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**‘IT WAS A REAL GOOD SHOW’: THE ULTRASOUND SCAN, FATHERS  
AND THE POWER OF VISUAL KNOWLEDGE**

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AND THE POWER OF VISUAL KNOWLEDGE**

**ABSTRACT**

Drawing on an ethnographic study of the transition to contemporary British fatherhood, this paper discusses men’s experiences of the ultrasound scan. Seeing the baby on the screen seemed to herald an escalation of their awareness of the baby, reinforcing its reality. Visual knowledge, as opposed to other forms of knowledge, therefore became a primary means of knowing the baby. In this paper I provide a theoretical analysis of men’s empirical accounts of seeing the baby during the ultrasound scan. After a description of method, I set the context by presenting data to illustrate the significance of the ultrasound within men’s pregnancy experience. The paper then sets up the theoretical foundations for an analysis of these accounts by firstly, examining the development of the primacy of vision within medicine and secondly, discussing the illumination of the body interior, initially by dissection but now via contemporary technologies of vision including ultrasound. The final section, draws upon further data and discusses how ultrasound can be constructed as simultaneously both a medical and social event with the potential to generate epistemological conflicts.

## INTRODUCTION

This paper draws on the findings of a larger longitudinal ethnographic study of men's transition to fatherhood. In contrast to research on women's experience of motherhood, there has been relatively little research investigating men becoming fathers (Henderson and Brouse 1991, Kaila-Behm and Vehvilainen-Julkunen 2000). Much of this research has explored men's negative responses (Lupton and Barclay 1997) to pregnancy, birth and early fatherhood, for example men's altered physiological, psychological or psychiatric functioning (Clinton 1987, Benvenuti et al 1989, Klein 1991, Hyssala et al 1992, Mercer et al 1993, Ballard et al 1994, Mason and Elwood 1995, Areias et al 1996, Ballard and Davies 1996, Leathers et al 1997). A small minority of the research has investigated their experiences of the transition to fatherhood and even less has used longitudinal methods to examine the process of transition (Lemmer 1987). Consequently relatively little is known of the insider's experience of fatherhood transition, how men come to define and perceive themselves as fathers (White 1994) and how changing cultural perspectives contribute to the contemporary experience of fathering. The longitudinal research project reported here, exploring men's transition to contemporary British fatherhood, aims to make a contribution to this body of knowledge.

Focussing on their accounts of the ultrasound scan, this paper exposes data from the antenatal interviews to theoretical analysis in order to elaborate the significance of the ultrasound scan. A dialogue between data and theory is thereby created as theoretical perspectives, in particular the concept of visibility, critically engage with empirical data from the interviews. The paper therefore has both an empirical and theoretical focus. In order to set the context for the later theoretical discussion, the paper begins with a brief presentation of the study's methodology.

## **METHOD**

Working according to ethnographic principles, eighteen men were interviewed twice during their partner's pregnancy and once after the birth, in order to document their 'real-life' accounts of their transition to fatherhood. As well as exploring the experiences of men becoming fathers for the first time, I was also keen to interview men who were anticipating new stages of fatherhood and so the sample included both first time (novice) and experienced fathers. Ethnography was selected as a way of understanding men's experiences of the transition to contemporary Western fatherhood because it is 'informed by the concept of culture' (Morse and Field 1996: 21) and is able to generate 'thick description' (Geertz 1973: 10) of people's behaviour in everyday contexts (Hammersley and Atkinson 1995). Although classic ethnography has been characteristically concerned with describing 'other' cultures, its utility in contemporary cultural studies, as 'anthropology at home', is becoming well established (Jackson 1987, Rapport 2000, Savage 2000). In addition to the use of observation as perhaps the previously principal method of anthropological data collection, the use of interviews (the ethnographic ear (Martin 1990)) as a legitimate form of generating contemporary anthropological data has also been recognised (Hockey 1999). The emphasis within this study was the use of interviews as ethnography.

### **Recruiting men**

Men living in a town in the north of England were recruited through the local branch of the National Childbirth Trust (an organisation within the UK which provides education and support for parenthood). An introductory letter inviting men to participate in the study was sent to those booked to attend antenatal classes and following receipt of their written consent arrangements for the first interview were made. In addition to

recruitment via the NCT, snowball sampling was also used and men already part of the study volunteered to approach expectant men they knew. Five of the men were recruited in this way. All the men were recruited directly (as opposed to indirectly via their partners) in order to challenge the notion that reproductive and parenting experience is only 'women's business' (McKee and O'Brien 1983). Men were keen to participate in the study and a total of 18 men were recruited, a mixture of both novice (n=6) and experienced (n=12) fathers.

Expectant couples attending NCT antenatal classes are predominantly white, middle class and tertiary educated (Nolan 1994, 1997) and as the majority of the men were recruited via antenatal classes, the study sample reflected these characteristics. However, although generalisation should be undertaken cautiously, such homogeneity allows detailed exploration of a particular group of men with similar experiences and backgrounds. Furthermore, although not necessarily representative of all men in general, their experiences are situated within a wider social context in which informed choice (DoH 1993) and the questioning of the medicalised childbirth culture (Machin and Scamell 1997) are now common in the UK. This wider social context enables theoretical connection between the experiences of the men in the study and the broader understandings of British contemporary fatherhood.

### **Data collection**

The men were interviewed alone three times over the course of their transition to fatherhood. The interviews, conducted predominantly in their own homes, were tape recorded and subsequently transcribed verbatim. The first interview, usually conducted in the second trimester of the pregnancy, explored men's experience of the pregnancy, the event of its confirmation, their involvement in the pregnancy, the strongest memory,

the effect on relationships, their expectations of birth and life afterwards. As the baby's birth became imminent, the second interview, conducted late in the third trimester, focussed on men's expectations of labour, their ideas of fatherhood and their expectations of the immediate days following the delivery. The third interview, which most often took place within 8 weeks of the birth, explored their experience of the labour and delivery, their initial feelings and reactions and the reality of life with a new baby.

Prior to the individual interviews with these men, three focus group interviews with other men were also conducted. Two of these focus groups consisted of the men who had previously (with their partners) formed the last two NCT antenatal courses. The men in the third focus group had not attended NCT classes but were all known to each other, lived near to each other and often socialised together. The focus groups were used as a preliminary and exploratory tool (Morgan 1988) to pilot both the interview guides and the interview process. The piloting of the interview guides within the focus group generated useful data, some of which I draw upon in this paper, indicating the guide's usefulness. The focus groups also provided a setting within which men could be observed interacting together, a dimension which can reveal data equally as rich as the spoken word (Kitzinger 1994).

## **Ethics**

Local Ethics Committee Approval (LREC) (a pre-requisite in England for research conducted with NHS patients or staff) was not required as the research did not involve NHS patients or staff. However, irrespective of whether LREC approval is required, all research possesses an ethical dimension and issues of consent, anonymity and confidentiality were of relevance here. The men were informed that only I would have

access to the recorded interviews, their accounts would be treated with the utmost confidence and their anonymity preserved throughout all stages of the research. Consequently their names have been changed here in order to protect their identity. The men were reassured they could request the tape recorder be switched off and that they could withdraw from the study at anytime.

### **Rigour**

Rigour within qualitative research is often discussed within the context of trustworthiness, which can be judged using Guba and Lincoln's (1989) three criteria of credibility, transferability and dependability. Credibility of the research was achieved using the longitudinal approach to data collection (Hall and Stevens 1991, Morse and Field 1996), applying the same techniques consistently across time, integrating the data with existing theory, and supporting discussion with multiple extracts from the interviews (Sandelowski 1994a). Throughout the research, a decision (Hall and Stevens 1991) or audit (Morse and Field 1996) trail was kept, providing a clear account of the methodological decisions taken over the course of the project.

### **Data analysis**

Following verbatim transcription, the interview data were systematically analysed by hand into coding categories which fell within the three broad descriptive categories of 'pregnancy', 'birth' and 'early days'. Accounts of pregnancy were initially sorted into eleven categories, labour into ten and early days into ten. During the next phase of analysis the data contained in each of the major categories were revisited and a comprehensive map of each major category developed. Drawing on a number of theoretical frameworks, these descriptive categories were then exposed to theoretical analysis, which Morse and Field (1996) describe as the most important product of

qualitative research. Theoretical perspectives on visibility elaborated men's descriptions of the ultrasound scan and it is to this theoretical discussion the paper now turns.

I now begin laying down the theoretical foundations of the paper by discussing the historical development of the primacy of vision within medicine and how the processes used to generate knowledge about the body, under the auspices of pure science, relied predominantly upon vision. I suggest rather than being *the* objective truth, this knowledge was itself culturally located and therefore represented *a* particular construction of the body. This sets the context for a brief discussion of the development of ultrasound as a technology vision. In the later sections, the paper then draws on interview data to discuss how parental, fetal and medical epistemologies are altered as a result of access to these images of the interior baby.

### **The relationship between seeing and knowing**

Jenks (1995) argues that the post modern Western world is characterised by a privileging of the visual. On the one hand, vision is the 'lion' of the senses, gathering information which is regarded as autonomous, pure and objective. On the other hand however, vision can also be regarded as mundane, unseen, embedded, taken for granted and unquestionable. Vision both observes *and* constructs our social world and therefore incorporates elements of both seeing and knowing. Boundaries between seeing and knowing are therefore indistinct and 'have become perilously intertwined' (Jenks 1995:1). This fusion of seeing and knowing is reinforced by our use of language, for example 'See what I mean?' and 'What is your view?'.

Fox Keller and Grontowski (1983) suggest the movement from oral to literate traditions in ancient Greece contributed to the ascendancy of vision, as 'the eye supplanted the ear

as the chief organ' (209). Descartes, for example described sight as the 'most noble of senses' and Plato valued sight over and above the other senses claiming that 'the first organs they (*the gods*) fashioned were those that gave us light' (Fox Keller and Grontowski 1983:210).

Scientific traditions in the West have also 'placed "looking" at centre stage' (Jordanova 1989:91). Post Enlightenment empirical science, firmly rooted in the paradigm of positivism, privileges vision so that only that which can be seen can be believed. In the pursuit of its monopoly of the generation and confirmation of valid uncontaminated knowledge, science has assumed that there is a 'pure vision' (Mitchell 1986 in Jenks 1995:4), one that sees 'reality' as empirical data (Petchesky 1987) removed or bracketed from its original context in order to render it objective and scientific.

Positivism's attempts at 'pure vision', by ignoring historical, political and psychological contexts, ironically results in a 'partial sight' (Jenks 1995). It is impossible to bracket reality (or multiple realities) in this way as 'there is no transcendent and naturally given reality' (Jenks 1995:6), no pre-formed world 'waiting to be "seen" by the "extrospection" of the "naked eye"' (Jenks 1995:10). This is the deception of positivism, ('that flawed epistemology' Petchesky 1987:62), that it does not recognise the impaired vision that it really is because it is itself legitimated (or blinded) by the ideology of 'pure perception' (Jenks 1995). So the pursuit of 'pure vision' turns out paradoxically to be a form of blindness (Mitchell 1986 in Jenks 1995:4).

In contrast to the concept of a pure objective vision, Jenks (1995) argues that vision is socially constructed and that the seeing and knowing elements of vision are inextricably bound together. He suggests therefore a reciprocal relationship between vision and the

way in which we make sense of the world, that the two are interdependent, that vision is a 'skilled cultural practice' (Jenks 1995:10).

Science did not (has not) acknowledged this deception and despite the limitations of this partial sight, empirical science and medicine in the eighteenth and nineteenth centuries continued the pursuit of value-free knowledge. So with respect to the development of knowledge about the body and its interior, ways of getting inside the body to 'see' what was there (Braidotti 1994) were early instruments of medical visualisation.

### **The body interior**

During the Renaissance there was a general curiosity concerning the structure and function of the interior body (Sawday 1995). We do not ordinarily have the opportunity to gaze within our own bodies, what Sawday (1995) calls the oldest taboo, as 'the interior recesses of the body are not merely private to others but peculiarly private – that is expressly forbidden – to the owner or the inhabitant of the body' (Sawday 1995:15).

The desire to understand the interior of the body led to an increasing reliance on seeing as the principal mode for generating legitimate medical knowledge, and established the medical gaze as the authoritative 'eye of science' (Jenks 1995). In the eighteenth and nineteenth centuries the primary method of opening the body to the medical gaze was dissection so, paradoxically, understandings of the living body were made with reference to the dead body (O'Neill 1995). Jordanova (1989:98) writes that through dissection the body was 'made to yield up its secrets', a kind of scientific undressing of the body. It 'became the symbolic core of scientific medicine – the place where signs of pathology were revealed to the medical gaze' (Jordanova 1989:100).

She argues that the construction of the body at this time was bound up with identifying and attempting to explain differences between the male and female body. In the context of medicine as a purely male profession and noting that dissection more often involved the body of a woman, Jordanova (1989) argues that this reflected the way women were regarded in the mid nineteenth century. The different cultural value attached to male and female bodies (Ettore 1998) and the ‘identification of masculinity with reason’ (Seidler 1994:19), led to the opposing gender dichotomies of the time. Jordanova (1989:110) argues it is therefore unsurprising that ‘woman as the personification of nature, was the appropriate corpse for anatomy’.

In addition to dissection, wax models made in Italy were used in anatomy lessons to teach about the structure of the human body. Like their cadaver counterparts, these wax models were almost exclusively female, in recumbent, sexually inviting poses and yet simultaneously passive, often adorned with necklaces. Jordanova (1989) argues that these figures were knowingly erotic and yet simultaneously provided an invitation to ‘peer into bodily recesses and to find there evidence of reproductive capacities’ (50). Male figures were usually erect depicting contracting muscles, whereas the female models were often concerned with the reproductive and nervous systems so reinforcing the hysteria discourses of the time. She argues that the construction and representation of the nineteenth century body was therefore influenced by prevailing gender distinctions.

Concepts of surveillance and control are also linked to visual knowing and Jenks (1995) suggests that the privileging of vision within the West served as a mechanism for social control. Underpinned and given authority by science, a degree of order and control is exerted which projects ‘a consensus “world view”’ (Jenks 1995:7). This consensus

world view does not just facilitate order and control *within* the world view but discussion of disorder and lack of control *outwith* the consensus view. In other words it provides a means by which alternative visions can be rendered deviant and dangerous. In the context of medicine, Sawday (1995) argues that exploration of the body interior by dissection (perpetuated in the twenty first century by contemporary medical imaging technologies) began the process of what Foucault (1975) called the surveillance of the body. The power wielded through medical surveillance originates, I suggest, from at least two sources. First medicine's ability to set the visual agenda and establish the priority 'looking' areas, thereby determining what is in need of visual exploration. Second their privileged medical gaze secures their monopoly of interpreting and treating the visual image.

In the twenty first century the medical gaze is no longer dependent on the corpse for its mapping of the human body. Corporeal dissection has been replaced by a new technological dissection, for example Computerised Axial Tomography, Magnetic Resonance Imaging and, relevant to the current discussion, ultrasound, which are all providing a new interior map of the body. In contrast to dissection which by definition was a passage into *the* body (Sawday 1995), these new technologies where the body can be 'anatomized "live"' (Kember 1995:100), provide the opportunity for us to experience our own interiority first hand, a passage into *my* body (Sawday 1995). Paradoxically this medical gaze does not just rely on sight to 'see' but also relies on hearing, for example in auscultation, on touch, for example in palpation and of course, the paradox of ultrasonography, is that sound is used to give light to the body interior (Yoxen 1987).

## **Ultrasound as a technology of vision**

The development and application of ultrasound technology occurred therefore within the context of a strong tradition of visual knowledge or what Duden (1993:21) calls medicine's 'visual command performance'.

Austrian brothers, Karl and Friedrich Dussik developed ultrasound as a diagnostic tool in the 1930s and 1940s and did their early work on the ventricular spaces in the brain (Yoxen 1987). Used in a military context in the second world war (Duden 1993) 'the technique spread into medical practice, where it enabled surgeons to operate in the dark' (Duden 1993:76). Transported into the realm of obstetrics by Donaldson in the 1950s and 1960s, initially only when the obstetrician suspected abnormality (Green 1994), it is now fully integrated into the normal pregnancy package (Petchesky 1987) and is part of the Western pregnancy ritual (Clement, Wilson and Sikorski 1998).

Images that were previously confined to the imagination (Black 1992) were now made public and, in a formative contribution, Petchesky (1987:69) argues that ultrasonography rendered 'the once opaque womb transparent, stripping the veil of mystery from the dark inner sanctum, and letting the light of scientific observation fall on the shy and secretive fetus'.

These images of the fetus hold both empirical and mythical meaning (Petchesky 1987) and have assumed the status of both the 'icon signifying pregnancy' (Clement et al 1998:13) and 'media spectacle' (Petchesky 1987). Popularised by the early Nilsson photographs, where the baby attached to the mother by the umbilical cord can be likened to the space man attached to the 'mother' space craft, sight was extended 'to see

things which have previously been off limits' (Duden 1993:15). As a result of routine antenatal ultrasonography, the fetal image is now fully incorporated into popular culture (Casper 1998) and is 'no longer simply a medical projection but a cultural symbol which has become part of the public imagination' (Boulter 1999:1). The fetus has 'gone solo' (Casper 1998), achieving an autonomy and independence (Braidotti 1994) which can be manipulated in social, cultural and political ways (Casper 1998). For example, the image of the fetus in late twentieth century culture has been commercialised for example in car advertisements (Taylor 1993) and also used to serve political purposes (Lupton 1994), as observed in the pro-life movement (Petchesky 1987, Casper 1998).

Initially obstetric ultrasound was only used when a problem was suspected and, in contrast to contemporary practice, women were not allowed to see the screen. Green (1994:46) describes these early days of scanning: 'Endless waiting with a full bladder was considered a form of torture that only a true misogynist would have dreamt up for pregnant women. *Everything changed once women were allowed to see the screen*' (my emphasis). The ultrasound scan has now become almost a universal aspect of antenatal care (Clement et al 1998) and is often the high spot of the pregnancy, providing an early meeting between the mother and child (Clement et al 1998). This event is of course now shared with the father and siblings (Statham, Solomon and Green 1998).

Sandelowski (1994b:232) suggests that for men, ultrasound is 'a prosthetic device', giving them entry into a physical dimension of pregnancy. In a study of couples' experiences of ultrasound, Sandelowski (1994c:272) suggests that ultrasound was a mechanism by which men were brought into the pregnancy experience and describes how several women spoke of 'ultrasound scenes in which physicians specifically catered for the expectant father'.

In addition to involving men in the pregnancy and enhancing its reality, there is limited evidence to suggest psychological benefits. For example, in the context of men's experiences of pregnancy loss, Johnson and Puddifoot (1998) argue that men's presence at the ultrasound may enhance the bonding process. Rothman (1994) suggested that seeing the baby on ultrasound helped men to feel closer to the baby and similarly, in a study investigating the psychological impact of diagnostic ultrasound, Cox et al (1987:676) conclude that enhancing the role of the father in pregnancy may 'increase his commitment to, and understanding of, the pregnancy and the woman's needs'.

The first studies of women's experiences of scanning began to appear in the early 1980s and indicated that their initial anxieties about the scan were 'dramatically released by being able to recognise fetal movement or the pulsing of the fetal heart on the real time scan' (Green 1990:20). What women, and latterly their partners, liked about ultrasound was being able to see a moving image and, although designed as a screening and diagnostic technique, Green and Statham (1996) suggest that ultrasound is different to other forms of antenatal screening because of its real-time immediacy.

### **Altered epistemologies**

This previous discussion has illustrated how ultrasound grants access to the interior of the woman's pregnant body in a way that no other commonly used technology can. This process of visualising breaks down previously immutable body boundaries, making visible to the outside world the dark secrets of woman's private space. These disturbed body boundaries disrupt the relationship between 'inside' and 'outside' a woman's body (Harraway in Petchesky 1987, Braidotti 1994). In addition to woman's embodied knowledge, provision of visual antenatal access in the form of the sonogram generates

another way of knowing about that ‘elusive entity developing inside the uterus’ (Sandelowski and Black 1994:604), one which is now open to the father.

In contrast to their partners, whose ‘privileged epistemological standpoint’ (Sandelowski and Black 1994) meant they possessed direct embodied experience of the pregnancy, the men in the study described one which was much more distant. Their contact with the baby during pregnancy and birth was mediated by and through their partner’s body. All the men engaged in examples of this ‘proxy’ embodiment in what I called body-mediated-moments, including for example the pregnancy test, the ultrasound scan, the baby’s movements, eventually culminating in labour and delivery. The most vivid access to the baby was conferred by the ultrasound scan and many men spoke of its impact on their experience of the pregnancy. Seeing the baby on the screen seemed to herald an escalation of their awareness of the baby, reinforcing its reality. Seeing the ‘miniature person’ (Jordan 1990:314) within his partner’s body was a special body-mediated-moment. It represented the first real ‘evidence’, terminology they often used, of the baby, other than the pink line or blue strip of the pregnancy test and like Jordan’s fathers (1990:314) escalated their ‘developing identity as fathers’.

Seeing the scan heightened men’s awareness of the baby and triggered a realisation that deep within their partner’s body, outward signs of which were yet unobserved, was a real baby, a human being, not an abstract concept. So for example, the scan for Steve, a novice father, had great impact and crystallised the reality of the baby:

Afterwards I was sort of a couple days completely dazed because that was the first time that it really crystallised into anything. Up until then it was just a sort of vague blobby thing that was going to happen seven months away. It was going to happen at the end of the summer. And er since then it has felt real, it has felt as though there’s a human being.  
(Steve 1:4)

For other men, like experienced father Bill, seeing the baby during the ultrasound scan provided real evidence of the existence of the baby. Bill had been to the scans of all three of his children and said:

And it's always really quite a good experience to see the baby, 'cos that's your first physical sight other than, you know, a tummy.  
(Bill 1:9)

Dave had also been to previous scans and when I asked him about his strongest memory of the pregnancy so far he said:

Erm, the strongest memory is really going to the first scan. I think, I think, er particularly for the male partner, it's the first time when you actually see anything.  
(Dave 1:8)

These examples of men's accounts of the ultrasound suggest that seeing their baby on the screen was more significant than other outward signs of the baby, such as the pregnancy test, feeling the baby's movements and their partner's growing abdomen. Inherent within these accounts therefore, although not explicitly recognised in these terms by the men themselves, was their privileging of visual as opposed to these other ways of knowing about their baby. Visual knowledge therefore became a primary means of knowing the baby and the scan was the formative way in which this visual knowledge was afforded to men. It became their window or gateway into the interior of the woman's body and *simply* because it was visual appeared to extend the strongest 'evidence' (their terminology) of the baby.

The privileging of this visual knowledge of the baby alters previously 'conventional' ways of knowing about the baby such as the felt, embodied knowledge of the woman. I suggest therefore, that ultrasound introduces a tension between forms of authoritative knowledge (Jordan 1997); the embodied subjective experience of the mother and the

observed objective vision of medicine. Duden's (1993:91) concept of hexis (the 'habitual state in which a person finds herself') provides a further relevant theoretical perspective here. In the present context, hexis can be described as the woman's experience of pregnancy. Prior to the rise of medical technology woman's pregnancy hexis was characterised by hapsis, that is knowledge accumulated about the world and her experience through perception and touch. A haptic hexis therefore was woman's embodied experience of her pregnancy gained through touch, feeling and being and was available only to her.

The rise of visual technologies in the twentieth and twenty first centuries has resulted in a shift from a haptic to an optical hexis, one derived and sustained primarily through vision. This optical hexis displaces the woman's felt experience (Franklin 1991) and the traditional markers of pregnancy, so that now, rather than relying on the woman's felt experience of the pregnancy such as the baby's first movements, technological experience has displaced embodied experience. Embodied quickening has been eliminated (Duden 1993) and replaced, through the union of woman and machine (Mitchell and Georges 1997), by a kind of 'technological quickening' (Mitchell and Georges 1997:373). In this way, scientific-medical-biological knowledge gains ascendancy over woman's felt experience and becomes *the* authoritative knowledge. Consequently the woman's authority and claim to her embodied knowledge is arrogated by the more objective medical technologies (Boulter 1999).

Paradoxically however, in its capacity as a technology of vision, ultrasound is itself invisible and in its eagerness to see the body interior it leaves no trace of its own existence. The images it creates bear no evidence of the technological machine itself or of the woman's body. Her body is made invisible, erased from view (Casper 1998) and

she becomes a 'cut away display of the fetus' (Sandelowski 1998:6), a process Duden (1993:7) calls 'the skinning of woman'. In this separation, a kind of antenatal birth, body boundaries are redrawn as the disembodied fetus displaces the spatial boundaries between inside and outside the mother's body (Braidotti 1994). The fetus becomes a product of the pregnancy and the mother a container (Kitzinger 1998) and 'passive host' (Casper 1998:27). Her body is peripheral (Petchesky 1987), existing predominantly as a vehicle to transmit scientific information about the baby (Kember 1995) and in this process she is turned inside out in order to view the fetus (Franklin 1991, Sandelowski 1994c). Mitchell and Georges (1997:378) argue that 'the cyborg fetus mesmerizes the viewer into forgetting that the embodied, conscious, perceptive actor of ultrasound is the woman'.

This reliance on the optic hexis of ultrasound displaces woman's haptic hexis making her 'tactile and kinaesthetic knowing of the fetus less exclusive and privileged' (Sandelowski and Black 1994:607), thereby removing her monopoly of knowledge about the baby. Displaying the baby on the screen, rendering private spaces to public viewing, therefore opens up knowledge about the baby to a range of spectators. These spectators include not only the medical profession (thereby creating the potential for medical control) but also the woman herself, the father and increasingly siblings and the wider family. For the father, emphasis on the optic hexis creates the potential for him to have the same visual access to the baby as his partner, thereby equalising their respective positions as knowers of the baby. It was this desire to have visual knowledge of the baby of which the men in my study spoke.

The consequence of the shift from a haptic to an optic hexis is illustrated by Gary, who contrasted his partner's haptic hexis with his own experience of the baby. His limited

awareness of the presence of his baby meant that unlike his partner, he did not have 'twenty-four-hour' awareness of the baby:

I guess you know the mother's physically aware twenty four hours a day that the tummy's growing and the father hasn't got that. You know, your mind can flick off very easily and you know you haven't got that constant reminder.  
(Gary 1:7)

Robin, an experienced father in the first focus group, illustrates how seeing the image of the baby on the scan helped him to move away from regarding the baby as an abstract concept, a 'blue line on a test', and cemented the reality of the pregnancy. He vividly describes how, through the processes of her embodied experience, his partner 'knew very well she was pregnant' (her haptic hexis), and implicitly contrasts this with his lack of such knowledge:

I think she had already been to the doctors and heard its heart beat probably before I had erm, and was feeling sick and other things. She knew very well she was pregnant. But for me...I think the scan was the point at which erm I really felt its my child in there, sort of thing, and there it is.  
(Robin FG1:11)

Gary likened seeing the baby to a performance, a 'real good show'. His use of the word 'show' is in sharp contrast to its association with vaginal mucous and bleeding which marks the onset of labour. In the latter context 'a show' indicates a woman's private and haptic knowledge of the inner workings of her body. For Gary, the show was more like a performance, a public exhibition of the baby, almost as if the baby were there to entertain him. Others also talk of this 'ultrasound as entertainment' (Furness 1990) through which pregnancy is transformed into a 'kind of spectator sport of wall-to-wall eyeballs' (Sandelowski and Black 1994:608):

I have been to 2 and erm, yeh, seeing the little legs waving about and it was real close, real good show. So yeh, and I think that did erm...sort of make the reality of it so much more obvious.  
(Gary 1:7)

Gary's description of the ultrasound as a 'real good show' illustrates the extent to which ultrasound has come to be regarded in contemporary Western culture. As a normally routine feature of Western obstetrics and its consequent integration into popular culture, it is now firmly embedded as a key milestone in the parental pregnancy experience. Opening up the woman's body for public viewing in this way has provided the potential for *both* medical control and parental participation. Ultrasound therefore can be simultaneously constructed as a medical and social event. In the final section of the paper, I draw upon further data from the interviews to discuss these two different ways of knowing about the baby and examine the potential epistemological conflict.

### **Ultrasound – the medical image**

The ultrasound scan provides an opportunity, relatively cheaply and with few recognised side-effects, of 'mapping the fetus' (Casper 1998:89) and bringing medical knowledge of the baby into the light. This knowledge includes: the detection of fetal abnormality, sex determination, confirmation of fetal 'viability', fetal growth rates, and determining the 'quality' of the surrounding uterine environment including for example placental sufficiency. The ultrasound scan is medically regarded therefore as both a screening and diagnostic event.

Through this visualisation the baby is removed from the mother's uterus, placed 'on film for critical inspection' (Kitzinger 1998:315) and treated like an already born baby (Sandelowski 1994c), the fetal patient. Alongside the development of the speciality of fetal surgery, ultrasound has been instrumental in the mapping of the unborn patient (Casper 1998). The (re)production of the unborn patient through the technology of vision creates the potential for the extension of medicine's control beyond the

conventional body boundaries of one person and another and has resulted in the development of a whole new area of medicine concerned with the detection and treatment of 'abnormal' fetal development. This control and treatment of the fetal patient perpetuates medicine's wider control throughout society.

These concepts of regulation and control are central to theoretical discussions of the body. Medicalisation and the reconstruction of certain *social* problems as medical are examples of such regulation and control, what Foucault (1975) called medicine's surveillance of the body. This surveillance is accomplished via the panoptic gaze, characterised by an asymmetry of power between surveyed and surveyor, or patient and doctor. In the context of a discussion on Controlled Circuit Television (CCTV) by Norris and Armstrong (1998), parallels with ultrasound are evident. The watcher is able to see the watched, but the watched are unable to see the watcher and so 'the veil of the camera denies the possibility of the reciprocal exchange of data' (Norris and Armstrong 1998:5). Armstrong (1987:70) provides a graphic example of the potency of the medical gaze in the example of the stethoscope:

Look at the lines of medical surveillance: 'What is your complaint?' 'How do you feel?' 'Please tell me your troubles.' See the routine clinical techniques: the rash displayed, the hand applied to the abdomen, the stethoscope placed gently on the chest. This is the stuff of power. Trivial perhaps but repetitive, strategies to which the whole population at times must yield [ ] the stethoscope is an important instrument of power. Yet who can object to its technical necessity? Who can challenge the 'value-free' nature of the whispering breath sounds it reports? Yet at each and every application it establishes, confirms, and reproduces the passivity, solidity and individuality of the silent body it surveys. Why else would the stethoscope have become such a potent symbol of modern medicine, a self-conscious emblem to mark out the figure of the doctor.

One can see the parallels with ultrasound. On every application the reality of the baby, presented in the form of the sonogram, is established and confirmed. On every application the invisible dimensions of the woman's body are established and

confirmed. On every application the primacy of the fetus is established and confirmed. And on every application the authority of the expert and the passivity of the woman (and the man) are established and confirmed. And because the knowledge generated by the ultrasound machine (or stethoscope) requires 'expert' interpretation the parents (or patient) 'remain unaware of what has been seen or what has been heard' (Armstrong 1987:70).

### **Ultrasound - the parents' image**

In the case of the ultrasound, the woman and her partner may be able *literally* to see the ultrasonographer and more poignantly the monitor or screen, but they are not able to 'see' on that screen that which the ultrasonographer can see. Although the sound yields a visual image, perhaps immediately recognisable by the parents as a fetus, due in large part to the incorporation of the image into popular culture, this 'garbled looking image' (Sandelowski and Black 1994:608) needs to be interpreted and translated to them. To a great extent then, what is seen on the ultrasound screen rather than being immediately recognisable, as ordinary photographs, has become alien, recognisable as *a fetus* but not *our baby*. Parents therefore 'see in fetal images what they are told they ought to see' (Petchesky 1987:73). Ultrasound simultaneously obscures and reveals and therefore constitutes a veiled image. The 'real' image is hidden from view because it requires 'expert' interpretation and then translation, what Duden (1993) calls the distinction between the 'seen' and the 'shown'.

As a result of the sonogram's integration into popular culture, it has become a common way of seeing the fetus and has led to the 'acceptance of the image itself as an accurate representation of a real fetus' (Petchesky 1987:61), a kind of technological embodiment.

In pointing out features of the baby to the watching parents, the ultrasonographer therefore highlights features not of a *fetus* but their *baby*. This (re)presentation mingles with the imagination of the parents (Black 1992) creating a conversion from *a fetus* to *our baby* (Weir 1998).

The ultrasonographer therefore interprets the image of the baby on the screen and relays this to the watching parents. Being shown the features of the baby on the scan image, by ‘the nurse’, was a high spot for Dave. The ultrasound scan helped him in his project of ‘involvement’. His reliance on this visual representation of his baby was underscored by his limited ability to experience the baby in other ways and emphasises the tension between the optic and haptic hexis:

But, going to the scan means you can actually sit there and, and you know the nurse sort of points out to you what, what it is. And it’s definitely there and I think that is, that is very helpful for a man, from a man’s point of view.

(Dave 1:8)

Although the image of his baby was ‘bizarre’ and ‘black and white’, very different to expectations of an ordinary photograph, Bill nevertheless, recognised this as his baby, and suggested that seeing the baby was the point at which bonding began:

and it’s always really quite a good experience to see the baby, ‘cos that’s your first physical sight other than, you know, a tummy, er so that’s quite cool and, er and although it’s a bizarre er picture, erm, cos it’s really only black and white, and it’s curled up and it looks rather strange, compared to what you expect a baby to look. It’s as the, erm, person or one of the people responsible for it I guess you, you feel that first bond at that stage, and erm, yeh, its generally a good thing erm.

(Bill 1:9)

For many of the men the ultrasound scans were highly significant moments in the pregnancy and many of them regarded the scans as the strongest memory of the pregnancy. For example, Steve described how the scan was a key which accelerated the

development from ‘amorphous blob’ to my baby. In response to being asked what was the strongest memory of the pregnancy so far he responded emphatically:

The scan. It stands out a mile. I suppose in a few minutes it went from an amorphous blob to a thing with bones and eyes and mouth and moving. And I hadn’t expected the scan to be clear to me....I mean my TV perception of scans is sort of only an expert could interpret it. But sitting next to the monitor you could see everything, you know. So, yeh, without a doubt, a defining moment so far....  
(Steve 1:16)

In addition to being present at the ultrasound scan, observing the ‘live anatomisation’ (Kember 1995), many of the men were given, or even bought, still photographs of the live ultrasound, which often became the first in the new family album. This particular photograph, the emblem (Duden 1993) of the hidden baby, occupies a different position, unrivalled by others in the family album, as it represents the public manifestation of a unique private experience. The sonogram is a strange and perhaps troubling hybrid of private and public experience, ‘technologically generated but naturally gestated’ (Boulter 1999:16). Literal possession of this concrete image, in the form of the photograph, I suggest, enabled a rather more conceptual possession or construction of their baby. The photograph not only marked the status passage of the baby from a liminal being (*a fetus*) to a post liminal baby (*our baby*) but also was a symbol marking the changing status of the father. I suggest access to a visual image of the unborn child therefore marks a changing social status for both the unborn baby (from fetus to social child) and the father. For Rick, this possession of his baby was shared with other members of the family as copies of the photograph were sent to prospective grandparents:

And as soon as it (*the scan*) was over and done with, that was it. I suppose it reinforces it a bit that yes, there is something in there that’s going to come out and we’re going to have to cope with it but not....Interesting and reassuring to know that it’s all in the right place and pictures to sent to prospective grand parents.  
(Rick 1:7)

One couple not only had a still photograph of the image of the baby on the scan, but also were involved in the creation of a 'movie of the baby' (Sandelowski 1998:7). Gary was proud that the ultrasonographer had asked whether she could video the scan of their baby to use as a teaching example:

She was all very complimentary and she videoed it and she was saying how she'd got the sort of perfect baby and perfect mother and could she video it for a class, as a teaching example. So we felt very proud! (*laughter*).  
(Gary 1:8)

Petchesky (1987) argues it is understandable that women respond to ultrasound pictures of their unborn babies, because traditionally they have occupied an important function in the production of family photographs and have a strong relationship to photographs, particularly photographs of their children and close family members. In a discussion of the use of photographic images at the opposite end of the life course, following death, Hallam, Hockey and Howarth (1999) argue that public display of photographs of the deceased is part of a 'cultural apparatus which recovers the disappearing body' (23) to 'ensure that the dead remain socially active' (36). In contrast to a 'visible rendering of the body in decline' (Hallam et al 1999: 2), the photograph of an ultrasound is a cultural apparatus which proclaims the body to be, precipitating it into social activity. It is charged with potential and expectancy rather than absence and decline.

The optical hexis made available through this photograph of the ultrasound scan now provides access, previously denied, to the father. The combination of the compelling nature of the body interior and the availability of technology for interior vision, I suggest, has confirmed the routine use of ultrasound. And just as 'post-mortem portraiture' (Hallam et al 1999:35) facilitates death ritual, antenatal portraiture has become part of the new pregnancy and birth ritual.

## **The conflict between ultrasound as a medical or social event**

In the preceding discussion I have examined the construction of the different images of the scan, the medical image of *the fetus* and the parents' image of *our baby*. The betwixt and between liminal status of the image, its simultaneous position as sacred and profane, brings into sharp focus the different meanings the respective spectators attach to the ultrasound scan.

When couples attend for ultrasound, different paradigms or world views are at work. The professional or expert paradigm regards the ultrasound as a screening and sometimes diagnostic event, an opportunity to collect data about the baby's growth and viability. This paradigm creates a new patient, a 'detachable organ' (Braidotti 1994:69) having an identity separate from the mother and for whom the medical and allied professions take prime responsibility. In this respect the sonogram is a public (medical) photograph with a fetal (patient) subject. Couples, however, regard the scan as a social event, a first opportunity to literally see (a representation of) the baby. Seeing the baby is therefore inextricably imbued with meaning, the meaning of attachment perhaps or anticipation of becoming a family. In this respect the scan is a private (parental) photograph with a baby (person) subject.

The social meaning parents attach to the scan combined with the partial sight of the professionals provides a potential for a clashing of world views. Bill illustrated the tension between these two poles, when he described how it was only when he was actually in the scan that he realised its purpose was to check the baby's health. It was only at this point that he realised the potential of what could happen:

And it was only while I was there that I realised that it was to check the well being of the baby. Has it got all it's limbs and is it the right shape and eyes

and everything else. So it suddenly became a bit scary. Erm, because you start thinking 'Shit you know, this could be a problem'. It's at this stage that we might find out that there's something wrong. And until that point I guess I'd been quite unperturbed by er, it's just a routine procedure. I know it is a routine procedure but the implications of it could obviously be quite key.

(Bill 1:8)

And herein lies the potential for conflict – fathers rarely consider that scans may provide bad news. Rather the scan is seen as a 'routine' (Bill above) or benign procedure (Statham et al 1998) allowing them to see their baby and so cementing their transition to fatherhood. Few of the men in the study regarded the ultrasound as a screening and diagnostic event and as Bill described above, only a small minority recognised that abnormality could be detected during the scan. For these men, in addition to its social nature, the scan was an opportunity to be reassured about the health of the baby (Green 1994, Green and Statham 1996). So for Rick, being able to recognise the baby's body parts in the later scan was very reassuring:

Well, one (*scan*) was a blob (*laughter*) and you know, right it's there erm and everything's in the right place. That's always a relief. I suppose that's probably the biggest anxiety is that there's something, something wrong and how do you cope and what sort of decisions do you make. Erm, but that's always been a sort of, it's fine. And the second one, but this time it was, you know, ribs and arms and face, gosh.

(Rick 1:7)

He alludes to the anxiety caused by the fear of finding fetal abnormality and the decisions that may be required as a consequence. This was also a theme inherent in Tim's account. His type of work with children with physical and learning disabilities, led to his caution about taking the health of the baby for granted:

I've been to all the scans. Erm...Again, different. With the first pregnancy, I did, very much so, I was quite soft and got the photos. The others I just think 'Yeh, it's a scan'. I mean I'm always scary. A lot of what I have when Jean's pregnant, with each child, I worry tremendously about whether the baby's OK. And in a way, it's a bit like moving house, erm. Until you've exchanged contracts I wouldn't believe that we're going to do it.

Even with a baby, until it's actually born and it's OK in a way I kind of distance myself very slightly because I, I do worry tremendously. I mean, I worry if it's handicapped. And I worry until it's actually born. I think it's partly because of the fact that I've worked with mentally handicapped kids for a number of years and, erm almost every child that I knew was mentally handicapped. So it's partly because of that I think. It's basically, not counting my chickens before they are hatched, really.  
(Tim 1:6)

So for Tim the ultrasound scan was a significant source of anxiety because he recognised its potential to reveal that all might not be well with his baby. In the course of the interviews some of the men spoke of their experiences of other forms of antenatal screening and diagnosis including serum screening and amniocentesis. These forms of diagnosis and screening were definitely regarded by the men as medical techniques, designed to detect (or not) fetal abnormalities. Whilst they spoke vividly about the anxiety caused by these tests, only a small minority (like Rick and Tim above) associated ultrasound with such anxiety. I suggest this is because ultrasound as a *social event* has become so deeply embedded in the normal pregnancy package (Petchesky 1987) of contemporary Western obstetrics.

These medical and social constructions of ultrasound to a large extent exist in tandem: the 'skilled cultural practice' (Jenks 1995:10) of medicine producing one image and the 'skilled cultural practice' of the parents producing another image. This potential for 'co-existence' is however undermined when, expecting to engage in a 'social' interaction with their unborn baby, parents inadvertently enter into a medical trajectory the outcome of which may be very uncertain. This unwelcome meeting of the two paradigms results in the baby pivoting between medical and social poles. The baby is liminal in the sense that it occupies an ambiguous not-yet-born status but also liminal in the sense that it pivots between a medical (patient) and social (baby) identity. This liminal experience is also shared by the parents who on the one hand want to welcome

the baby into their new family and yet on the other attempt to maintain a distance, as a protective measure in case ‘there’s something wrong’ (Rick above).

## CONCLUSION

In contrast to her male partner, the expectant woman has a range of knowledge about her baby upon which to draw. She has the direct embodied experience of being ‘with child’ – the complex experience of a pregnant embodiment – a strange mixture of simultaneous singularity and multiplicity and ‘the blurring between the “inside” and “outside” the self’ (Lupton and Barclay 1997:31). This embodied knowledge, her haptic hexis, throws her into a very different relationship with her unborn child to that of her husband or partner. He does not have the direct embodied experience of pregnancy and has to be content with the ‘second hand’ explanations of this haptic hexis through the accounts of his partner. These accounts are frequently *mediated* by the woman’s pregnant body, for example through urinalysis in the pregnancy test, through her abdominal wall when feeling the baby’s movements or hearing the baby’s heart beat and through the literal opening up of the woman’s body during labour and delivery. In all these examples, the woman’s body is central not only to her own experience but also that of her partner. Man’s experience therefore is characterised by a very different type of knowledge, one mediated predominantly through vision, rather than touch or feeling.

In the context of little literature on men’s experiences of pregnancy in general and of ultrasound in particular, this paper has contributed to this body of knowledge and presented ‘real life’ insider accounts of men’s experiences of ultrasound. In analysing these accounts, the paper has sought to understand the power of this visual access to the baby and why this visual knowledge appeared to have primacy over other forms of

knowledge. Drawing on a historical discussion of the development of dissection and ultrasound imaging, I have described how a reliance on visual knowledge in the West has propagated the development of technologies for interior viewing and in turn led to an authoritative knowledge generated not out of direct embodied experience, a haptic hexis, but one born out of vision, an optic hexis. This ‘allure of visual images’ (Casper 1998:88) and the consequent reliance on an optic hexis within obstetrics, has led to the increasing prominence of fetal imagery (Layne 2000) manifest most obviously in the sonogram.

As a result of the routine use of ultrasound in pregnancy and the incorporation into popular culture of the sonographic fetal image, ultrasound is now deeply embedded into the normal pregnancy package. This technological dissection makes available to others evidence that previously was owned only by the woman. Woman’s haptic hexis, her experience of the pregnancy through feelings and touch, has now been reconstructed visually via ultrasound and made available to others. The emphasis on seeing as the ‘principle mode of fetal inquiry’ (Sandelowski 1994b:234) has shifted the perspective away from a reliance on woman’s embodied knowledge, her haptic hexis, to one oriented through technology and vision, an optic hexis.

Consequently not only is the woman provided with an additional layer of knowledge about her baby, but the male partner is brought right into the centre of the action. This visual knowledge of his baby, the ability to literally ‘see’ a head, hands, feet, sexual organs, gives him access to information about the baby that otherwise would remain hidden until the act of birth itself. As a kind of antenatal birth, ultrasound imaging for the male partner is therefore a significant affair, helping him to not only visualise what his baby might be like but also reinforcing the reality of the start of his transition to

fatherhood. I suggest therefore that ultrasound is an example of a range of contemporary rituals helping men make and mark their transition to Western fatherhood.

In this way then, ultrasound can be regarded as a cultural apparatus or material artefact (Layne 2000) to help men (and women) construct not only their baby's but also their own changing personhood (Layne 2000). In making images of the unborn baby available for public viewing, ultrasound proclaims the body to be and endows the baby with a social identity. This process confuses temporal and corporeal boundaries, as the future is brought into the present and the social precedes the biological birth. Like his attendance at the birth, a process which also blurs body boundaries, his presence during the social event of ultrasound precipitates his transition to fatherhood.

I have argued however, that ultrasound is simultaneously a social and medical event, so not only is ultrasound a cultural apparatus for the parents (and in particular for the man) but it is also a cultural apparatus for medicine where it can serve screening and sometimes diagnostic purposes. In this sense therefore ultrasound holds a dual meaning, as the skilled cultural practice (Jenks 1995) of medicine generates one image and the skilled cultural practice (Jenks 1995) of the parents produces another. The simultaneous construction of 'the patient' and 'our baby' means that potentially ultrasound can be a highly charged affair. This has implications for health care professionals involved in supporting and caring for couples during their transition to parenthood. Ultrasonographers, midwives and doctors who are frequently directly involved in the scanning process should be made aware of the potential conflict between the social and medical constructions of ultrasound, through pre-registration and continuing professional education. Antenatal educators, both midwives and lay

childbirth educators, also need to be aware of these different paradigms and introduce their discussion in antenatal education classes. There is also a need to ensure that following confirmation of pregnancy, expectant parents receive appropriate information about ultrasound so that they engage with it not only as a social event but also recognise its potential as a screening and diagnostic medical procedure.

In addition to its relevance to healthcare practice, this analysis of the significance of ultrasound imagery within contemporary transitions to parenthood may contribute to other areas of current sociological work, for example embodied geographies (Teather 1999), body boundaries, pregnant embodiment (Longhurst 1999, 2000, 2001) and the visualising of body spaces (Howson 2001). These current theoretical and empirical sociological contributions, like the example of the role of ultrasound in shaping men's transition to fatherhood presented in this paper, highlight the complexities of the body *mediating* and yet simultaneously *being* our experience in the world.

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## REFERENCES

- Areias, M. E. G. Kumar, R. Barros, H. Figueiredo, E. (1996) Correlates of Postnatal Depression in Mothers and Fathers *British Journal of Psychiatry* 169 36-41
- Armstrong, D. (1987) Bodies of knowledge: Foucault and the problem of human anatomy in Scambler, G. (ed) *Sociological Theory and Medical Sociology* London Tavistock Publications
- Ballard, C. G. Davis, R. Cullen, P. C. Mohan, R. N. Dean, C. (1994) Prevalence of Postnatal Psychiatric Morbidity in Mothers and Fathers *British Journal of Psychiatry* 164 782-788
- Ballard, C. Davies, R. (1996) Postnatal depression in fathers *International Review of Psychiatry* 8 65-71
- Benvenuti, P. Marchetti, G. Tozzi, G. Pazzagli, A. (1989) Psychological and psychopathological problems of fatherhood *Journal of Psychosomatic Obstetrics and Gynaecology* 10 35-41
- Black, R. B. (1992) Seeing the baby: the impact of ultrasound technology *Journal of Genetic Counselling* 1 (1) 45-54
- Braidotti, R. (1994) *Nomadic Subjects Embodiment and Sexual Difference in Contemporary Feminist Theory* New York Columbia University Press
- Boulter, A. (1999) *Opening Pandora's Box. The Foetal Image as Cultural Commodity* Unpublished paper Winchester King Alfred's College
- Casper, M. J. (1998) *The Making of the Unborn Patient A Social Anatomy of Fetal Surgery* New Brunswick Rutgers University Press
- Clement, S. Wilson, J. Sikorski, J. (1998) Women's experience of antenatal ultrasound scans in Clement, S. (ed) *Psychological Perspectives on Pregnancy and Childbirth* Edinburgh Churchill Livingstone
- Clinton, J. F. (1987) Physical and emotional responses of expectant fathers throughout pregnancy and the early postpartum period *International Journal of Nursing Studies* 24 (1) 59-68
- Cox, D. N. Wittman, B. K. Hess, M. Ross, A. G. Lind, J. Lindahl, S. (1987) The Psychological Impact of Diagnostic Ultrasound *Obstetrics and Gynecology* 70 (5) 673-676
- Department of Health (1993) *Changing Childbirth: report of the Expert Maternity Group* London HMSO
- Duden, B. (1993) *Disembodying Women Perspectives on Pregnancy and the Unborn* Cambridge Massachusetts Harvard University Press

- Ettorre, E. (1998) Review article: RE-shaping the space between bodies and culture: embodying the biomedicalised body *Sociology of Health and Illness* 20 (4) 548-555
- Foucault, M. (1975) *The Birth of the Clinic: an Archeology of Medical Perception* New York Vintage Books
- Fox Keller, E. Grontowski, C. R. (1983) The Mind's Eye in Harding, S. Hintikka, M. (eds) *Discovering Reality: Feminist Perspectives on Epistemology, Metaphysics, Methodology and Philosophy of Science* Dordrecht D. Riedel Publishing Company
- Franklin, S. (1991) Fetal fascinations: new dimensions to the medical-scientific construction of fetal personhood in Franklin, S. Lury, C. Stacey, J. (eds) *Off Centre feminism and cultural studies* London Harper Collins Academic
- Furness, M. E. (1990) Fetal ultrasound for entertainment? *The Medical Journal of Australia* 153 p371
- Geertz, C. (1973) *The Interpretation of Cultures* New York Basic Books Inc
- Green, J. (1994) Women's experiences of prenatal screening and diagnosis in Abramsky, L. Chapple, J. (eds) *Prenatal diagnosis: The human side* London Chapman and Hall
- Green, J. M. (1990) *Calming or Harming? A critical review of psychological effects of fetal diagnosis on pregnant women* Galton Institute Occasional Paper second series No. 2
- Green, J. Statham, H. (1996) Psychological aspects of prenatal screening and diagnosis in Marteau, T. Richards, M. (eds) *The Troubled Helix Social and Psychological Implications of the New Human Genetics* Cambridge, Cambridge University Press
- Guba, E. G. Lincoln, Y (1989) *Fourth Generation Evaluation* Newbury Park California Sage
- Hall, J. M. Stevens, P. E. (1991) Rigor in feminist research *Advances in Nursing Science* 13 (3) 16-29
- Hallam, E. Hockey, J. Howarth, G. (1999) *Beyond the Body Death and Social Identity* London Routledge
- Hammersley, M. Atkinson, P. (1995) (2<sup>nd</sup> ed) *Ethnographic Principles and Practice* London Routledge
- Henderson, A. Brouse, J. (1991) The experiences of new father during the first 3 weeks of life *Journal of Advanced Nursing* 16 293-298
- Hockey J. (1999) *Interviews as ethnography?* Voices and Visions Conference Department of Anthropology, University of Manchester October
- Howson, A. (2001) 'Watching you- watching me': visualising techniques and the cervix *Women's Studies International Forum* 24 (1) 97-110

- Hunt, S. Symonds, A. (1995) *The Social Meaning of Midwifery* Houndmills Macmillan Press Ltd
- Hyssala, L. Rautara, P. Sillanpaa, M. Tuominen, J. (1992) Changes in the smoking and drinking habits of future fathers from the onset of their wives' pregnancies *Journal of Advanced Nursing* 17 849-854
- Jackson, A. (1987) (ed) *Anthropology at Home* London Tavistock Publications
- Jenks, C. (1995) The centrality of the eye in Western culture: an introduction in Jenks, C (ed) *Visual Culture* London Routledge
- Johnson, M. Puddifoot, J. E. (1998) Miscarriage: Is vividness of visual imagery a factor in the grief reaction of the partner? *British Journal of Health Psychology* 3 137-146
- Jordan, B. (1997) Authoritative Knowledge and Its Construction in Davis-Floyd, R. E. Sargent, C. F. (eds) *Childbirth and Authoritative Knowledge Cross Cultural Perspectives* Berkeley University of California Press 55-79
- Jordan, P. L. (1990) First-time Expectant Fatherhood: Nursing Care Considerations *Clinical Issues Perinatal Women's Health Nursing* 1 (3) 311-316
- Jordanova, L. (1989) *Sexual Visions: Images of Gender in Science and Medicine between the Eighteenth and Twentieth Centuries* Wisconsin The University of Wisconsin Press
- Kaila-Behm, A. Vehvilainen-Julkunen, K. (2000) Ways of being a father: how first-time fathers and public health nurses perceive men as fathers *International Journal of Nursing Studies* 37 199-205
- Kember, S. (1995) Medicine's new vision? in Lister, M. (ed) *The Photographic Image in Digital Culture* London Routledge
- Kitzinger, J. (1994) The methodology of Focus Groups: the importance of interaction between research participants *Sociology of Health and Illness* 16 (1) 103- 121
- Kitzinger, S. (1998) Baby is it really you? *MIDIRS Midwifery Digest* 8 (3) 315
- Klein, H. (1991) Couvade syndrome: male counterpart to pregnancy *International Journal of Psychiatry in Medicine* 21 (1) 57-69
- Layne, L. L. (2000) 'He was a real baby with baby things' A Material Culture Analysis of Personhood, Parenthood and Pregnancy Loss *Journal of Material Culture* 5 (3) 321-345
- Leathers, S. J. Kelley, M. A. Richman, J. A. (1997) Postpartum Depressive Symptomatology in New Mothers and Fathers: Parenting, Work and Support *The Journal of Nervous and Mental Disease* 185 (3) 129-139
- Lemmer, C. (1987) Becoming a Father: a Review of Nursing Research on Expectant Fatherhood *Maternal Child Nursing Journal* 16 (3) 261-275

- Longhurst, R. (1999) Pregnant bodies, public scrutiny: 'giving' advice to pregnant women in E. K. Teather (Editor) *Embodied Geographies. Spaces, Bodies and Rites of Passage* London Routledge
- Longhurst, R. (2000) 'Corporeographies' of pregnancy: 'bikini babes' *Environment and Planning D: Society and Space* 18 453-472
- Longhurst, R. (2001) *Bodies. Exploring Fluid Boundaries* London Routledge
- Lupton, D. (1994) *Medicine as Culture: Illness, Disease and the Body in Western Societies* London Sage Publications
- Lupton, D. Barclay, L. (1997) *Constructing fatherhood: discourses and experiences* London Sage Publications Ltd
- McKee, L. O'Brien, M. (1983) Interviewing Men: 'Taking Gender Seriously' in Gamarnikov, E. Morgan, D. Purvis, J. Taylorson, D. (eds) *The Public and the Private* London Heinemann
- Machin, D. Scamell, M. (1997) The experience of labour: using ethnography to explore the irresistible nature of the bio-medical metaphor during labour *Midwifery* 13 78-84
- Mason, C. Elwood, R. (1995) Is there a physiological basis for the couvade and onset of paternal care? *International Journal of Nursing Studies* 32 (2) 137-148
- Mercer, R. T. Ferketich, S. L. DeJoseph, J. F. (1993) Predictors of Partner Relationships During Pregnancy and Infancy *Research in Nursing and Health* 16 45-56
- Mitchell, L. M. Georges, E. (1997) Cross-cultural Cyborgs: Greek and Canadian Women's Discourses on Fetal Ultrasound *Feminist Studies* 23 (2) 373-401
- Morgan, D. L. (1988) *Focus Groups as Qualitative Research* Qualitative Research Methods Series 16 London Sage Publications
- Morse, J. M. Field, P. A. (1996) *Nursing Research The application of qualitative approaches* (2<sup>nd</sup> ed) London Chapman Hall
- Nolan, M. (1994) Caring for fathers in antenatal classes *Modern Midwife* 4 (2) 25-28
- Nolan, M. L. (1997) Antenatal education – where next? *Journal of Advanced Nursing* 25 (6) 1198-1204
- Norris, C. Armstrong, G. (1998) Introduction: power and vision in Norris, C. Moran, J. Armstrong, G. (eds) *Surveillance, closed circuit television and social control* Gateshead Athenaeum Press Ltd
- O'Neill, J. (1995) Foucault's optics The (in)vision of mortality and modernity in Jenks, C. (ed) *Visual Culture* London Routledge

- Petchesky, R. P. (1987) Foetal Images: the Power of Visual Culture in the Politics of Reproduction in Stanworth, M. (ed) *Reproductive Technologies Gender, Motherhood and Medicine* Minneapolis University of Minnesota Press
- Rapport, N. (2000) 'Best of British': The New Anthropology of Britain *Anthropology Today* 16 (2) 20-22
- Rothman, B. K. (1994) *The Tentative Pregnancy Amniocentesis and the Sexual Politics of Motherhood* London Pandora
- Weir, L. (1998) Pregnancy Ultrasound in Maternal Discourse in Shildrick, M. Price, J. (eds) *Vital Signs Feminist Reconfigurations of the Bio/ological Body* Edinburgh Edinburgh University Press
- Sandelowski, M. (1994a) The Use of Quotes in Qualitative Research *Research in Nursing and Health* 17 479-482
- Sandelowski, M. (1994b) Separate, but Less Unequal: Fetal Ultrasonography and the Transformation of Expectant Mother/Fatherhood *Gender and Society* 8 (2) 230-245
- Sandelowski, M. (1994c) Channel of Desire: Fetal Ultrasonography in Two Use Contexts *Qualitative Health Research* 4 (3) 262-280
- Sandelowski, M. (1998) Looking to Care or Caring to Look? Technology and the Rise of Spectacular Nursing *Holistic Nursing Practice* 12 (4) 1-11
- Sandelowski, M. Black, P. B. (1994) The Epistemology of Expectant Parenthood *Western Journal of Nursing Research* 16 (6) 601-622
- Savage J. (2000) Ethnography and health care *British Medical Journal* 321 1400-1402
- Sawday, J. (1995) *The Body Emblazoned. Dissection and the human body in Renaissance culture* London Routledge
- Seidler, V. J. (1994) *Unreasonable Men Masculinity and Social Theory* London Routledge
- Statham, H. Solomon, W. Green, J. (1998) *Detection of fetal abnormality at different gestations: impact on parents and service implications* Poster presentation at annual conference of the Society for Infant and Reproductive Psychology Edinburgh
- Taylor, J. S. (1993) The public foetus and the family car *Science as Culture* 3 (17) 601-618
- Teather, E. K. (Ed) (1999) *Embodied Geographies. Spaces, Bodies and Rites of Passage* London Routledge
- Weir, L. (1998) Pregnancy Ultrasound in Maternal Discourse in Shildrick, M. Price, J. (eds) *Vital Signs Feminist Reconfigurations of the Bio/ological Body* Edinburgh Edinburgh University Press

- White, N. R. (1994) About Fathers: Masculinity and the Social Construction of Fatherhood *The Australian and New Zealand Journal of Sociology* 30 (2) 119-131
- Yoxen, E. (1987) Seeing with sound: A study of the development of medical images in Bijker, W. E. Hughes, T. P. Pinch, T. J. (eds) *The Social Construction of Technological Systems New Direction in the Sociology and History of Technology* Cambridge Massachusetts Massachusetts Institute of Technology