From "Bump" to "Baby":

Gazing at the Foetus in 4D

Meredith Nash

I was waiting for my luggage at an airport in Chicago in 2004 when I spotted an advertisement for Toshiba, an electronics corporation firmly embedded in the global marketplace. In large lettering next to the image of a foetus 'sleeping' peacefully with closed eyes, the ad stated "It's what's inside that counts" with an enticement for pregnant women to check Toshiba's website for "what's new" in ultrasound.[1] As I looked at the image of the glowing foetus on the poster, I considered its meaning more carefully. The message implies that if pregnant women really 'love' their unborn children, they will not only consume technology but also embrace 3D ultrasonography as a means of bonding with an unborn foetus, and by extension, making them 'good' mothers. In allowing themselves to be 'looked at', literally and also culturally, pregnant women are encouraged to be gazed upon but also to actively gaze at their own wombs. In the contemporary 'West' and also globally, it is no longer unusual to encounter visual images of foetuses outside of the doctor's office. Placed on billboards, in anti-abortion advertisements, or on the television screen, the public foetus has gained prominent status in the world as a representation of 'life'.

Whilst ultrasonography has the appearance of enhancing the maternal-foetal relationship, the suggestion that pregnant women should be 'bonding' with the visualised foetus, as in the Toshiba advertisement, is problematic. In this article, I will suggest that this construction is problematic because the maternal-foetal relationship is one-sided. A foetus is not a relational being without interaction with other humans. Rayna Rapp similarly claims the proliferation of visualising reproductive technology in 'the West' naturalises the agency of the foetus by suggesting to pregnant women that what they are seeing is 'real' and authoritative.[2] I do not intend to suggest that women are passive 'victims' of imaging technology during pregnancy. After all, pregnant women actively consume and interpret the meanings of foetal imagery individually and 'seeing' the foetus on the screen is a routine part of pregnancy. Similarly, many pregnant women (primarily white and middle class) do not see ultrasonography as a practice that diminishes their rights or 'erases' their subjectivity. Whilst I agree that

ultrasonography undeniably has a particular resonance with pregnant women and their experiences of 'bonding' with a foetus, in this article, I intend to problematise the proliferation of maternal and foetal surveillance through increasingly technologised interventions during pregnancy such as ultrasound both culturally and medically.

I contend that ultrasonographic technology expresses a unique foetal subjectivity that is imperative in envisioning the foetus culturally and politically.[3] As a consequence of the proliferation of foetal imagery, the uncoupling of social and biological birth in the Western world and increasingly in many Asian countries (for example, China and Singapore) has made it possible for personhood to precede biological birth.[4] For instance, following in the footsteps of American companies such as *Little Sprout Imaging, Prenatal Peek* and *Fetal Fotos*, Australian '4D studio' franchise, *Early Image*, markets itself as the pathway for affluent pregnant women to bond with their 'babies' by way of more sophisticated ultrasound technology:[5]

> For years we have had to suffer the traditional grainy, black and white images of the 2D machines that needed the operator to explain to us what we were seeing... well not any more![6]
> To actually see your baby, to get a sense of who he or she is, does it look like Mum or Dad? Does it have grandpa's nose?[7]

In an age where women with access to technology "desire and create foetal personhood through their avid consumption of infertility treatments, amniocentesis, ultrasound, and in-utero video services," the cultural construction of the moral primacy of birth is undermined.[8] In creating a feminist (re)visioning or nuanced reading of women's relationship to medicalisation and surveillance methods during pregnancy, I intend to focus this discussion on the politics and power relations that are (re)produced with the use of ultrasonographic technologies.[9]

I do not find it useful to look at personhood as straddling a dividing line between social birth (the way that personhood is conferred through social relationships) and biological birth (the physical act of entering the world from a woman's womb). Ultrasound disrupts a singular conception of maternity by challenging what constitutes 'life'. I argue that as visualising technology becomes more sophisticated (for example, 3D and 4D imaging), the rights of mother and foetus are reconstituted; the foetus comes into 'existence' as a newly forged

technological being by consequence of its ability to be 'seen'. To explore this contention, I will review the workings of power along with the techniques and technologies of pregnancy through an understanding of visualisation in the form of surveillance. I primarily focus on the work of Michel Foucault and Jeremy Bentham to explore the processes that maintain a predominately masculine paradigm in obstetrical science.[10] I contend that Foucauldian notions of power are essential in discussing the pathologising of pregnancy and childbirth. In particular, I discuss ultrasonography as a 'technique' of pregnancy and its impact on women (primarily white and middle-class) as it shifts the balance of power from the pregnant woman to the foetus. To aid in a feminist interpretation of the medicalisation of pregnancy and Foucauldian theory, I draw upon the work of feminist scholars such as Sandra Lee Bartky, Barbara Duden, Ann Oakley, and Rosalind Petchesky.[11] I develop a feminist critique of medicalised discourses surrounding pregnancy as a way of distinguishing the ways in which doctors and pregnant women perceive reproduction. For example, Oakley contends a doctor's knowledge is specialised and expert, whereas the pregnant woman's knowledge is experiential and individualised.[12] Using the themes drawn from key theorists, I address a gendered power/knowledge differential between doctor and patient. I also consider the role of the clinical gaze in assessing foetal photographs to argue that visualisation creates a system of surveillance that has the potential to 'disappear' women.[13]

Surveilling the pregnant body

As feminist analyses of childbirth suggest, the Western medical model has viewed women's reproductive activity as pathological and the majority of female functioning as 'sick'.[14] I draw upon the work of both Foucault and Bentham in order to capture the essences of power and discipline through the mechanism of the Panopticon, or the means of attaining a permanent visibility. I also analyse the emergence of the foetus as a public 'individual' as it emanates from the nature of disciplinary practices on the pregnant body in the form of reproductive techniques and technologies, particularly ultrasonography.

Although feminist theorists have criticised Foucault for his lack of attention to gender and lack of normative framework, his work is still useful in understanding the "modernisation of power".[15] In this context, I refer to the Panopticon as the machinery of power by which women's (primarily white and middle class)

behaviour is regulated in various aspects of life, especially pregnancy. As an example of this disciplinary medical practice, I argue the advent of ultrasound technology has had an enormous impact upon the treatment and management of pregnancy. I will first apply Foucault's notions of disciplined bodies to ultrasonography by outlining multiple uses of the clinical and cultural 'gaze'. Next, I will translate the ideas of medicalisation of childbirth to the observational mechanisms of surveillance embodied by the Panopticon scheme devised by Bentham as a theoretical basis for the emergence of visualising technology and the regulation of women's bodies. Thirdly, I will provide a feminist critique of obstetrical science in shaping women's reproductive choices and the ways in which motherhood is biologically defined in Western society.

The political and cultural context of ultrasonography

Feminists argue that medical knowledge codifies conditions as being disease or illness to limit the 'natural' and to introduce medical foresight and medical knowledge as a paramount condition in wellness.[16] The emergence of technological interventions in pregnancy embodies a cultural shift where 'machines' acquire an identity of their own.[17] In this sense, technology enforces Cartesian dualism, or mind/body split, with the intention that the machine (for example, 3D and 4D ultrasonography) is trusted to produce a universally sound knowledge in opposition to the bodily knowledge of a woman. For instance, Emily Martin suggests the metaphor of the body as machine "without a soul" resonates throughout medical science as its dominant paradigm.[18] Martin believes this alienates pregnant women from the process of pregnancy whereby the obstetrician becomes "mechanic" and the woman becomes "labourer".[19] The emergence of visualising reproductive technology, such as ultrasonography, exemplifies the ways in which objects (in this case, foetuses) become coded as visual data as a means of discovering the 'truth' about women's 'nature'.

Feminist childbirth scholar, Ann Oakley, contends the "general historical context of changes in social definitions of childbirth" has shifted in the last 150 years.[20] As such, normalising discourses of modern medicine potentially structure women's (ostensibly white and middle class) reproductive decisions and, as I will suggest, reproductive 'freedom of choice' is not necessarily 'free'. Its utility mostly unquestioned, ultrasonography is problematic in its popularity as a prenatal diagnostic technique. According to the United States Food and Drug

Administration, in the United States alone, more than 80 million ultrasound examinations are performed on women every year and many women have more than one ultrasound during their pregnancy, even though the safety of the procedure is under investigation.[21] Whereas it was once used only in 'problematic' pregnancies, ultrasound is now routinely used in 'normal' pregnancies as a precautionary measure. Deborah Lupton suggests the threat of impending 'risk' is a cultural construction that often provides the impetus for a woman to avoid pregnancy complications by choosing reproductive technology.[22]

Following Lupton's contention, Janelle Taylor also argues that the normalisation of ultrasound in Western societies is a function of the intersection between medical practice and economics.[23] Childbearing has been viewed as an indicator of the health of the state which gives the state certain interests for the benefits of capitalism.[24] As health care costs increase in conjunction with the burgeoning of new industries and technologies, foetal ultrasounds have become routinised and used for more than just medical indications but also "psychological benefits" for the pregnant woman such as bonding and attachment.[25] This is seen as a positive component of ultrasonography for many pregnant women who can afford the technology and feel a particular closeness with the foetus as a 'baby' upon 'seeing' it in a photograph. For example, in my current longitudinal research into experiences of pregnancy in public, a number of pregnant women have told me that the pregnancy does not feel 'real' until they can actually 'see' the foetus during the ultrasound.[26] For example, Lucy says:

> I like ultrasounds. I think you get a chance to get a sense of being really pregnant. No one actually checked [confirmed the pregnancy] so when I got to 12-13 weeks and they put the ultrasound on me I thought, 'I hope I really am pregnant. I hope there's something there. I would feel really stupid if nothing was there'. Someone telling you your baby is okay, seeing it with your own eyes, it's quite a powerful medium. [27]

In this example, Lucy regards ultrasound technology as a tool in confirming that she is pregnant and that there is nothing 'abnormal' about the pregnancy. Lucy is also a doctor and performed her own pregnancy test; that her own 'diagnosis' of pregnancy was not confirmed by her obstetrician based on her similar position as medical 'expert' made her think that there could be a possibility that she was not, in fact, pregnant. This lack of confirmation caused Lucy to perhaps doubt her own bodily knowledge of pregnancy, despite being a medical doctor herself.

Ultrasound has provided diagnostic benefits for doctors in assessing foetal sex and growth, by improving accuracy in defining due dates, and in anticipating pregnancy complications.[28] However, as Rosalind Petchesky contends, prenatal ultrasound potentially has the effect of "disrupting the very definition of pregnancy as an interior experience" such that increasingly sophisticated medical technology has permitted the treatment of foetuses before birth (for example, foetal surgery) and particularly for 'older' pregnant women (generally, over 35 years).[29] Of her 12 week ultrasound, Melinda states:

> I quite like seeing it [the foetus]. Because I get quite sick during the pregnancies it feels like a medical condition rather than being pregnant in the first trimester. So after seeing the baby it's like, 'Yeah, oh yes I am pregnant'. It's kind of like a reality check and I was nervous because I was over 35 so the risk goes through the roof. So I was really nervous before. I'm acutely aware of my age.

For Melinda, the risk of foetal abnormality overpowers any doubts she may have had about being pregnant. In contrast, Melinda is 'acutely aware' of her pregnancy given the extreme morning sickness she experienced during the first trimester. Thus, the pregnant woman and foetus are placed in opposition, as separate 'patients' or objects to be both medically surveilled and managed. In this sense, the imperative for Melinda as an 'older' mother to have 'accurate' knowledge reifies the systematic classification and categorisation of women's bodies as a means of discovering information about the foetus through technologies of visualisation. Even though Melinda knew that her foetus was 'normal' after her twelve week scan, she still felt ambivalent about the pregnancy and her body's capacity to carry the pregnancy to term. She recalls, "Really until about 18 weeks, I don't like to romanticise about it [the foetus] until it's born because anything can happen. I don't buy clothes or anything like that".

Medicalisation and social control

Robbie Davis-Floyd's conception of a "technocratic model" of pregnancy and birth is useful in an analysis of obstetrical science in that the model requires some intervention in all births to aid in the production of a "perfect baby".[30] Implicit within the technocratic model is the necessary deployment of technology for purposes of social control. For example, the image of a factory is useful in examining the 'active management' of labour. Many obstetricians encourage the use of high-technology intervention to provide a greater sense of reproductive

control for pregnant women particularly in the detection of foetal abnormalities (for example, Down's syndrome). Although Melinda was relieved that her pregnancy was developing normally, she claims that her anxiety about being an 'older' mother at 36 was perpetuated by a combination of factors. She says, "It was the medical model that made me make the decision [that being an older mother is 'risky'] and I reckon the media too".

Whilst many pregnant women feel empowered by prenatal screening, evidenced by the staggering numbers of women undergoing multiple ultrasounds in one pregnancy and the rise of the 'entertainment' ultrasound, in my research I have found that more white, middle class women who are able to afford prenatal screening are starting to distance themselves from this technology.[31] For example, Jenna had to have two ultrasounds (at 8 and 8.5 weeks) in the first trimester of her pregnancy because of unexplained bleeding. When I asked her how she felt about seeing her foetus for the first time, she explained:

> Mixed emotions really. Because of the bleeding I really wanted to see it but I'm actually not that convinced of the safety of ultrasounds. I don't want to have too many over the course of my pregnancy. I just wanted them to do it to see that everything was alright and then just get out. When I had the second one I thought it would be one or two minutes and it took a little bit longer. I could feel it heating up and got worried. I'll have one at 12 weeks and one at 20 and that's it.

According to feminist critiques of the medical model, the interests of science are largely pitted against 'nature' (as something to be controlled) and individuals, especially women. Of the medical model, Jenna says:

> A hundred years ago, if the baby came out alive, you knew you were going to have the baby, whereas I'm seeing the baby at 8.5 weeks and I'm believing I'm going to have a baby.

Rather than relying on women's bodily knowledge, Jenna suggests that technology replaces pregnant women's sense of their own bodies in favour of expert knowledge. Davis-Floyd argues that technology and medicalisation do not necessarily de-value women, but that as part of its core cultural context, medicalisation perpetuates a hierarchy that "supervalues", or hierarchically values the individuals in control or the 'experts'.[32]

The foetal photograph not only confirms the existence of a foetus, but also the status of the obstetrician or technology as expert. According to the tenets of medicalisation, there exists a strict dichotomy between doctor-knowledge and

patient-knowledge such that the obstetrician controls access to information as a maintenance measure for the protection of professionalised knowledge.[33] The doctor-patient power relation precipitates an altered subjectivity or mode of perception in the form of the clinical 'gaze' whereby dominance is sustained by the processes regulating women's embodiment as patient. In another example, Jessica began her pregnancy with private obstetric care but shifted her prenatal care to a family birthing centre supported by midwives after receiving an unwanted ultrasound by an obstetrician 7 weeks into the pregnancy. She says:

> I went in knowing I was not going to have a scan and before I knew it she [the obstetrician] was saying, 'We have the equipment here, let's just have a look'. I thought, 'This isn't going to work'. I'm on the bed and she's scanning me and one thing I learned from the naturopath is that you need to stay in power. That was taken away from me. I came out thinking I made a conscious decision not to have a scan, maybe at 12 weeks, but not so early on. Most books say they are safe but I had come out with a scan.

During pregnancy, women are constantly surveilled. As a 'patient' in a 'condition', a constant medical gaze reveals the 'truths' of a pregnancy.[34] Using sophisticated technology that does not rely on a woman's bodily knowledge, ultrasonography reconstructs the image of the foetus into that of a 'life'. The ultrasound machine penetrates deeply within the womb where "...what one cannot see is shown in the distance from what one must not see".[35] I asked Jessica if she had verbalised to the doctor that she absolutely did not want to undergo a scan at such an early stage in the pregnancy and she said:

> I got taken away in the moment. She got me on the table to have an examination and she was like, 'There's no harm in scanning, we'll just have a look'. She was very keen and I wasn't saying I didn't want this. It was very clinical. It was already here. I could see how you could go on a track in that environment of being taken away from the way you wanted to have it, having your decision taken away.

From Jessica's experience it is clear that the doctor assumed that she wanted to be 'treated' and to see her foetus very early on in the pregnancy. As someone that does not usually feel the need to rely on medical information to 'know' her own body, her experience of medicalisation was negative enough to cause her to question this method of prenatal care. This androcentric subjectivity (although enacted by a female obstetrician) often fails to acknowledge the pregnant, objectified woman, metaphorically as well as literally in the foetal photograph. Whereas the placenta often indicated the presence of the woman in early

ultrasound photos, the placenta is often eliminated in images of contemporary ultrasonographic technology. Obstetrical science encourages the perception that foetal photography is unpremeditated, impersonal, and objective, as if the foetus existed as an independent 'life' before its subsequent visualisation through ultrasonography. For example, when Susan described her 20 week ultrasound to me she mentioned that the ultrasonographer altered the sonogram photographs to make for more visually pleasing images:

> This guy came in and used Photoshop and got rid of the placenta. The photos were really nice so we're thinking about going back for an entertainment ultrasound. I don't know if I can handle not seeing it for another 20 weeks. They got rid of all the mucky stuff. It kind of freaked me out because it [the foetus] looked very skeletal. They took so much of the flesh away.

Paradoxically, with the inception of photos as evidence for what is 'real', less emphasis is placed on corporeal embodiment. As the mother, Susan's body, represented by the placenta was literally erased from her sonogram images. In this sense, 'seeing' a foetus in the ultrasound photo is all that is deemed necessary for its existence without any connection to a maternal body. Susan actually liked having a more aesthetically pleasing image of her unborn baby, despite her body or the "mucky bits" being erased. As a result of this erasure or 'cleaning up', she told me she felt more comfortable showing the images to friends and family as baby's 'first photo'.

In this sense, the clinical gaze as embodied by the ultrasound technology resonates as a way of medical 'seeing' and a means of surveillance. Feminist scholars suggest this tendency toward biological reductionism is problematic because the medical expert becomes the "ultimate arbiter" in matters related to the pregnant woman and foetus.[36] For instance, the medical perception of pregnancy as historically pathological and in need of intervention particularly to 'see' the foetus normalises medical intervention as an objective process rather than a multi-dimensional and subjective process, as women experience it. Pregnant women generally require an 'expert' to 'read' sonogram images for them, particularly when it comes to diagnosing foetal abnormalities. However, as in Susan's experience, she was more than happy to have her body erased from her sonogram images and felt quite bonded to her foetus indicating that the clinical gaze is not necessarily disempowering for all women or a means of exacting total power over women's bodies.

Foucault and feminist interpretations of biomedicine

According to Foucault, in conjunction with the rise of capitalist society, the medical establishment increasingly disciplined bodies as a "general formula of domination".[37] With the intention of increasing its efficiency and utility, the "docile body" is one of obedience in which "a policy of coercions that act upon the body", or political anatomy, structures this coercion.[38] Although Foucault does not explicitly refer to gender, the critical theory itself is useful in describing the constant surveillance required by the medical profession in controlling pregnancy. Feminist scholars such as Bartky argue that the Foucauldian conception of discipline is most effective in describing the effect of visualising technology within a paradigm of embodiment that is particularly feminine.[39] Bartky's conception of a "particularly feminine" embodiment is an allusion to gendered behaviour that Foucault neglects in favour of a universally disciplined (theoretically, male) body.[40] Bartky deconstructs Foucault's "docile body" in order to "probe the effects of such discipline on female identity and subjectivity".[41]

Adopting a Foucauldian approach, it can be argued that due to the modernisation of reproductive technologies, patriarchal regimes of power are inscribed upon the pregnant woman's body as a uniquely feminine experience. Moreover, the very shape of a pregnant woman's body subverts the idealised and historically passive space in which women have been permitted to occupy. Stretched and swollen, the pregnant belly garners attention from society as a woman on display, distanced from Western conceptions of feminine bodies as thin and contained. Ultimately, it is the foetus hidden beneath the flesh that is the definitive diagnosis of pregnancy, humanised by its movements and flutterings within the womb.

Pregnancy may be considered a disciplinary practice of femininity in light of the shifting balance of power between woman and foetus, doctor and patient.[42] Barbara Katz Rothman suggests, "In the experience of pregnancy two beings both are, and are not, one".[43] By gathering more detailed knowledge about the foetus through technology, the foetus is placed in opposition to the mother as patient. According to Foucault, discipline as "political anatomy" holds control over bodies "not only so they may do what one wishes, but so that they may operate as one wishes, with the techniques, the speed and the efficiency that one determines".[44] Thus, the production of a "docile" pregnant body emanates from the disciplinary practices that construct the feminine body as an anonymous and unabated

surveillance instrument of institutional power. Images of normative femininity, as embodied by the pregnant woman, may be subjected to disciplinary power through invasive reproductive technology such as ultrasonography. In a sense, a woman is encouraged to submit her own body to medicine for the foetus, the more interesting patient both technically and medically. Paradoxically, subjecting oneself to such disciplinary power is equated with medical necessity as a need maintained by capitalism. It can also be argued that pregnant women self-discipline by choosing to undergo various reproductive procedures and this ultimately absolves the medical establishment of responsibility for regulating bodies because women are 'choosing' these procedures themselves.[45] The disciplinary techniques that act upon women's subjectivity and sense of embodied femininity are powerful precisely because of their anonymity and subtly invasive nature and their success in maximising medical control of pregnancy. Ultimately, medicalisation attempts to remedy the problems of society (in this case, gender inequality) by masking them with medical solutions.

Disciplining the pregnant body

The particularly (post)modern nature of the deployment of institutionalised medical discipline requires that it does not rely on overt methods of control. Rather, as highlighted by ultrasonography, the intervention acts under the pretext of 'choice' whilst allowing pregnant women to feel empowered. However, for women that choose medicalised prenatal care, it is the obstetric techniques and technologies that guarantee their obedience by bringing order to the seemingly chaotic nature of pregnancy. For example, after a negative experience with her first two pregnancies in a public hospital, Chandra decided to have her third baby in a family birthing centre supported by midwives. She told me that the midwives encouraged her to trust herself throughout the pregnancy which is why they did not perform a pregnancy test to 'confirm' her self-diagnosis:

> Because I had never been part of the family birth centre, I rang to ask if I needed to go to the doctor to confirm the pregnancy. She [a midwife] said, 'Are your breasts sore? Is your belly growing?' I said, 'Yes' and she said, 'Well, you're pregnant.' 'You know you're pregnant, don't you?' I thought, 'I love this person'. It's amazing how I'm expecting to have a confirmation of my pregnancy by a doctor. Then this midwife says, 'No, no. If you feel you are then you're pregnant'. I'm saying, 'Maybe there isn't a baby there. Maybe there's something else stopping my period'. Just to hear the heartbeat and see the baby was a relief. That's what I like because it's amazing to think that we're

> conditioned to rely on an expert like, 'I need a doctor to tell me I'm pregnant', whereas I'm feeling pregnant. Even though I felt good that the midwife said that I still thought, 'Maybe I should go to the doctor's and have a pregnancy test.' I never did and then when I went for the scan that was like a confirmation of the pregnancy.

Although Chandra feels empowered in relying on her own bodily knowledge and this was encouraged by her midwives, she still feels ambivalent about distancing herself from a more typically medicalised pregnancy. This example clearly shows that the project of docility is not one of slavery; it is one of subtle, productive coercion that appropriates pregnant bodies metaphorically. Modern obstetrics brings order to pregnancy, as matters of the female body have historically been considered unruly and chaotic. Pregnancy as a 'pathological' state of health contrasts the masculinist rationalism and material production of capitalism and Western liberal thought. Western medical discourse encourages the conception that women are "subordinate, irrational, passive and incompetent" which has been used as justification for state intervention in matters of women's bodies.[46] The re-metaphorisation, or paradigmatic shift, in thinking about childbirth as mechanical established the idea that the female body is abnormal and defective and constantly in need of manipulation as it is held against a male standard. Feminist scholar Muriel Dimen proposes that the use of ultrasound has been an attempt to make a "neat product" from the theoretical "messiness" of women's reproductive behaviour.[47] As a condition for technological success, the foetus is made scientifically intelligible through biological intervention and culturally intelligible through visualisation. Thus, a woman's pregnancy "passes through the representatives of power, the registration they make of it, the decisions they take on it", as a precondition of motherhood.[48]

The persuasive language of medical discourse encourages many white, middle-class women to seek compromises in the form of technology and hospital care where Western culture regards childbirth as simultaneously 'natural', medicalised, and commodified.[49] Foucault elaborates on this theme in his discussion of power and discourse.[50] Discourse operates in society as a means of uncovering the 'truth'. Childbirth discourses are the production of social power that often conceals the imbalance between those who have the power to create the discourse (for example, medical professionals) and those who it affects (for example, pregnant women).[51] Women have historically been silenced in the discourses of science as a result of being equated with 'Nature'. Therefore, it is

necessary to question the 'objectivity' of male scientific inquiry. Drawing on the work of Foucault, this notion can be applied to the ways in which women learn to absorb technology as a necessity of pregnancy whilst disciplinary tactics penetrate their bodies (literally) and economise to create a more efficient reproductive machine. In this sense, the foetus personified on the screen brings order to the pregnancy. Prior to the ultrasound, the hidden foetus lives a silent existence; its development exposed only through physical cues to the woman via her growing mid-section. The visualised foetus lives aloud whilst the needs of the woman are ultimately subjugated to its 'human' demands before it has even entered the world.

Foetal gazing

Using the term "medical gaze", Foucault suggests that medicalisation occurs as conditions are pathologised and physicians claim all activities related to the condition.[52] For example, in childbirth doctors claim activities related to pregnancy through the use of surveillance techniques to monitor pregnancy as a medical 'condition' including the growth of the foetus, women's pre-natal behaviours, and their post-natal interactions with the baby.[53] The privileged position of the 'gaze' in Western medical discourse creates a certain kind of truth about pregnancy that can be visually intrusive and objectifying whilst re-defining the corporeal experience of childbirth with fetishised foetal images. Petchesky, Mulvey, and Kaplan agree that visualisation is a historically masculinist method of gathering scientific knowledge with the male as the perpetual viewer and woman as object.[54] As depictions of the foetus render the woman's body physically transparent, the foetus takes up more space both literally and metaphorically; in foetal photographs the foetal body is revealed in greater depth with advancing ultrasound technology. Thus, the mother's body is represented only as black uterine space and the foetus floats independently as a 'patient' with 'rights'.[55] Carole Stabile suggests, "With the advent of visual technologies, the contents of the uterus have become demystified and entirely representable, but the pregnant body itself remains concealed". As such, the calculating clinical gaze is not individual but one of 'seeing' justified and supported by biomedicine.[56] As obstetricians specify the reality of women's essentially "failed biology", being pregnant and giving birth becomes dependent upon a theoretically male-defined objectivity.[57] Women who are not complicit in the technologising of pregnancy are seen as 'bad mothers' for averting the clinical

gaze. For example, women who choose to have 'natural' or homebirths are often criticised for wilfully putting themselves and their babies at risk for avoiding medical intervention. In my research, Karen related that she has been criticised for having homebirths with the support of a midwife during her two previous pregnancies and now in her third pregnancy:

> My birth plan is no drugs and if I could have gotten away with one ultrasound I would have. I had to have two because my dates were off. Well now they're recommending I have one at 20 weeks and we're talking about it. Just have it, they say my age and older you should have amniocentesis and all these other really invasive tests and I'm not going to do it but at least if I have the ultrasound I know that there's no problem. I feel like that's the most responsible thing to do. Most of all I don't want to be involved with anyone that criticises the way I choose to do things which is I why I always stayed away from obstetricians. There's a whole movement of having a Caesar[ean] because it's convenient.

As Karen does not begin to see her midwife for prenatal care until about 20 weeks into the pregnancy, people who believe that her approach to pregnancy and birth is ultimately irresponsible often confront her and require that she justify her birth plan. As she says in the previous example, Karen feels compelled to have an ultrasound in this pregnancy despite feeling ambivalent about the technology as a result of the pressure surrounding her age and the 'necessity' of medical intervention.[58] To explain Karen's experience, Stabile suggests if women cannot be disciplined overtly with their consent through more traditional ideologies of motherhood, reproductive rights and sexuality become difficult to sustain, and "they must nonetheless be disciplined" through technology, medicalisation and the legal system which privileges foetal rights.[59] Obstetrics relies on reproductive technology and the women themselves to affirm their effectiveness through tangible evidence such as sonogram images. Women who do not conform to this paradigm are judged medically and culturally as irresponsible and selfish for placing their trust in something other than biomedicine.

Surveillance and panopticism

The observational mechanisms of the Panopticon scheme devised by Jeremy Bentham can be used to illuminate the process of ultrasound and ideas of surveillance.[60] Panopticism has been used as a theoretical basis of the medical gaze by Foucault and is one that I utilise to explain the emergence of visualising technology. In the Panopticon prison, the prisoners 'discipline' themselves for the

inspector's gaze where "all of his power derives from his invisibility".[61] The notion of "seeing without being seen" is an exercise of power that subtly coerces the subject and normalises behaviour.[62] Applied to the example of ultrasonography, when a woman enters a hospital room or her 'cell' everyone is potentially an observer; the doctor, the visualising apparatus, her family, and even the foetus. If doctors in hospitals intervene in pregnancy and labour, the perceived contagion of women's biology is quarantined within the confines of the hospital, as in the Panopticon architecture. Even without the physical presence of an obstetrician, women are theoretically never free from subjection to the laws of 'truth'. As Foucault suggests, "...the gaze is not faithful to truth, nor subject to it, without asserting, at the same time, a supreme mastery: the gaze that sees is a gaze that dominates..."[63] Surveillance under the Panopticon scheme creates a 'reality' through appearances in which deterrence is achieved through the appearance of constant surveillance for prisoners where no additional pain or punishment is inflicted on the individual in order to achieve the goal of greatest effect without spectacle.[64]

As the masterful gaze reveals a certain kind of truth for pregnant women, the panoptic imperative of self-surveillance and self-regulation by appearances is achieved without overt coercion on the part of medicine. This is evidenced by the fact that women freely choose to undergo ultrasonography and that women alter their prenatal lifestyles in order to benefit the health of the foetus.[65] Given that pregnant women and feminists are increasingly ambivalent about medical intervention during pregnancy, it is difficult to justify the overwhelmingly positive feelings many women have for foetal ultrasound. In this sense, ultrasonography is a very powerful tool for bonding despite a large body of feminist literature criticising its use primarily due to the unresolved health consequences of multiple scans during pregnancy.[66] Matthews and Wexler, drawing on Rosalind Petchesky's classic essay, "Foetal Images: The Power of Visual Culture in the Politics of Reproduction", suggest that the management of pregnancy through visual surveillance positively reinstates pregnant subjectivity in that pregnant women are the 'readers' of their own sonogram images in addition to the arbiters of the clinical gaze.[67] Whilst women are routinely 'erased' from sonogram images which embody and personify foetuses, pregnant women simultaneously express their "desires and their capacity for choice" in this example of scopic looking.[68]

Visual surveillance techniques such as ultrasonography aim to organise the analytical space of a woman's body as an entity of the production process associated with childbirth. Of the Panopticon layout, Bentham contends, "... the more constantly the persons to be inspected are under the eyes of the persons who should inspect, the more perfectly will the purpose of the establishment will have been attained".[69] Following this contention, the pregnant woman feels she has the 'option' of being 'seen' during the scan, although the sonographer is seeing directly into her uterus without any reference to her bodily consciousness and at a microscopic level. Diagnostic tests are powerful precisely because they provide reassurance for pregnant women without inherent or immediate value determination from society; the discourse of medical science is trusted as a provider of relevant information. However, diagnosis itself is entirely subjective and based on biomedical determinations. This method of isolating individual pregnant women in confined space under the guise of medical necessity can be seen as an attempt to 'map' them.[70] Surveillance techniques fragment responsibility where the doctor and society are the arbiters of choice, the woman's agency can potentially be impaired, and her reproductive choices socially constructed.[71] A panoptic prison of her own, the reality conceived by medical science is sustained by the power of a machine (for example, the visualising technology). The principal object of surveillance is to deter women from averting the gaze as well as exposing them to the gaze of the public (for example, the cultural gaze). It is the "invisible omnipresence" of the doctor, technology, and cultural and societal expectations, which encourage women (primarily those women who can afford to do so) to undergo medical intervention such as ultrasound.[72]

The doctor can see more than is actually visible through ultrasonography by viewing pregnancy most intimately, inside the depths of the pregnant body. Synchronous with the inspector of the Panopticon, the gaze of the doctor extends beyond the realm of the visible into the invisible; 'seeing' into the hidden recesses of a woman's womb. According to Bentham, the essential purpose of surveillance is "that the persons to be inspected should always feel themselves as if under inspection".[73] In this sense, the pregnant woman is motivated by the demands of self-surveillance which also encourages her to protect the foetus from harm by monitoring diet, physical health, and behaviour during pregnancy. It is the failure to conform to the tenets of healthy pregnancy that is potentially more threatening

to pregnant women and which ultimately, persuades them to rationalise visualising technologies as a *necessity* of primary health care. The precepts of biomedicine dictate that health is self-regulated and governmental apparatuses to control individual bodies are masked within the framework of public health. For instance, Deborah Lupton contends,

> ...It is not the ways in which such discourses and practices seek overtly to constrain individuals' freedom of action that are the most interesting and important to examine, but the ways in which they invite individuals voluntarily to conform to their objectives, to discipline themselves, to turn the gaze upon themselves in the interests of their health.[74]

Lupton's theory of voluntarism in public health discourses is essential in analysing the socio-cultural pressure placed upon pregnant women to be 'good mothers'. Lupton reminds us that "in the interests of health, one is largely self-policed and no force is necessary".[75] Thus, the embodiment of foetuses through ultrasonography is a result of the internalisation of the disciplinary power of dominant discourses by means of rhetoric of positive health. Through visual surveillance technologies, pregnant women are taught how to be mothers, under the guise of 'bonding', and their individual needs may be silenced to the demands of the visualised foetus, now a 'person' or 'baby'.

As the inmates of the Panopticon are located within a state of "permanent visibility", the pregnant woman is similarly exposed.[76] This power dynamic is maintained because the power itself is "unverifiable"; despite being physically observed by the doctor and visualising technology, a pregnant woman is constantly surveyed in the public.[77] This exemplifies the multiple gazes engineered in concert with the invention of social medicine targeting individual bodies as productive entities of capitalism.[78] Moreover, an invitation to have an ultrasound screening reifies the aura of uncertainty reflected in Panopticism. Pregnant women are often anxious regarding the viability of the foetus and often any abnormalities are located onto the individual woman, as a product of her 'defective' biology. The tests themselves construct the relationship between mother and foetus specifically in ways that encourage the woman to undertake as many tests as possible to ensure the health of the foetus. This implicates the clinical gaze once again in which the pregnant woman is blamed for lacking control over her body.[79] Similarly, a pregnant woman will be encouraged to alter

her lifestyle for the apparent fear that she will harm her foetus, exclusive of any external surveillance.

The technical efficiency of prenatal technologies is not necessarily as important as the paramount issue of psychological impact on the pregnant woman. The dominant dialogue of obstetrical science, being one of risks and intervention, is internalised by women who submit themselves to "scientific management".[80] Risk, according to Lupton, is "internally imposed" and patients change their health behaviours as a consequence.[81] Issues of medicalisation or "medical imperialism" are important for professional dominance by controlling any kind of 'illness', pregnancy and childbirth included, where (ostensibly) male doctors claim to know more about women's bodies than the women themselves.[82] Ideologies of motherhood, particularly in America, the UK and Australia, are paramount in risk discourse in terms of the self-sacrifice required of women in the production of a healthy foetus. Furthermore, the advancement of medical technology brings status and professional praise as techniques become more sophisticated.[83] The images produced by three and four dimensional foetal photography imply foetal 'life' using visuals of real 'babies' and the spectator feels as though the images are the result of simple 'looking' and not complex technology used to create the pictures.[84] For instance, it is not uncommon for parents-to-be or sonographers to suggest that foetuses are "waving", "giggling", "smiling" or "sleeping" in three and four dimensional sonogram images.

(Re)framing the foetus

From these examples, it becomes clear that medicalisation engenders an intimate relationship between technology and ideology; women should *want* and embrace capitalist technologies for the proliferation of culture and the production of perfect babies. In essence, biomedicine produces 'truth' through the exercise of power and its maintenance is a consequence of its cultural dominance. Similarly, the language of biomedicine enforces mechanical metaphors and the pathologising of female states of health by cementing the 'condition' of pregnancy as an illness to be treated. This pathologising is articulated as universally applicable to all women, regardless of race, class, or sexuality. In this sense, language works in conjunction with visualisation in creating a biomedical 'truth'. As language is the "speaking eye" of medical discourse, doctors and prenatal visualising technologies are its "seeing eye".[85]

In this article, I have considered the traditionally male-dominated objectivity of obstetrical science and the use of ultrasonography as a tool of power and surveillance. I also discuss how these tools define the expression of the foetus and pregnancy in Western culture. I have argued that the application of reproductive technologies, particularly ultrasonography, is controlled primarily by biomedicine and that pregnant women's acceptance of these technologies creates a space for increasingly managed pregnancies, despite their perceived benefits for the pregnant woman. I do not suggest that reproductive technology requires authority over a woman's agency or implies the binary construction of 'mother' versus 'foetus'. Rather, I suggest the cultural meanings attributed to reproductive technology recreate the meanings of pregnancy and motherhood.

The most important dialogues to arise from discussions of foetal/maternal surveillance are located around the public persona of the foetus and how this appropriates the relationship between the pregnant women and the foetus. Dion Farquhar suggests, "the introduction and routinisation of sonogram technology and its attendant procedures represented the maternal-foetal relationship as a new discursive medical entity- one that can be measured, administrated, and surveilled".[86] This surveillance is evidenced by the popularisation and fetishisation of visual images of the foetus. For instance, the "endearing cuteness" of the foetus is a powerful sentimental image often co-opted by the anti-abortion movement in positioning the maternal-foetal relationship as antagonistic.[87] As long as mother and foetus are separate, sympathy is generated from the foetus as 'victim' of a hostile maternal environment.[88] According to the hegemonic meaning attributed to prenatal diagnosis, a woman's relationship to the foetus is not reflected as dynamic or shifting. Rather, as Farquhar argues, the discourse of technological domination "ignores the way even dominant, routinised technologies unwittingly mobilise diverse opportunities for perverse appropriation and strategic opposition".[89] Following this notion of the instability of power, I would like to re-frame or re-vision the notion of subjectivity and corporeality in pregnancy utilising the notion of the placenta to render the mother 'visible' in the sonogram frame.

As the pregnant body is continually framed as a point of erasure in the sonogram photograph, a new vocabulary or re-framing of vision must be developed in order to re-unite mother and foetus as a an embodied, dynamic unit. I would like to suggest that inclusion of the placenta in Western conceptions of pregnancy is a means of interrupting the personification of the visualised foetus.[90]

More than two decades ago, Ann Oakley suggested that the placenta did not hold a prominent position in the discourses of Western professionalised medicine. Rather, the placenta has been regarded as "merely a bit of tissue to be extracted from the mother".[91] As the primary site of connection between pregnant woman and foetus, the placenta is the point where fluid is exchanged (for example, blood, nourishment, and waste fluid) and has been implicated in more contemporary feminist scholarship as a site of primary importance in configuring mother and foetus. JaneMaree Maher considers the placenta to be of central importance because "it is also, strikingly, the point at which technological conceptive advances are halted".[92] Maher argues that the inability to reconstruct a functioning placenta is one of the major obstacles in achieving successful ectogenesis (or the gestation of a foetus outside the womb).[93] The placenta is eliminated from the woman's body after the foetus enters the world; therefore, the placenta exists only as long as the relationship between mother and foetus as a single embodied unit continues.

As the primary connection between the pregnant woman and the foetus, the placenta is an extremely useful metaphor to describe the dynamic, shifting nature of pregnancy. As Maher suggests, "it [the placenta] contests any separation, since it marks out the imbrication and fluidity of the pregnant body, but it also refuses an uncomplicated collapse".[94] In this sense, the placenta represents a fluid exchange, both literally and figuratively, alluding to the productivity and permeability of the pregnant woman's body. In order to paint an accurate picture of the foetus, the placenta must be included. The placenta shows how the mother and foetus are different in that the mother provides the sustenance for the foetus to exist, and it also unites them in a complex process of gestation. Common representations of the public foetus often neglect the placenta, particularly in the work of medical photographer, Lennart Nilsson.[95] In dissecting Nilsson's famous 1965 LIFE cover image, Karen Newman notes, "by partially cutting away the placental mass, Nilsson revealed the two-and-one half inch foetus, which otherwise would not be visible to an observer..."[96] Nilsson's erasure of the body of the woman highlights the common emphasis on the separateness and disjunction of the maternal-foetal relationship in foetal imagery. Using the placenta as framework for maternal and foetal embodiment, I agree with Maher in that a clear definition of 'mother' and 'child' cannot be easily established in consideration of pregnancy as multi-faceted and dynamic.[97] It is these expressions within language, brought to life by

visualising technology, which do not express the complexities of pregnancy as a truly embodied experience.

To illustrate these points, I have drawn on Foucault to discuss how pregnant women can be both targets and agents of power. I have considered the ways in which pregnant women, as patients, "willingly accept the role of being the object of the medical gaze, but seem to actively participate in it".[98] In this sense, as much as the technology (for example, ultrasound) modifies the bodily knowledge of the pregnant women, women also modify the technology. Ultimately, the technology would not exist without a human subject and women often need technical information to make informed choices during pregnancy. Prenatal visualising technologies exemplify how biomedicine is assumed to sharpen women's experiential knowledge of pregnancy whilst women's bodily knowledge becomes less credible as it competes with technological knowledge. Whilst I have tried not to dilute the realities of women's choices in making decisions about their bodies, I have attempted to demonstrate that women do not necessarily have an equal hand in policing their own pregnancies. I have argued that women do have 'choice' in making reproductive decisions, however, this 'choice' can be circumscribed by technological and biomedical discourses.

Meredith Nash is a PhD candidate at Melbourne University. Previous degrees include MA from Melbourne University and BSc from the University of Illinois. Her Master's thesis analyses the exposure of the pregnant belly as a site of surveillance and object of the medical gaze. Meredith's current PhD research, The Baby Bump Project, is a longitudinal study exploring body image and fatness in pregnancy (http://babybumpproject.tripod.com/).

[1] Consult http://www.medical.toshiba.com/clinical/radiology/radiology-2-5.htm for 'what's new' in ultrasound.

[2] Rayna Rapp, "Constructing Amniocentesis: Maternal and Medical Discourses", in *Uncertain Terms: Negotiating Gender in American Culture*, Faye Ginsburg and Ann Lowenhaupt-Tsing, eds (Boston: Beacon Press, 1990): 34.

[3] For example, Lynn Morgan's analysis of Ecuadorian women's experience of foetal imaging suggests 'relationality must be reciprocal'; Lynn Morgan, "Fetal Relationality in Feminist Philosophy: An Anthropological Critique" *Hypatia* 11.3 (1996): 52; "Imagining the Unborn in the Ecuadorian Andes" *Feminist Studies* 23.2 (1997): 323-51.

[4] For example, ultrasonography is increasingly being used among Asian parents, particularly in China, as a matter of economics and the privileging of boy children. For more information, see Ted Pflaker, "Sex selection in China sees 117 boys born for every 100 girls" *British Medical Journal* 324 (25 May 2002): 1233. Moreover, the global nature of the Internet suggests a flow of ideas and trends that is evidenced by the many 'Western' (American, British, Australian) websites about ultrasonography and pregnancy that are utilised by parents in Singapore, Malaysia and Hong Kong. A basic Google Singapore web search (www.google.com.sg) of '3D ultrasonography' reveals primarily 'Western' resources as well as the presence of many prominent global corporations such as Philips and Toshiba selling sophisticated ultrasound technology in the Asian market. For example, Philips markets its new 3D ultrasound technology with the slogan, 'First words: 17 months. First steps: 11 months. First smile: 3 months. Memories now start earlier'. Access the advertisements along with other campaigning across the world here: http://www.philips.com.sg/About/brand/Campaigning/pv_article-18591.html

[5] I suggest affluence and privilege are key demographic indicators based on the pricing of photo packages (starting from $235 AU).

[6] Early Image, "Welcome to Early Image", (2006 [accessed 28 October 2006]). Available from http://www.earlyimage.com.au/default.asp

[7] Early Image, "About Us", (2006 [accessed 28 October 2006]). Available from http://www.earlyimage.com.au/html/about/default.asp

[8] Lynn Morgan, 55.

[9] Whilst the majority of this article reflects on feminist approaches to and critiques of biomedicine, I will mention that there is a significant body of literature from medical practitioners, particularly obstetricians and gynecologists, in support of the use of 3D/4D foetal ultrasound as a positive means of diagnosis and maternal/foetal attachment. See Stuart Campbell, "4D or not 4D: that is the question", *Ultrasound and Gynecology* 19.1(2002): 1-4; Stuart Campbell et al, "Ultrasound scanning in pregnancy: the short-term psychological effects of early realtime scans" *Journal of Psychosomatic Obstetrics and Gynecology* 1(1982): 57-61; Lawrence D. Platt, "Three-dimensional ultrasound" *Ultrasound and Gynecology* 16(2000): 295-8.

[10] Michel Foucault, *The History of Sexuality: An Introduction* (New York: Vintage Books, 1990); *The Birth of the Clinic: An Archaeology of Medical Perception* (New York: Vintage Books, 1994); *Discipline and Punish: The Birth of the Prison* (New York: Vintage Books, 1995); Jeremy Bentham, *The Panopticon Writings*, Translated by Miran Bozovic (London: Verso, 1995).

[11] Sandra Lee Bartky, "Foucault, Femininity, and the Modernization of Patriarchal Power" in *Feminism and Foucault*, Irene Diamond and Lee Quinby, eds. (Boston: Northeastern University Press, 1988), 61-89; Barbara Duden, *Disembodying Women: Perspectives on Pregnancy and the Unborn* (Cambridge: Harvard University Press, 1993); Ann Oakley, *The Captured Womb: A History of the Medical Care of Pregnant Women* (Oxford: Basil Blackwell, 1984); Rosalind Petchesky, "Foetal Images: The Power of Visual Culture in the Politics of Reproduction", in *Reproductive Technologies: Gender, Motherhood and Medicine*, Michelle Stanworth, ed.(Cambridge: Polity Press, 1987), 57-80.

[12] Oakley, *Captured*.

[13] Laura Mulvey, *Visual and Other Pleasures* (London: Macmillan, 1989); Carole Stabile, *Feminism and the technological fix* (Manchester: Manchester University Press, 1994).

[14] Petchesky, *Foetal*; Ann Oakley, "From Walking Wombs to Test-Tube Babies", in *Reproductive Technologies: Gender, Motherhood and Medicine*, Michelle Stanworth, ed. (Cambridge: Polity Press, 1987), 36-56; Robbie Davis-Floyd, *Birth as an American Rite of Passage* (Berkeley: University of California Press, 1992); Barbara Ehrenreich and Deirdre English, *Complaints and Disorders: The Sexual Politics of Sickness* (New York: The Feminist Press, 1973), 20.

[15] Bartky 80; Monique Deveaux, "Feminism and Empowerment: A Critical Reading of Foucault", *Feminist Studies* 20.2 (1994): 223-47; Susan Bordo, "The Body and the Reproduction of Femininity", in *Gender, Body, Knowledge*, Alison Jaggar and Susan Bordo, eds. (London: Rutgers University Press, 1989).

[16] Emily Martin, *The Woman in the Body: A Cultural Analysis of Reproduction* (Boston: Beacon Press, 2001); Deborah Lynn Steinberg, "Feminist Approaches to Science, Medicine and Technology", in *The Gendered Cyborg: A Reader*, Gill Kirkup, Linda Janes, Kathryn Woodward and Fiona Hovenden, eds. (London: Routledge, 2000), 193-208.

[17] Oakley, *Captured*, 287.

[18] Martin, 57.
[19] Martin, 57.
[20] Oakley, *From Walking*, 37; Oakley notes that in the late 19th and early 20th centuries, government concerns about the health of the population and its involvement in childbirth coincided with the rise of obstetrics as a specialised medical profession (*From Walking*, 37). The use of ultrasound in the treatment of pregnancy is an innovation of the last forty years. Obstetric ultrasound was used in the late 1950s and by 1965 foetal growth could be assessed as early as seven weeks (Oakley, *From Walking*, 45).
[21] United States Food and Drug Administration,"Ultrasound Bioeffects: Effects on Embryonic Development and Cardiac Function", (2005 [accessed 25 October 2006]). Available from http://www.fda.gov/cdrh/ost/reports/fy95/ultrasound.html
The US Food and Drug Administration notes, 'Recent reports in the medical literature suggest that an increase in the number of ultrasound examinations during pregnancy may restrict foetal growth and that prenatal ultrasonography may be associated with delayed speech in children'.
[22] Deborah Lupton, *The Imperative of Health: Public Health and the Regulated Body* (London: Sage Publications, 1995), 80.
[23] Janelle Taylor, "Images of Contradiction: Obstetrical Ultrasound in American Culture", in *Reproducing Reproduction: Kinship, Power and Technological Innovation*, Sarah Franklin and Helena Ragone, eds. (Philadelphia: University of Pennsylvania Press, 1998), 19.
[24] Paula Treichler, "Feminism, Medicine and the Meaning of Childbirth", in *Body/Politics: Women and the Discourses of Science*, Mary Jacobus, Evelyn Fox Keller and Sally Shuttleworth, eds. (New York: Routledge, 1990), 120.
[25] Lisa Mitchell and Eugenia Georges,"Cross-Cultural Cyborgs: Greek and Canadian Women's Discourses on Fetal Ultrasound" *Feminist Studies* 23.2 (1997): 373-401
[26] Detailed information about the research entitled, *The Baby Bump Project*, is available on my research website, http://babybumpproject.tripod.com
[27] Names of participants have been changed.
[28] Petchesky, 67.
[29] Petchesky, 65.
[30] Davis-Floyd, 57.
[31] Interestingly, in my research I have found that more women (largely white and middle-class) are resisting intervention during pregnancy. This is closely linked to age, race, class, and education but also signifies a resurgence of the 'natural birth' movement as more middle-class women are opting for midwifery care and a 'drug free' birth. This is a major shift from the highly medicalised decades of the 1980s and 1990s, particularly in American culture. In my experience interviewing pregnant women, more women that have access to private obstetric care are opting to give birth 'naturally' in a family birth clinic. Whilst I am still in the process of analysing this shift, my thought is that many of the middle-class, educated and professional women I have interviewed are looking for pregnancy and birth to be an active or 'authentic' experience particularly as many women are having their first child much later in life (for example, after the age of 35). These women are employing independent midwives or doulas to assist them throughout the pregnancy and labour instead of consulting obstetric care.
[32] Davis-Floyd, 47.
[33] Oakley, *From Walking*, 46. This dichotomy is surely not as clearly defined in practice as not all doctors feel the need to maintain a doctor/patient hierarchy.
[34] Foucault, *Birth*, 54.
[35] Foucault, *Discipline*, 167.
[36] Robin Gregg, *Pregnancy in a High-Tech Age: Paradoxes of Choice* (New York: New York University Press, 1995), 80.
[37] Foucault, *Discipline*, 137.
[38] Foucault, *Discipline*, 138.
[39] Bartky, 64.
[40] Bartky, 64.
[41] Bartky, 64. However, Bartky does not make explicit reference to race, class, or sexuality in her description of feminine embodiment. These factors invariably influence the experiences of individual women, particularly in relation to experiences of pregnancy.
[42] I am not trying to imply that all women experience pregnancy as a disciplinary practice. Women's embodied experiences of pregnancy are wholly unique.
[43] Barbara Katz Rothman, *The Tentative Pregnancy: Prenatal Diagnosis and the Future of Motherhood* (London: Pandora, 1988), 113.
[44] Foucault, *Discipline*, 138.
[45] Bartky, 80.
[46] Treichler, 128.
[47] Muriel Dimen, "Power, Sexuality, and Intimacy", in *Gender/Body/Knowledge: Feminist Reconstructions of Being and Knowing*, Allison Jaggar and Susan Bordo, eds. (New Brunswick: Rutgers University Press, 1989), 44.

[48] Foucault, *Discipline*, 197.
[49] Treichler, 128.
[50] Foucault, *Discipline*.
[51] Foucault, *History*, 4.
[52] Foucault, *Birth*; Peter Conrad, "Medicalization and Social Control" *Annual Review of Sociology* 18 (1992): 216.
[53] Conrad, 216.
[54] Petchesky, *Foetal*; Mulvey, *Visual Pleasures*; E. Ann Kaplan, "Look Who's Talking, Indeed: Fetal Images in Recent North American Visual Culture", in Evelyn Nakano Glenn, Grace Chang, Linda Rennie Forcey, eds. *Mothering: Ideology, Experience, and Agency* (New York: Routledge, 1994), 121-38.
[55] Carole Stabile, "Shooting the Mother: Fetal Photography and the Politics of Disappearance" *Camera Obscura: A Journal of Feminism and Film Theory* 28 (January 1992), 191-92.
[56] Foucault, *Discipline*, 89.
[57] Faye Ginsburg, *Contested lives: the abortion debate in an American community* (Berkeley: University of California Press, 1989), 95.
[58] Karen is 38 years old.
[59] Stabile, 72.
[60] Bentham, *Panopticon Writings;* The Panopticon refers to a prison architecture in which a circular layout with a guarded watchtower at its centre produces appearances of punishment that are not effects of reality. With its all-seeing inspector in the tower, the internal structure of the Panopticon implies a constant surveillance. Thus, prisoners are deterred from misbehaviour.
[61] Bentham, 9.
[62] Bentham, 43.
[63] Foucault, *Birth*, 39.
[64] Bentham, 6.
[65] For example, many women give up smoking and alcohol and often begin to eat more healthfully and exercise.
[66] For example, see Kathryn Addelson, "The Emergence of the Fetus" in *Fetal Subjects, Feminist Positions*, Lynn Morgan and Meredith Michaels, eds. (Philadelphia: University of Pennsylvania Press, 1999), 26-42; Valerie Hartouni, *Cultural Conceptions: On Reproductive Technologies and the Remaking of Life* (Minneapolis: University of Minnesota Press, 1997); Janice Raymond, *Women as Wombs: Reproductive Technologies and the Battle over Women's Freedom* (San Francisco: Harper Collins, 1993); Janelle Taylor, "Images of Contradiction: Obstetrical Ultrasound in American Culture", in *Reproducing Reproduction: Kinship, Power, and Technological Innovation*, Sarah Franklin and Helena Ragone, eds. (Philadelphia: University of Pennsylvania Press, 1998), 15-45; "A Fetish Is Born: Sonographers and the Making of the Public Fetus", in *Consuming Motherhood*, Janelle S. Taylor, Linda L. Layne, and Danielle F. Wozniak, eds. (New Brunswick: Rutgers University Press, 2004), 187-210;
[67] Sandra Matthews and Laura Wexler, *Pregnant Pictures* (New York: Routledge, 2000), 11; Petchesky, *Foetal.*
[68] Matthews and Wexler, 11.
[69] Bentham, 34.
[70] Foucault, *Discipline*, 144.
[71] By 'impaired' I intend to suggest the dilemma that pregnant women face in making 'choices' about prenatal screening. If she decides not to undergo screening during the pregnancy she may be faced with the label of 'bad mother' for not looking after her foetus properly. Alternatively, if she chooses to undergo the screening she may be faced with anxiety regarding negative or unpleasant medical outcomes in relation to her health or that of the foetus.
[72] Bentham, 9.
[73] Bentham, 43.
[74] Lupton, 11.
[75] Lupton, 10.
[76] Foucault, *Discipline*, 201.
[77] Foucault, *Discipline*, 201.
[78] Lupton, 23.
[79] Lupton, 98.
[80] Duden, 28.
[81] Lupton, 77.
[82] Conrad, 211.
[83] Judy Wajcman, *Feminism Confronts Technology* (Cambridge: Polity Press, 1991), 71.
[84] Matthews and Wexler, 146.
[85] Foucault, *Birth*, 114.
[86] Dion Farquhar, *The Other Machine: Discourse and Reproductive Technologies* (New York: Routledge, 1996), 165.
[87] Matthews and Wexler, 197.

[88] On 16 October of this year, I came upon a half-page advertisement for the 'Coalition Against Decriminalisation of Abortion' (www.cadoa.org) in *The Age*, a Melbourne newspaper. Featuring a sentimentalised and very large image of a supposedly full-term foetus 'sucking its thumb', the advertisement asks, 'Is the womb the most dangerous place on earth?' This advertisement maintains my argument that anti-abortion rhetoric privileges the life of the foetus over the mother; Kirsten Jack, "Killing Our Children up to Full-Term", *The Age*, 16 October 2006, 4.

[89] Farquhar, 168.

[90] JaneMaree Maher, "Visibly Pregnant: Toward A Placental Body" *Feminist Review* 72 (2002): 95-107; Oakley, *Captured*.

[91] Oakley, *Captured*, 176.

[92] Maher, 102.

[93] Maher, 103.

[94] Maher, 104.

[95] Lennart Nilsson, *A child is born : new photographs of life before birth and up-to-date advice for expectant parents* (London: Faber, 1977).

[96] Karen Newman, *Fetal Positions: Individualism, Science, Visuality* (Stanford: Stanford University Press, 1996), 13.

[97] Maher, *Visibly*.

[98] Charise Cussins, "Ontological Choreography: Agency for Women Patients in an Infertility Clinic", in Marc Berg and Annemarie Mol, eds. *Differences in Medicine: Unraveling Practices, Techniques, and Bodies* (Durham: Duke University Press, 1998), 178.