the repetitive patterning of obstetrical procedures has for obstetrical personnel, the value of careful adherence to form in ritual must be appreciated. Moore and Myerhoff (1977:8) observe that order and exaggerated precision in performance, which set ritual apart from other modes of social interaction, serve to impute "permanence and legitimacy to what are actually evanescent cultural constructs." This establishment of a sense of "permanence and legitimacy" is particularly important in the performance of obstetrical procedures because of the limited power the obstetrician's technological model gives him over the events of birth.

Although a culture may do its best through ritual to make the world appear to fit its belief system, reality may occasionally perforate the culture's protective filter of categories and threaten to upset the whole conceptual system. Thus obstetricians and nurses who have experienced the agony and confusion of maternal or fetal death or the miracle of a healthy birth when all indications were to the contrary, know at some level that ultimate power over birth is beyond them, and may well fear that knowledge. In such circumstances, humans use ritual as a means of giving themselves the courage to carry on (Malinowski 1954), as through its careful adherence to form, ritual mediates between cognition and chaos by appearing to restructure reality. The format for performing standard obstetrical procedures provides a strong sense of cultural order imposed on and superior to the chaos of nature:

> "In honest-to-God natural conditions," [the obstetrician] says [to the students observing the delivery he is performing], "babies were *sometimes* born without tearing the perineum and without an episiotomy, but without artificial things like anesthesia and episiotomy, the muscle is torn apart and if it is not cut, it is usually not repaired. Even today, if there is no episiotomy and repair, those women quite often develop a retocoele and a relaxed vaginal floor. This is what I call the saggy, baggy bottom." Laughter by the students. A student nurse asks if exercise doesn't help strengthen the perineum. . . . "No, exercises may be for the birds, but they're not for bottoms. . . . When the woman is bearing down, the leveator muscles of the perineum contract too. This means the baby is caught between the diaphragm and the perineum. Consequently, anesthesia and episiotomy will reduce the pressure on the head and, hopefully, produce more Republicans." More laughter from the students. [Shaw 1974:90]

To say that obstetrical procedures are "performed" is true both in the sense that they are done and in the sense that they can be acted and staged, as we can see from the quotation above. Such ordered, acted, and stylized techniques serve to deflect questioning of the efficacy of the underlying beliefs and fore-

stall the presentation of alternative points of view (Moore and Myerhoff 1977:7) by the medical and nursing students as they undergo the process of their own socialization into the technological model. This model has its own internal logic and consistency; once these medical initiates have internalized its basic tenets, including, as we see above, the notions of the defectiveness of nature and the female body and the superiority of the technological approach, they will come to perceive all the other aspects of the obstetrical management of birth as reasonable and right. Thus the system becomes tautological, and its self-perpetuation is ensured.

Women's Rites: The Politics of Birth

"In a traditional philosophical opposition," writes Jacques Derrida, "we have not a peaceful coexistence of facing terms but a violent hierarchy. One of the terms dominates the other (axiologically, logically, etc.) and occupies the commanding position" (1981:56–57). Feminist scholar Hélène Cixous states that the man/woman opposition may well be *the* paradigmatic opposition in Western discourse (1975:116–119). Certainly, it was *the* fundamental opposition of the Roman Catholic church (Ehrenreich and English 1973; Merchant 1983), which held conceptual hegemony over Western Europe for over five hundred years, and from which we moderns have inherited a pervasive legacy of symbolic thinking—a legacy of which we are largely unaware. Although the advent of the Protestant Reformation and the Scientific and Industrial Revolutions undermined Catholic religious hegemony in the West, none of these events had any fundamental effect on the cultural articulation of this male/female opposition. Inherent in this opposition, as in our entire social discourse, is a "violent hierarchy" in which the value-laden male dominates the devalued female.

Shifting needs in our society enable women to work in a man's world, sometimes for equal pay, but no matter how early in life a woman begins her career, nor how successful she is, she will still be living and working under the constraints of her conceptual denial by the technological model of reality. Based as it is on a fundamental assumption of her physiological inferiority to men, that model guarantees her continued psychological disempowerment by the everyday constructs of the culture-at-large, and her alienation both from political power *and* from the physiological attributes of womanhood.

Nevertheless, 54% of the women in my study seemed comfortable with their technological births, as these experiences often served to strengthen and confirm belief systems already held (Davis-Floyd 1986b).[4] A woman who accepts American society's core values will feel *slighted* if her birth is not technologically marked by the procedures that she herself views as ritually appropriate:

My husband and I got to the hospital, and we thought they would take care of everything. We thought that we would do our breathing, and they would do the rest. I kept sending him out to

ask them to give me some Demerol, to check me—anything—but they were short-staffed and they just ignored me until the shift changed in the morning. [Sarah]

Because the technological model of birth encapsulates the core values of the wider culture, in many ways it offers to modern women the opportunity to participate in that wider culture. The technological model itself replaced an earlier and narrower paradigm of birth that still retains a certain symbolic force, and that modern women still have many reasons for wishing to escape. In the 1800s in the United States, motherhood was the central defining feature of a woman's life. As American society switched from an agricultural to an industrial basis, and the nuclear family replaced the extended family, increasing numbers of women found good reason to wish to define themselves in broader terms. By the early 1900s, poor and middle-class women who did not have household help were eagerly seeking out the hospital as their preferred birthplace because of the relief it provided from their daily chores (Wertz and Wertz 1977). More profoundly, many women sought hospital birth because to give birth outside the home was to conceptually redraw the boundaries of women's appropriate spheres, and hence to achieve a greater possibility of earlier escape from the enforced confinement of motherhood:

Colonial women, most of whom lived and worked on farms, could not remove themselves from view because their labor was essential to farm life, but leisured women of the nineteenth century embroidered the niceties of female conduct by withdrawing from social life. The word "confinement" pointed to the complex symbolism associated with their withdrawal . . . it betokened society's hope to regenerate a self in institutions modeled upon the regularity, duty, and piety of the home . . . the supreme source of a woman's identity and purpose. There, in her domain, a woman relearned who she was and, in maternity, performed her essential duty. Thereafter she might return, richly renewed, to society. [Wertz and Wertz 1977:80]

By the early 1900s, women were rejecting both the rituals of confinement and the accompanying exclusive definition of their lives by maternity. The first maternity clothes appeared in 1904; hospital birth was on the rise, and the next step in women's liberation from the home was the appearance and spread of bottle-feeding. As one mother put it to her daughter in a novel written in 1936, "The bottle was the battle cry of my generation" (quoted in Wertz and Wertz 1977:150). Moreover, women themselves campaigned for the acceptance in America of scopolamine-induced "twilight sleep" as a further means of freeing themselves from what they were increasingly beginning to perceive as enslavement to their biological processes.[5]

Today, many women are struggling to develop a more accepting and integrated approach to these processes. Many women in my study sought, not a return to the "motherhood as defining feature" paradigm of the 19th century, but an expanded vision of womanhood that encompassed both the gains achieved in the workplace under the technological model and a renewed sense of the value of the feminine. As one woman put it, "It's a spiral, not a circle. We're not going backwards to 'women's domain,' but forward, to a space

where *all* our attributes can be celebrated." Thus, 12% of the women in my study actively rejected the technological model, choosing instead to give birth at home, for they saw in the hospital, not a celebration, but a denial, of those attributes. The alternative paradigm these women adopted is based on systems theory, and offers a holistic, integrated approach to childbirth as well as to daily life—an approach that stresses the inherent trustworthiness of the female body, communication and oneness between mother and child and within the family, and self-responsibility (Davis-Floyd 1986a; Rothman 1982; Star 1986).

Another 25% of the women in my study gave birth in the hospital but were able to avoid conceptual fusion with the technological model by adhering to and achieving their goals of "natural childbirth," or by choosing and controlling the technological procedures administered; these women were personally empowered by their birth experiences. They tended to view technology as a resource that they could choose to utilize or ignore, and often consciously subverted their socialization processes by replacing technological symbols with self-empowering alternatives (e.g., their own clothes and food, perineal massage instead of episiotomy).

These interviewees have many counterparts in the wider society. The technological model is under attack in the birthplace: feminists, natural childbirth activists, childbirth educators, humanistic obstetricians and nurses, midwives, and consumers are joining forces to invert the core value system underlying this model, seeking to eliminate patriarchy, and to place science, technology, and institutions at the service of birthing women and their families, instead of the other way around. The alternative paradigms that these groups espouse, and the changes in birth that they have effected, increasingly threaten the conceptual hegemony of the technological model.

Obstetrics, unlike other medical specialties, does not deal with true pathology in the majority of cases it treats: most pregnant women are not sick. It is, therefore, uniquely vulnerable to the challenges to its dominant paradigm presented by the natural childbirth and holistic health movements, for these movements rest their cases on the inherent wellness of the pregnant woman versus the paradoxical insistence of obstetrics on conceptualizing her as ill and on managing her body as if it were a defective machine. Aware of this paradox, and wishing to be responsive to consumer demand, many younger obstetricians are trying to increase the number of birthing options available to women. Thus obstetrics is no longer as reliable as it once was in the straightforward transmission and perpetuation of American society's core value system. To deal with this challenge, our society has gone outside the medical system, utilizing the combined forces of its legal and business systems to keep obstetricians in line.

Over 70% of all American obstetricians have been sued, a percentage higher than that of any other specialty (Easterbrook 1987). Malpractice insurance premiums in obstetrics began their dramatic rise in 1973, just when the natural childbirth movement was beginning to pose a major threat to the obstetrical

paradigm. A common cultural response to this type of threat is to step up the performance of the rituals designed to preserve and transmit the reality model under attack (Douglas 1973:32; Vogt 1976:198). Consequently, the explosion of humanistic and holistic options that challenge the conceptual hegemony of the technological model has been paralleled by a stepping up of ritual performance, in the form of a dramatic rise in the use of the fetal monitor (from initial marketing in the sixties to near-universal hospital use today [*Ob. Gyn. News* 1982]), accompanied by a concurrent rise in the cesarean rate, from 5% in 1965 to 22.7% nationwide today, reaching 50% in many teaching hospitals (Corea 1980).[6] Although technically not a routine obstetrical procedure, the cesarean section is well on its way to becoming routine. A number of studies have shown that increased monitoring leads to increased performance of cesareans (Banta and Thacker 1979; Haverkamp and Orleans 1983; Young 1982:110). These dramatic increases in the ritual use of machines in labor and in the ritual performance of the ultimately technological birth, delivery "from above," are at least partially attributable to the coercive pressure brought to bear on obstetricians by the pervasive threat of lawsuit.

Most obstetricians interviewed perceived electronic monitoring as a means of self-protection, and confirmed that they are far more likely to perform a cesarean than not if the monitor indicates potential problems, because they know that the risk of losing a lawsuit is lower if they cleave to the strict interpretation of the technological model; if they try a more humanistic approach—that is, if they try to be innovative, less technological, and more receptive to the woman's needs and desires—they place themselves at greater risk. As one obstetrician put it:

> Certainly I've changed the way I practice since malpractice became an issue. I do more C-sections—that's the major thing. And more and more tests to cover myself. More expensive stuff. We don't do risky things that women ask for—we're very conservative in our approach to everything . . . In 1970 before all this came up, my C-section rate was around 4%. It has gradually climbed every year since then. In 1985 it was 16%, then in 1986 it was 23%.

These legal and financial deterrents to radical change powerfully constrain our medical system, in effect forcing it to reflect and to actively perpetuate the core value and belief system of American society as a whole. From this perspective, the malpractice situation emerges as society's effort to keep its representatives, the obstetricians, from reneging on their responsibility for imbuing birthing women with the basic tenets of the technological model of reality. Our cultural attachment to this model is profound, for in our technology we see the promise for our society of eventual transcendence of both our physical and our earthly limitations (already we grow babies in test tubes, freeze bodies in cryogenic suspension, and build space stations). Our increasing cultural faith in this promise holds special significance for obstetrics: if this technological model continues as the foundation of our dominant belief system, the technological treatment of birth will of necessity continue to intensify.

Because the birth process forms the nexus of nature and society, the way a culture handles birth will point "as sharply as an arrowhead to its key values" (Kitzinger 1980:115). Any changes in these values and in the model of reality that underlies them will thus be both reflected in and effected by changes in the way that culture ritualizes birth. At this moment, it is in the cultural arena of birth that some of our society's most visible battles over cultural values are being waged, as obstetricians and institutions demand increasing control over the birth process and place ever-greater reliance on technology, while growing numbers of women demand more options in birth and seek greater autonomy and self-responsibility. The outcome of this core value struggle over birth is of critical importance for the future directions our society will take; changes in the values transmitted through birth could profoundly alter those directions. I believe that it is the responsibility of feminist scholars to track the progress of this struggle and to work to make us all aware of its implications for the kind of culture that future generations of our society will acquire through the ritualization of birth.

Notes

[1]In most hospitals, the scientific rationale for this standard separation period involves the need to keep the baby warm and to monitor its condition. According to one obstetrician, this routine separation of mother and child was instituted during the period of the routine use of scopolamine for labor and birth, when the mother was quite literally unable to care for her baby for some time after its delivery. Routine continuance of the separation period today reflects both past precedent and current events—many mothers are still too anesthetized after their births to care well for their babies, and it is a fact of institutional life that nurses have a good deal of paperwork concerning the baby, which they are best equipped to do in the nursery. However, mothers who give birth in "birthing rooms" are allowed to keep their babies with them continually; because standard sterile procedures are not used in these birthing rooms, these babies are considered "contaminated" and therefore are not allowed in the nursery.

[2]The underlying justification for the symbolic interpretations summarized here can be found in Davis-Floyd 1986b. Portions of this analysis appear in Davis-Floyd 1987a.

[3]Detailed analysis of obstetricial training as an initiatory rite of passage appears in Davis-Floyd 1987b.

[4]Another 9% of my interviewees were very *un*comfortable with their technological births, as the messages of helplessness and defectiveness that they received from these (usually cesarean) births engendered considerable conflict between the self-images they previously held and those they internalized in the hospital.

[5]Ironically, scopolamine, which reduced the birthing woman to an animalistic state (but then erased all events from her memory), was quickly co-opted by the medical profession into providing the rationale for claiming complete control of the birth process. This drug, once a symbol of women's liberation from the pain of childbirth, has become for the childbirth activists of the eighties a symbol of women's subjugation to the medical profession. Even its replacement by the epidural is symbolic: the calm, controlled "awake and aware" Lamaze mother with the epidural fits the picture of birthing reality painted by the technological model far better than the "scoped-out" screaming "wild animal" of the '50s.

[6]The *Childbirth Alternatives Quarterly* states, "The national Cesarean rate was 22.7% in 1985, up 1.6% from 1984, as reported in unpublished statistics compiled by the National Center for Health Statistics" (Ashford 1986–87:15).

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