

The Cultural Roots of the Canadian Birthing System

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Full Text: Headnote ABSTRACT: Cross-culturally, birthing practices can be better understood by examining the central belief system of a given culture. Through a discussion of the ideology, symbol, and value inherent within the central belief system of the Canadian society, that of science and technology, as well as by examining the historical development of obstetrics, it is possible to explain how a system of maternity care which over-emphasizes technology and de-emphasizes the woman's role in birthing has gained dominance in this country. Birthing practices are adaptive. They evolve and change in accordance with a particular configuration of cultural, social, and economic circumstances. Integral to the development of birthing practices is the central belief system, world view, or "root ideology" of a given society. Traditional societies are legitimated typically by the "root ideology" of religion. According to Habermas (1971) it is science and technology which has provided the necessary belief system in the legitimation of contemporary Western societies. An examination of birthing practices cross-culturally would indicate that there are two major perceptions of birthing. The first understands it as a natural process which may occur in the home, with little or no technical intervention, and under the supervision of a midwife. This approach to birthing tends to be found in traditional cultures although countries such as Holland continue to offer this type of maternity care. The second perception of birthing is that it is a pathological event, requiring technical intervention by a physician within a hospital setting. I would suggest that it is the legitimation of science and technology as the "root ideology" which has been instrumental in the successful acceptance of this second birthing ideology within societies like Canada. Anthropologists such as Cosminsky (1977) and Geertz (1961) have provided us with detailed research on birthing in other cultures. Yet, there has never been a major effort to link birthing practices such as those in Canada with the central belief system of the society. Often it is assumed that these practices are "pure" and "neutral," free from the influence of ideology, symbol, and value. In reality they reflect a particular world view. Only by examining the "root ideology," that of technical solutions determined by the impersonal forces of science, and the historical development of maternity care within Canada will we begin to understand how our birthing practices have evolved. BIRTHING PRACTICES IN CANADA In Canada, all babies except those whose mothers have chosen to defy the clearly established medical norms for birthing (less than 1% in Canada. Statistics Canada 1971-77) are born in hospital. A typical birth is characterized as physician-attended and professionally managed; each of which is oriented towards the use of medical technology and pharmacological methods to relieve pain. Birthing is a medical event. The mother, upon entry to a hospital, becomes a patient. All decision-making power and responsibility for her state pass from her to the hospital personnel and the physician in charge. In Canada there is no institutionalized mechanism for separating the normal from the complicated births. Therefore all types of births are treated in the same manner. Although physicians may recognize that for a normal birth it is best to do nothing, the availability of medical technology to speed-up birthing, as well as their professional training and work orientation militate against such an attitude. The obstetrical ward itself is designed with a view to organizational efficiency and the availability of medical technology. It has a hospital-like atmosphere, one which is associated with suffering and illness. The woman upon entry into the hospital is frequently immobilized in bed although walking during labor is known to be both physiologically and psychologically beneficial. She becomes a passive patient, submissive to the authority of a physician. Birthing occurs on the physician's territory, a fact which allows for greater control. Birthing in Canada is a medical, technological event. There are instruments, machinery, equipment in the labor and delivery rooms, X-rays, laboratory facilities, the set-up of the operating

room for Cesarean sections, newborn resuscitation equipment, etc. Probably the two most common practices are the use of medication (analgesics and pituitrin) and forceps. By the time women reach the delivery-room, they are often only semi-conscious due to medication and unable to cooperate fully. Furthermore, they are frequently anesthetized and as a result unable to feel the contractions of the uterus. Therefore, forceps are necessary to replace the muscle effort required to push the baby out. It is in this sense (among others) that the woman is described as being delivered rather than as giving birth (Jordan 1983: 61). Medical literature indicates that the lithotomy position, so firmly established as a Canadian practice, may not be a birthing position which is in the best interest of the mother and child. For example, this position has been shown in numerous studies to have negative effects on the mother's blood pressure, cardiac return, and pulmonary ventilation. It also decreases the strength of the uterine contractions, thereby increasing the need for artificial stimulation in birth (ibid 62). In the United States, a country whose birthing practices mirror those of Canada, there are indications of: 1. the indiscriminate use of electronic fetal heart monitors and ultrasound, 2. the growing rate of Cesarean section, 3. the increased incidence of elective inductions of labor, and 4. the excessive use of drugs during pregnancy and delivery (McBride 1983:414). In his book *Confessions of a Medical Heretic*, R.S. Mendelsohn (1979) writes of the problems created by over-medicalization of birthing. One problem is that which is related to fetal heart monitoring. In this procedure electrodes are attached to the fetus' scalp. In order to do this, the amniotic sac must be artificially broken. According to Mendelsohn: "This results in instant depression of the fetal heart rate. In one study, children whose birth was electronically monitored were sixty-five percent more likely to suffer behavioral or developmental problems later in life" (ibid 98). This mode of practice with its consequences may not prevail in all institutions. For example, there may be different expectations and practice patterns manifested between teaching hospitals and community hospitals. Each may present a different picture. Induced labor tends to lead to premature delivery. Fetal lung disease, failure of normal growth and development, and other mental and physical disabilities are dangers associated with prematurity. Half of all women who deliver by Cesarean section develop postoperative complications and maternal deaths are twenty-six times higher than for those who deliver vaginally. Hyaline membrane disease or respiratory distress syndrome is a condition which develops in full-term, regular size babies delivered by Cesarean section. "One study concluded that the incidence of this disease could be reduced at least fifteen percent if obstetricians were more careful about Caesarean deliveries" (Mendelsohn 1979: 100). Besides the over-medicalization of the birthing process, the lack of decision-making powers for the parturient woman is central to the issues associated with birthing in Canada. A woman in labor, regardless of whether her pregnancy is normal or medically complicated, is defined as incompetent, is relieved of responsibility for her state, and is required to submit to the professional competence of the physician. The assimilation of childbirth into the medical realm subjects birthing to medical decision-making criteria "whose appropriateness and justification stem from a pathological view of pregnancy and birth" (Jordan 1983: 65). In Canada birthing is no longer understood as a natural event, but as something pathological. As such the responsibility and achievement (the physician delivers the baby) is assigned to the physician. Because of this transfer of responsibility and achievement, the initiative, interest, and motivation of the mother are not officially acknowledged as instrumental in achieving a quality of prenatal care. The insistence that women be hospitalized for childbirth is a relatively recent event in Canada. For example, in 1926 when statistics were taken for the first time, only 17.8% of women in Canada gave birth in hospital. Fifty years later in 1976, 99.7% of all women were hospitalized for childbirth (Statistics Canada 1971-1977). The trend towards hospitalization was accompanied by two other processes; the transformation of birthing from a natural to a pathological event and the replacement of the female birth attendant by a male physician. This transformation of birthing occurred between approximately 1850 and 1940. However, before discussing this historical process, it is first necessary to examine the "root ideology," that of science, which has been instrumental in the successful alteration of birthing practices. SCIENCE: THE CENTRAL BELIEF SYSTEM OF CANADIAN SOCIETY It is only quite recently in contemporary societies that modern science has replaced religion as the authoritative

legitimizing epistemology. As such, it has become one of the fundamental constituents of our social existence. Social studies of science are based upon the premise that, like gender roles, science is a socially constructed category. Impetus for the locating of the development of science in its social and political context occurred in the early 1960's with the publication of T.S. Kuhn's *The Structure of Scientific Revolutions* (1962). By examining specific examples in the history of science, Kuhn was able to demonstrate that a scientific revolution cannot be explained by the arrival of a better theory. He argues that science remains progressive in that the investment of scientific energy produces theories with broader explanatory powers than could have existed without such an investment. Nevertheless, the changes in the direction that the new theories dictate is not simply determined by internal logic. Factors other than different collections of facts (i.e., different organization of knowledge, different interpretations of the world, etc.) enter into a community's choice of "best theory." Thus, Kuhn's perspective provides an alternative to that maintained by some scientists; that being: the view that science is autonomous and absolutely progressive ... In the intervening years a growing number of historians and sociologists of science, reading Kuhn's work as support for the proposition that scientific neutrality reflects ideology more than actual history, have sought to identify the political and social forces affecting the growth of scientific knowledge (Keller 1985: 5). In this analysis of the social construction of science, I will examine two of its facets; (1) the philosophical underpinnings; and (2) the legitimation of science as the "root ideology" within contemporary Western societies. In her book *Reflections on Gender and Science*, Evelyn Fox Keller (1985) through a discussion of Plato's epistemology, Baconian science, and the birth of modern science, articulates clearly the symbols, values, and ideology which are integral to science. According to Keller, the question Plato asked is: "how does mind find its way toward truth?" Plato perceived that the mind would discover knowledge when guided by Eros (physical love or sexual desire). Through love, the being begins to catch sight of eternal beauty which is the goal. If he reaches eternal beauty, he will be able to bring forth not merely an image of goodness but true goodness itself. This then is proper knowledge. Nevertheless, all desire does not produce love and knowledge. Eros is able to pull the soul in two directions; toward reason and the sublime or toward passion and the sordid. "The dialectic between transcendence and immanence is now played on the realm of Eros" (ibid 23). To understand Plato more clearly it is necessary to locate Eros within the culture of that time. After a discussion of the three models of sexual relations in Greek society between (1) wives and husbands, (2) males and female courtesans, and (3) an adult male and a youth of comparable social standing, Keller states that it was the latter model which was most highly valued. However, such a model of sexual relations did not quite fit Plato's needs. There existed within this relationship dominant and subordinate roles. This entailed aggression. Plato therefore constructed a model of knowledge in which in the search for truth there is no dominant or subordinate roles. "But such reciprocity is bought at a price, and the price is final sexual constraint" (ibid 28). The search for truth requires that the actual consummation be avoided. If the lovers should yield to temptation, the goal of knowledge and absolute beauty will elude them. Plato's model of knowledge guided by love requires that erotic be divided from aggression and order from disorder. However much Plato draws his model from body impulses, he indicates that true knowledge is only possible if these impulses are restrained. Nevertheless, Plato's model suffers from internal inequalities. In Plato the personal and the particular are always transcended. By excluding matter from his epistemology and consummated sexuality from his definition of ideal Eros, he is not free to enjoy conceptual egalitarianism. In his politics and philosophy a need for absolutism remains. Even though contemporary scientists exclude the ideocentric emphases of Platonic thought, the intellectual and emotional landscape survives in the modern conceptions of the natural philosophies. For example, the division between the logical and the physical persists in the distinction between theoretical and experimental, as well as between the pure and applied domains of science. Nevertheless, the modern scientist in researching the physical world per se overrides Plato's restrictions against the inclusion of the physical and as a result becomes a party to the aggression which Plato sought to avoid. No longer is the object of study Platonic Forms, a rarefied model of male sexuality, but material nature, "the corporeal frame of female sexuality" (ibid 30). With this change in

goals, methods and even meaning, there has occurred a shift from the male to the female object. The aim of understanding, once primarily that of communion, has been replaced with that of power, i.e., domination of nature. Although Plato envisioned science as a sublime love affair with the essential nature of things, Bacon offers 'a chaste and lawful marriage between Mind and Nature.' In Plato's imagery there is sexual restraint in order to preserve the disjunction between Eros and aggression. In Bacon's, the chastity of marriage preserves the boundaries between mind and nature. Nevertheless in neither vision is material nature, which for both Plato and Bacon is female, invited into a partnership of love. In Plato's epistemology the female is relegated to another order; in Baconian science she is seduced and conquered. The use of sexual imagery to describe nature was a common enough practice. Mastery and domination are invariably exercised over nature which is always feminine. Bacon views Nature as the bride who requires taming, shaping, and subduing by the scientific mind. This is necessary to establish a chaste and lawful marriage between mind and nature. Again, nature is understood as being coy, as well as capable of being conquered. All of this, according to Bacon, is in the service of truth. In the process of conquering, subduing, and shaking her to her foundations, nature is transformed, thus revealing herself. By the beginning of the seventeenth-century there were two competing philosophies, two visions of a 'new science.' One was hermetic, the other mechanical. The hermetic tradition proposed that material nature was suffused with spirit. To understand it required the joint integrated effort of heart, hand, and mind. In contrast to this tradition, mechanical philosophers divorced matter from spirit and mind from heart. At that time, however, the line between the two was rather shaky. By the 1650s leading intellectuals began to shift their allegiances, abandoning their hermetic sympathies for the new published mechanical viewpoints of Gassend and Descartes. After the 1660's the scale tipped in favor of the mechanistic view and by the 1670's the Royal Society had institutionalized the Baconian program. Although economic, social, political, and intellectual upheavals of this period played a significant part in the establishment of Baconian science, it is Keller's contention that the transformation in conceptions of and attitudes towards sexuality and gender roles had a subtle but significant effect upon the event. Bacon's vision of science was a masculine, virile one. A central metaphor was that of science as power, a force virile enough to penetrate and subdue nature. Another root image was of "a chaste and lawful marriage between Mind and Nature . . . the emphasis was on constraint, in the disjunction between mind and nature and ultimately domination" (ibid 48). Modern science bears the imprint of this genderization. By tacitly attributing masculinity to the very nature of scientific thought, philosophers have divided the world into two parts-the knower (mind which is masculine) and the knowable (nature which is feminine). Through the characterization of scientific and objective thought as masculine, the actual activity, that of acquiring knowledge, is also genderized. Such genderization has also lead to the distancing and separating of the knower and known. Because of this radical division between the subject and object, nature has become objectified. Concurrent with this division of the world into subject and object is the fact that the scientific mind is set apart from what is to be known. If Keller's (1985) work clearly illustrates the ideological nature of science, it is Fay's (1975) discussion which explains how science has become the "root ideology" of contemporary societies. According to Fay the most important aspect of modern social life which has become organized along rational lines is that of economic production. The scientific enterprise has provided the means by which continued expansion of the forces of production can be guaranteed. It is not only through the improvement of productive techniques and the development of new products that the use of rational science can be observed, but also through the provision of the information needed to organize and administer the humans involved in the process of production. Exploitation of nature for the production of goods and services can only occur if the men and women are organized in a co-operative effort to do the work involved. There must be a rational, self-conscious organization of labor. Because of the complexity of the organization and tasks, all activities must be performed according to some highly abstract and general plan, one provided by the social sciences. As a result of this need for rational management of the special functions within labor, bureaucratic planning and bureaucratic forms of organization have become central to modern life. Moreover, because

increasing areas of life are brought under the same system of 'rationality' as that which occurs in the economic sphere, rationalization has moved outward to include those institutions involved in trade, to networks of transportation, communication, financial administration, etc. "But as the process continues another factor, namely the growing status accorded to the type of thinking, begins to assume importance as well, as thus it comes to be employed in dealing with all facets of life" (ibid 46). Science has gained its level of authority because of its link to the industrialization and economic development of the state. The dominant class controls both the means of economic and mental production. For this class the scientific enterprise is the basis for economic production and labor organization. With increased industrialization and intervention of the state, science took on a new importance, one which saw it articulated as a more powerful set of coherent beliefs, i.e., a dominant ideology. Such beliefs have become integrated into all facets of life including that of medicine and maternity care. Fay (1975: 44) states: the institutionalisation of science arose in the context of the growing rationalisation of modern life, and this is precisely because science is linked to the promise of possible technical control (original italics). According to Keller (1985), science bears the imprint of genderization. Philosophers have divided the world into the knower (which is masculine) and the known (which is feminine). There is a distancing and separating of the knower and known. This radical division of subject and object leads to the objectification of nature. Reason prevails; the subjective is rejected. And this way of knowing is linked to the "promise of possible technical control." Based upon such an ideological framework, it is now possible to understand why the birthing process has become objectified; a rational rather than a subjective experience; removed from the realm of the natural to that of the pathological; subject to technical intervention; under the control of the rational technician; and placed within a bureaucratic institution. Contemporary birthing practices are simply a reflection of the ideology, value, and symbol of the scientific enterprise.

THE HISTORICAL DEVELOPMENT OF BIRTHING PRACTICES IN CANADA

Based upon their belief that midwifery should be rooted in the new ideology of science, the medical profession resolved to control birthing practices. By establishing their medicine in a science which was based on chemistry and physics, physicians believed that they could persuade the public of the efficacy of their system of health care and as a result achieve the required consent necessary to establish their authority over birthing. As a part of this process, physicians perceived the need for a new title. The terms "man-midwife," "male-midwife" or "physician-man-midwife" were too clumsy, as well as being reminiscent of the female title. They did not reflect the new science or new skills. "Accoucheur" sounded better, but in England it was rejected because it was French. In 1828, an English doctor suggested the term "obstetrician" as an appropriate title. It is derived from the Latin meaning "to stand before." Its advantage is that it sounds more like an honorable profession, one which is related to the new ideology of controlling nature. However, it was not until about the 1880's that the Canadian medical journals replaced the term "midwifery" with that of "obstetrics." Nevertheless, although obstetrics became established as a discipline within medicine, universities had problems in educating students as there were few patients upon whom physicians could practice in their pursuit of knowledge. Women preferred to be attended in birth by midwives. The answer to the problem appeared to be in the establishment of lying-in hospitals.

THE TRANSFORMATION OF BIRTHING FROM A NATURAL TO A PATHOLOGICAL EVENT

The first lying-in hospital in Canada was established in Montreal in 1841. When the hospital refused to allow medical students from McGill University (previously called University of McGill College) access to the patients, the professors from McGill founded a second hospital which would fall directly under the control of the professors of midwifery from McGill. According to Archibald Hall (1860), a physician accoucheur and professor of midwifery at McGill, the sole objective was to provide students with the opportunity to work with women during pregnancy and labor. The patients were charity cases (Barrett and Fraser 1943). This would suggest that the women patients were of a lower socio-economic status as they were unable to afford the services of either a midwife or a physician. It is most probable that such women were poorly nourished, suffering from related medical problems, and in a condition of health which was not conducive to a problem-free labor and delivery. Added to the condition of the parturient women was the fact that at this

time the hospitals were dirty, and the staff lacked knowledge with regard to the spread of infections and their control through aseptic techniques. The extent of the nineteenth century problem in hospital care is illustrated by the statement of a pastor who vowed to ameliorate the condition of the sick poor who "were in their unhealthy rooms, lonely and ill cared for, physically and spiritually neglected" (Seymer 1933: 68). This combination of unhealthy patients and unsanitary environmental conditions resulted in high maternal mortality. The majority of these deaths were attributed to infections. In his discussion of the maternal mortality rates in the Montreal lying-in hospital in the time from its founding to 1860 when Professor Hall (1860) wrote the report, there were seventeen deaths; ten were due to puerperal fever and related convulsions; six from peritonitis and matrix infections (inflammation of the uterine musculature); and one from epilepsy complicating labor. Therefore sixteen of the seventeen deaths were infection-related. In Philadelphia and New York, deaths due to puerperal causes were as high as one in forty-five cases (Medical Surgical Science 1875). As a result of the high mortality rates, the treatment and prevention of puerperal diseases became the focus of medical attention. In an attempt to eradicate the problem, physicians sought not only to antiseptically clean the environment (walls, beds, furniture, and floors were scrubbed down with carbolised soap and then mopped with a weak solution of carbolic acid) but the parturient woman as well. In his report on the state of obstetrics, Dr. Gardner (1881) who was a professor at McGill University describes antiseptic midwifery as the method whereby there is a systematic syringing of the vagina during labor, the use of carbolic steam spray during labor, and extra uterine injections after labor (ibid 149). This suggests that in their effort to control the spread of infections, physicians determined that parturient women as well as the environment were pathogenic. This was an important step in the ideological transformation of birthing from a natural to a pathological event. Nevertheless, mortality rates within lying-in hospitals remained high. Statistics vary but Professor Stadfelt, Director of the Copenhagen Lying-in Hospital and promoter of "antiseptic midwifery," recorded a maternal mortality of one in eighty-seven patients (ibid 149). However, in Canada and outside the hospital, mortality rates appeared to be much lower. Oral histories of the early pioneers indicate their belief in low maternal mortality among rural women who gave birth at home (Smith 1923 and Healy 1923). This comparatively low death rate is confirmed by the practice of Dr. Walter Burritt of Smith Falls, Ontario (Watson 1939), who in the period between 1835 and 1886 assisted at 1828 obstetrical cases. Dr. Burritt recorded a maternal mortality of 3 in 1838 cases; a rate of 1.64 per 1000 cases or 1 death in 609.3 cases. This is a far cry from the 1 death in 114.6 cases outlined by Dr. Hall (1860) for a similar time (1843-1860) in his report on the lying-in hospital operated by the professors of McGill University and Dr. Hall describes his statistics as "a highly favourable ratio" (ibid 51). Dr. Burritt diagnosed the deaths as due to puerperal infection, haemorrhage and convulsive seizures (probably related to toxemia of pregnancy). Both Dr. Hall and Dr. Burritt based their mortality rate on causes directly related to parturition. On the other hand, the maternal mortality rate of Dr. Ross's patients in Toronto (1852-1877) and as outlined by Zimmerman (1877) is based upon maternal mortality in general. Statistics from Dr. Ross's practice show that he had 22 maternal deaths, a rate of 1 in 214 cases. Of these deaths, only 8 of the 22 were directly related to parturition. This would give a maternal mortality rate of 1 in 588 cases. The remaining deaths were due to such things as typhoid, dysentery, pneumonia, etc. Although Dr. Ross's mortality rate was slightly higher than Dr. Burritt's both physicians had a considerably lower rate than that of the lying-in hospital. Physicians associated with the lying-in hospitals often had difficulty accepting the idea that maternal mortality was less in home births. In the article on Dr. Goodell's treatment of puerperal diseases, the writer states: "Dr. Goodell believes that one of the reasons why statistics of lying-in hospitals can never compete with private practise is that the former is reliable the latter not" (Medical Surgical Science 1875). Dr. Goodell's dismissal of the data is indicative of a more serious problem, one which to a certain extent exists within the practice of medicine today. This is the failure of physicians to systematically link specific care interventions (what they do) with the outcomes (the results of the care provided). There is a weakness in explicitly assessing the degree of validity and sufficiency of the evidence linking care structures and processes to the outcome in general and the health outcome in particular. The

practices of these physicians are based upon an unquestioned assumption of the validity of their practice rather than on any scientific evidence which has related the specific care intervention to the health care outcomes (Williamson 1978). In the past, these unquestioned assumptions were rooted in beliefs which presupposes that class and education were automatically translated into healing and medical skills. As a result, physicians failed to establish a causal association between their specific obstetrical interventions on patients with certain health conditions and the outcomes which they observed. The fact that they ignored the critical imperatives of epidemiology has never been acknowledged. Thus based upon their unquestioned assumptions and observations, physicians drew a conclusion; birthing is a pathological event. Their suggested reasoning (whether conscious or otherwise) may be outlined as follows: lying-in hospitals are operated by professors of medicine and as such offer the highest quality of care. Therefore women who are attended during childbirth in these hospitals receive the best care. However, maternity mortality rates remain high. Because medical services are of the highest quality, these high death rates are not due to care. If they are not due to the quality of care, they then must be due to the pregnancy itself. Therefore it is logical to conclude that pregnancy is a pathological condition (James-Chetelat 1989). That some physicians accepted this conclusion is evident. For example, in the article on Dr. Goodell's treatment and prevention of puerperal diseases the author writes: "It cannot be too strongly urged that mortality of child-bed is much higher than what is generally stated, and that the ailments arising from it are of a more serious nature, and more frequent, than most medical practitioners suppose" (Medical Surgical Science 1875). This approach to obstetrics was epitomized by Dr. Joseph B. DeLee in an article entitled "The prophylactic forceps operation" and published in the American Journal of Obstetrics and Gynecology in 1920: It always strikes physicians as well as lay men as bizarre, to call labor an abnormal function, a disease, and yet it is decidedly [sic] a pathological process. Everything, of course, depends on what we define as normal. If a woman falls on a pitch-fork, and drives the handle through her perineum, we call that pathologic-abnormal, but if a large baby is driven through her pelvic floor, we say that it is natural, and therefore normal, . . . [if] the fall on the pitchfork, . . . [is] pathogenic, [then] in the same sense labor is pathogenic . . . and anything pathogenic is pathological and abnormal. . . . So frequent are these bad effects, that I have often wondered whether Nature did not deliberately intend women to be used up in the process of reproduction, in a manner analogous to that of the salmon, which dies after spawning" (De Vries 1985; 41). As a result of his belief in the pathology of birthing, DeLee recommended that episiotomies and outlet forceps be routinely and prophylactically used in normal deliveries. He considered that only obstetricians were sufficiently qualified to use prophylactic forceps, and that general practitioners must be brought up to the level of specialists, not obstetrics down to the level of general practitioners (Dixon 1987: 1097). Dr. DeLee's article indicates that by 1920's birthing was understood by some physicians as a pathological event requiring intervention on the part of physicians. This resulted in ideology and intervention being linked in a manner that would influence maternity care until the 1970's when beliefs about birthing would once again begin to change. The transformation of birthing into a pathological event carries with it an important consequence. If birthing is reduced to pathology or risk of pathology, it calls for intervention by medicine. By definition pathogenesis means the origination and development of a disease; medicine as the art of caring for, or assisting in the cure of disease and the care of the injured (Taber 1958). It is the function of medicine to care for all conditions associated with disease and injury. Therefore the labelling of childbirth as pathogenic legitimizes medicine's incursion into birthing. Classifying parturition as pathogenic is in the interest of physicians since they see that it accords with their exclusive authority to diagnose obstetrical patients and therefore they gain control of birthing practices.

THE DEVELOPMENT OF BIRTHING TECHNOLOGY Within the discipline of obstetrics, the "root ideology" of science has always been linked to the "promise of possible technical control." Although we tend to perceive the over-use of technology as a relatively recent phenomenon, an article, entitled "Report On Obstetrics" found in the 1881 edition of the Canada Medical and Surgical Journal, and written by Dr. W.M. Gardner, a professor at McGill University, indicates that technology has, in fact, been integral to its development. Based upon the work

of Professor Stadtfeldt of the Copenhagen Lying-in Hospital, Dr. Gardner outlines a method for antiseptic midwifery: systematic syringing of the vagina before labor, the use of carbolic steam spray during labor, and intra-uterine injections after labor. Early use of forceps was another area of interest. In his discussion of 1879 before the Obstetrical Society of London, Dr. Barnes introduced the topic of early use of forceps. "The great majority advocated the earlier and more frequent use of forceps under circumstances and in conditions of the parts in which the older obstetricians would not have dreamed of applying them" (ibid 150). Surgery such as cranioclast (the crushing of the fetal skull with an instrument called a cranioclast) was common enough but it is the description of the Cesarean section which is most interesting. For one hundred years prior to 1876, every woman who had received a Cesarean section died. Then on the 21st of May of that year, Professor Eduardo Porro of the University of Pavia performed surgery later referred to as the Porro operation (removal of pregnant uterus, the ovaries and tubes through an incision in the abdominal wall). For the first time in the history of this type of operation the women lived. Within the next four years, fifty Porro operations were performed in various European countries and in the United States. The record shows that 20 of the fifty women recovered. This is in contrast with the 62 operations done in the old Cesarean style in which all but 3 died. With the Porro operation 1 in 7 lived; with the old style 1 in 21 had lived. For puerperal convulsions, Dr. Clarke of Oswego advocated injecting the patient with 11h grains of morphia by weight and asserted that he had great success with this treatment. Professor Nunn of the Savannah Medical College developed a new method for checking the hemorrhage in placenta praevia. A speculum was introduced into the vagina and by means of a swab the solution of perchloride, or sub-sulphate of iron was applied directly to the bleeding point. Intra-uterine injections were the accepted treatment in cases of septicemia. Two physicians, Dr. Jenks of Chicago and Dr. Cadwick of Boston recorded the number of cases by their particular methods and conclusively demonstrated the advantages of their treatment. Another postpartum complication was that of puerperal malarial fever. Approximately 21 to 24 days after childbirth the patient developed malaise, severe chills and a very high temperature. A day after such "a violent explosion" there was a remarkable remission. Two to three days later the symptoms returned. The treatment was the same as that of malarial fevers occurring under other circumstances, Warburger's Tincture. At a conference at Cork in 1879 members of the obstetric section of the British Medical Association presented a number of treatments for postpartum hemorrhage. They are as follows:

1. Preventive measures during labor; (1) rupture of membranes during the first stage; stimulating enemata of strong infusion of ergot and hypodermic injection of ergotine in the second stage; constant firm pressure on the fundus uteri after the appearance of the child's head; and avoidance of the least traction on the cord;
2. Injection of water at a temperature of 110 degrees to 120 degrees;
3. Injection of water at a temperature of 105 to 110 degrees;
4. Cold douche to abdomen;
5. Continuous flapping of the abdomen with a towel dipped in cold water;
6. Injection of hypodermic ergotine; and
7. Perchloride of iron injections.

At this time researchers were examining possible solutions for transfusion. The three mentioned substances were; a weak solution of common salt; cow's milk; and blood or serum of other animals. Of interest was Mr. Schafer's work in which he injected rabbits with small quantities of boiled milk. The rabbits invariably died within twenty-four hours. He concluded that any solutions must be either normal or defibrinated human blood. This then is a summary of Dr. Gardner's article. It indicates that once maternity care was rooted in the ideology of science, technological intervention into the birthing process by physicians was understood as the primary means of providing good obstetrical care.

THE INSTITUTIONALISATION OF BIRTHING In his discussion of the establishment of science as the dominant ideology within modern society, Fay (1975: 45) argues that the natural sciences not only provided the knowledge for improving of productive techniques and the development of new products, but through the social sciences it also provided the information necessary for the organization of the workers. The efficient employment of men/women and machines led to an increased division in labor in which individuals performed quite specialized functions. Rational management is of central importance in bureaucratic planning and forms of organization which were established and prevail in modern society. Within this context, birthing in

the home was understood as inefficient and "unscientific." It was necessary to transfer it to the hospital environment where bureaucratic organization and planning prevailed; where there was increased division of labor and workers performed specialized functions; and where because of the hierarchical structure, physicians had the power to control birthing. The fact that many women did not wish to give birth in hospital was of little consequence. Mabel Louise Dublin (1975: 152), a member of the Victorian Order of Nurses in Halifax for forty years, writes: The new doctors in the city insisted that women who were expecting their first baby must plan to go to the hospital. Even some of the older doctors who had delivered hundreds of mothers in their own homes were making this rule. I tried to explain to my patients that this was the modern way although I was not very happy about it. For this new way was really frightening to some of these women. Nevertheless, the institutionalisation of birthing proceeded throughout Canada. The significance of this can be comprehended by examining the data published by Statistics Canada (1971-1977) on the percentage of births occurring in hospital. In 1926 only 17.8% of all births took place in hospital; P.E.I. had the lowest percentage with 2.7, B.C. the highest with 48.3. By 1942 (that is, within 16 years) the percentage of hospital births in Canada was 53.7%. The major increase in hospital births took place in the first 20 years from 1926 to 1946. The increase in Canada was 49.8%. This was double the increase compared to the next 20 years (1946-1966 which is 21.6%). By 1966, 99.2% of all births in Canada occurred in hospital. The Medical Care Act of 1966 is probably a major reason for this figure. However, it can be concluded that the main push to transfer birthing from the home to the hospital occurred prior to 1940. Once a certain level of hospital birthing had been achieved, it was sufficient to let the system take its own course for the ultimate ends to be achieved. Thus, from about 1850 to 1940 birthing practices were transformed. Birthing is now considered as a pathological event, requiring technical intervention on the part of a physician within the hospital environment. This process of transformation is directly linked to the establishment of science as the authoritative legitimating "root ideology." CONCLUSION According to Verny (1986: 34) only five percent of high-risk pregnancies benefit from the medical treatment in hospital. Because of the potential for pathology, the other ninety-five percent are subjected to a medical regime which according to Mehl et al. (1976) often results in iatrogenic disease. Therefore, in Canada there is a serious need for an institutional mechanism for separating the normal from the complicated births. This in turn requires a transformation in birthing ideology. Involved in this transformation are two major requisites. The first is the labelling of parturition as natural, the defining of the term normal pregnancy and delivery and the establishment of a profession of midwives who are experts in normal pregnancy and delivery. The accomplishment of this goal will lead to the removal of normal pregnancy from the domain of medicine and physician control. The second step is the recognition of the need for and the development of an alternative epistemology and theoretical frames of reference. These two requisites are the key to the successful development of a system of maternity care which will provide optimum care to not only the five percent of high-risk pregnancies, but to the other ninety-five percent of women who wish to have a normal, natural childbirth. REFERENCES Barrett, C.V. and Fraser, R.F. (1943) *The Royal Victoria Montreal Maternity Hospital 1943*. Montreal: Library Medical Faculty McGill University. Cosminsky, S. (1977) "Cross-cultural perspectives on midwifery" in *Medical Anthropology* edited by Tax, S. The Hague: Mouton Press (229-249). DeVries, R.G. (1985) *Regulating Birth Midwives Medicine & the Law*. Philadelphia: Temple University Press. Dixon, T. (1987) 'The Home Birth Controversy' in *Canadian Family Physician*. Vol. 33 May (1163-1171). Dublin, M.L. (1975) *40 Years A Nurse Thirty Two a V.O.N. Autobiography of Mabel Louise Dublin*. Sydney Nova Scotia: Martin Equipment Limited Printing Division. Fay, B. (1975) *Social Theory and Political Practice*. London: George Allen & Unwin (Publishers) Ltd. Gardner, Wm. (1881) "Report on Obstetrics" in *Canada Medical And Surgical Journal* Vol. IX (145-161). Geertz, H. (1961) *The Javanese Family*. New York: The Free Press. Habermas, J. (1971) *Toward A Rational Society*. Boston: Beacon Press. Hall, A. (1860) "Statistics of the University Lying-in Hospital" in *The British American Journal* Vol 1 (49-56). Healy, W. (1977) *Women of Red River*. Winnipeg: Centennial Edition (originally printed in 1923). James-Chetelat, L. (1989) *Reclaiming the Birthing Experience: An Analysis Of*

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