

# Fetal culture

## Ultrasound imaging and the formation of the human

**Mahmut Mutman and Ersan Ocak**

If the medicalization of pregnancy is a defining aspect of modernity, it has reached a new stage with the invention of ultrasound imaging of the human fetus in the womb. The use of ultrasound imaging has become a routine aspect of the experience of pregnancy in modern urban settings.<sup>1</sup> Viewing the image of the fetus and of its organs, its postures and movements has now become a family rite governed by the medical apparatus and its responsible agent, the doctor or other medical practitioner. Alongside the rapid development of this technological and institutional practice in the hospital cubicle, there is a proliferation of fetal images in the public sphere. As Barbara Duden puts it, 'we are overwhelmed with fetuses.'<sup>2</sup> The abundance of fetal images and their photographic renderings in advertising, health campaign literature and so on, in all media forms, can blind us to the fact that the ultrasound fetal image is a very specific form of image produced under particular institutional circumstances by highly sophisticated technology. In what, then, does the specificity of this image consist, and what are the specific technological and institutional processes through which it is produced? What are its political and ethical implications? In this article, our perspective on the ethics and politics of ultrasound imaging is inspired by two major theoretical sources. Employing Michel Foucault's concept of the medical gaze, we approach obstetrics as a biopolitical regime or discipline of the visible and the articulable, which depends on certain institutional and technological processes and which produces and distributes individual and social bodies. A speculative reconstruction of an alternative obstetrical regime is informed by Luce Irigaray's understanding of sexual difference.

### The medical gaze

The ultrasound is a relatively recent innovation in the medical field structured by what Foucault called the 'medical gaze'.<sup>3</sup> This is not a merely neutral and

scientific gaze, but a complex perceptual–linguistic formation that makes the invisible pathological body visible and readable through the employment of a plurality of senses. The medical gaze required a new concept of *pathology* as well as a shift in the place of *death* in the medical field. Following a series of transformations, there emerged in Europe a new concept of disease conceived in terms of the complicated idea of pathological life (rather than disease as an attack on life from the outside), and a new kind of sign – the anatomico-clinical sign, which is not just a symptom but a marginal, restricted, imperceptible sign, diagonally traversing the visible body of the disease.

The concomitant new methods of seeing, hearing and touching attempted to read the lesional signs of disease projectively, to locate disease within the body of the patient. Signs projected an anatomico-pathological series upon the living body; the medical task was now to analyse the series and map the volume of the body. The invention of the stethoscope was strategic in this process. The concept of the 'gaze' began to refer to a multiple and complex sensorial field, which Foucault describes as a new perceptual configuration defined by the trinity sight/touch/hearing. This new complex organization made it possible to locate the invisible spatially. Consequently, the medical gaze is now endowed with a plurisensorial structure; a gaze that touches, hears and, moreover, not by essence or necessity, sees.<sup>4</sup>

Since what is involved is below the threshold of visibility, the gaze has to touch and to listen to the body – to become a virtual gaze. The two-step operation of the purification of the gaze from theory and its becoming projective is supported by a singular, hidden process in which the gaze *homogenizes* the sensorial complexity. The gaze is hegemonic to the extent that it provides the principle of the production of the visibility and intelligibility of new objects such as tissual lesions. Once the hegemony of the gaze over

the other senses is established, medical discourse can produce its statements.

In his interpretation of Foucault's work, Gilles Deleuze argues that although the visible and the discursive might overlap at particular points and form strata, they belong to different orders.<sup>5</sup> If a stratum formed by the intersection of the visible and the statement is 'crossed and constituted by a central archeological fissure',<sup>6</sup> this is because the field of the 'sensible' is already irreducibly multiple and complex. There is a becoming-articulate and becoming-intelligible of what Foucault called 'the sensible immediate' as the visible. It is in this sense that Foucault underlines how the multisensorial perception is a way of anticipating the triumph of the gaze. Hearing and touch are regarded as merely supplementary. It is only in death that the triumph of the sovereign gaze is realized, by 'bring[ing] to truth the luminous presence of the visible' in autopsy.<sup>7</sup> The scene of life is thus indistinguishable from death: Foucault calls this 'invisible visibility'. It is 'the structure ... that commands clinical anatomy and all medicine that derives from it'.<sup>8</sup> The 'structure' governs its own plurisensorial and heterogeneous forces by which what is invisible is made visible, intelligible and accessible. It is this structure that both governs and is reproduced by the technology of ultrasound imaging.

### **The obstetrical regime**

The first real breakthrough in fetal imaging arrived with the use of ultrasound in obstetrics in the 1960s.<sup>9</sup> The long history of ultrasound technology goes back to the discovery of the singular force of sound waves, especially high-frequency inaudible sounds and their echoes, in physics in the nineteenth century. The consequent elaboration of mathematical and physical theories of sound led to a number of developments in the use of soundwaves, for example in maritime navigation, radar systems and metal flaw detectors. It was the Scottish scientist Ian Donald who realized the potential of sonar to visualize a fetus and who first applied it to the field of obstetrics.

The ultrasound or 'echographic' fetal image can simply be described as 'an echo outline of an inaudible "sound"'.<sup>10</sup> A transducer encased in the probe of the ultrasound machine produces an inaudible sound wave which is sent into the womb through the abdominal surface. The body returns the sound as echo. The sound wave penetrating into the body is reflected in different intensities with respect to the density of the tissues of the womb and of the fetus. These echoes vibrate the transducer's elements in the probe and

are converted into electrical pulses. The electrical pulses are sent to the ultrasound machine, processed and transformed into an image on the monitor. More specifically, the data produced by the body's echo are processed to locate and determine the level of illumination or brightness of each pixel on the screen. The image appears on the screen as a cumulative surface effect of illuminating pixels.<sup>11</sup>

Often characterized as a 'non-invasive' technology, ultrasound imaging is an advanced instance of the 'instrumental mediation' that provides the required 'moral distance' while 'fixing the virtual image of what is occurring well below the visible area', to cite Foucault's well-known description of its predecessor, the stethoscope.<sup>12</sup> As a recent instance of the structure of medical knowledge, ultrasound imaging provides us with a live, moving screen image of what Cathryn Vas-seleu, in her essay on endoscopy, called 'life itself'.<sup>13</sup> It enlarges the obstetrical corpus of knowledge by extending the possibility of observation, measurement and calculation. This expansion of data has led to the formation of the new discipline of 'fetology'. Fetology is based on the possibility of being able to identify pathologies and abnormalities on the basis of information supplied by ultrasound imaging of the fetus. The fetus is treated as a small human, a baby that is not yet born. In search of the anatomico-clinical sign, the medical practitioner traverses the body of the fetus, or the visual text it provides, and records its age, weight, the size of its 'head' (cephalometry), or of its 'nasal structure', as well as the expected date of delivery. Various other measurements take an extensive record of the body in search of possible pathology, for example abnormalities in the heart or kidneys. As Lisa Mitchell's comprehensive study demonstrates, 'claims about what can be seen through this window are numerous: the state of fetal anatomy, fetal growth and development, hundreds of fetal pathologies, fetal sex as early as eleven weeks, and fetal sleep, rest and activity patterns'; even 'witnessing fetal masturbation' and observing 'enough fetal behaviour' to begin the practice of 'fetal psychoanalysis'.<sup>14</sup> For some conditions, intra-uterine fetal surgery is now possible. Recent reports tell of vivid 3D images that show the fetus 'walking'.<sup>15</sup> The diagnosis of fetal flatfoot cannot be far behind. Given that walking requires a minimum level of motor coordination, which can in fact only be achieved several months after birth, we can see how 3D ultrasound imaging facilitates the multiplication of such claims in a new discursive space in which it is increasingly difficult to distinguish between the scientific and the fantasmatic. Thus, also, fetology extends

the medical fantasy of controlling the deviations and singularities of body to its very process of emergence and formation.

It is clear that this is not a question of ideology in any simple and straightforward sense. For once the visual text and data are available, the image is already individualized: a case and a file are made before the baby is born. The fetus is thus an unborn patient/individual, or is treated as one, with its singularities and deviations. If Foucault showed that the modern individual is produced by disciplinary technologies as almost by definition pathological or abnormal, this disciplinary production now reaches into the prenatal period, before the biological birth of the individual.<sup>16</sup>

The visual text and data furnished by the fetal image provide a visible *form*. But what is the 'image' here? When do we begin to see 'it'? And what do we see, exactly? An embryo? A fetus? A baby? A small human? There is now a growing literature on the problematic nature of the border that distinguishes the human from the non-human, life from non-life (the medical literature frequently speaks of 'the beginning of life'); the issue is at once biological, medical, legal and political. The practice of abortion is clearly one of the things at stake, as fetological arguments are routinely used and abused by the so-called pro-life movement. In this social-political context the desire to see the fetus is a singular desire to capture the very moment of the birth of the human, or, better, the event of birth as the genesis or formation of the human form understood in both its visual and morphological senses. This is part of a procedure of narrativization in which a number of discourses (medical, biological, familial, and so on) are involved. Importantly, the reading of this visual text begins with the moment of recognition of the *form* on the monitor. This identification is conditioned by a separation: the fetus is isolated from the woman's womb, regarded as mere frame or surrounding, and simply left 'outside'. The separateness and autonomy of what we shall call the 'originary human form' is achieved by giving it a shape or *Gestalt*.<sup>17</sup>

A few specific features of the scene of recognition need to be outlined. First, in contrast with ordinary gynaecological examinations, others may also be present.<sup>18</sup> The presence of others facilitates the perception of the fetus as a new member of the family. Second, the scene is governed by the medical practitioner's discourse, whose task consists of identifying the image, explaining its specific details to the pregnant woman and those who accompany her, and giving a medical account of the development of the fetus. The whole process might be described as pedagogical for

those who are supposed to be medically and technologically illiterate and therefore have to learn to see the image, to have the embryo or fetus identified for them. It is also pedagogical in the sense that it is a process of rationalization: clinical information is supposed to facilitate their rational decision-making process in an otherwise emotionally charged scene. With successive scans the medical practitioner identifies for the lay audience and measures various different parts and organs (fingers, nose, femur, genitalia) as they develop from one stage to the next. Throughout the lay person's look is one of *fascination*, singularly focused on the virtual image, as the gradual emergence of the human form builds up their expectation of it.

In the context of another medical imaging technology, endoscopy, Cathryn Vassaleu argues that this fascinated look is better explained by an aesthetic of *astonishment* than realism or voyeurism, as the unfolding of the image is subjected to innovative display and revelation.<sup>19</sup> She further argues that the experience of seeing our dark inside displayed before us produces a moment of vertigo, and that the image is a 'simulacrum' in Deleuze's sense, an image which 'includes within the lure of its implied depth a differential point of view – an angle which incorporates the spectator as part of its dissimulation'.<sup>20</sup> The medical gaze functions, in part, to keep this incorporation under control; that is the meaning of rationalization. The medical practitioner is the exemplary figure of this control, and a moral leader as well as a medical expert.

Fascination is an essential aspect of the ultrasound fetal image as well. In fact, it takes a different and even greater role as the fetal image is not the image of an organ, a given part, but the image of a growing organic whole whose viewing also involves time; its *Gestalt* is emphasized as an anticipated and projected full form. The teleological unfolding of the totality of the originary human form implies the presupposition of an ideal or norm – the healthy, normal baby. Ideality and visibility are here indistinguishable from each other. The isolation of the fetus from the female body in which it is located and its identification through visualization or visual framing as a separate unit are guided by the medical practitioner's discourse directing the parents' gaze along the contours of the form. Because of this, the overall organization of the discursive field plays an important role. During the examination of the fetus, there is almost no reference to the woman's body. In a separate procedure, the attention is turned to the woman's physical condition and she may be given specific dietary and other instructions by the medic in his or her traditionally disciplinary function.

There are thus two aspects of obstetric examination today: the examination of the fetus and the disciplinary governance of the pregnant woman. An obvious consequence of the so-called 'ultrasound revolution' is the weakening of the pregnant woman's position, as her verbal report has become much less significant. As Ann Oakley observes, the development of obstetric imaging

enable[s] obstetricians to dispense with mothers as intermediaries, as necessary informants on fetal status and lifestyle. It is now possible to make direct contact with the fetus, and to acquire a quite detailed knowledge of her or his physiology and personality before the moment of the official transition to personhood – the time of birth.<sup>21</sup>

While the value of the pregnant woman's verbal report is of political significance in terms of the social structuration of sexual difference rather than merely as an articulation of experience, the 'direct contact with the fetus' should not be taken at face value since what is at stake is always a certain ordering of the visible and the articulable. It is worth underlining these nuances to forestall any easy argument that would simply oppose 'women's experience' to an alienating institutional and technological power. No doubt the female body and women's discourse are subject to control by the medical establishment, but any reference to 'experience' must take into account its historical and cultural variability, rather than merely opposing it to the abstractions of medical knowledge. The pregnant woman's looking at the fetus on the monitor is in itself a particular form of experience that is worth considering and taking into account.

### The fetus as ethico-political figure

The production of the fetus as the 'originary human form' is the *strategic* element of the obstetrical regime as a scientific, aesthetic and ethico-political formation. The figuring of the fetus as originary human form has a long history, well documented in Karen Newman's *Fetal Positions*. But with the development of modern technology it takes on significantly new dimensions. Ultrasound imaging is not merely a continuation of the tradition which begins with drawings of a little man placed inside the womb. The ultrasound image is a different figure in terms of its inscription, as well as its singular force. Especially with the development of the fibre-optic camera, the fetus is now a *photographic referent*, 'not the *optionally* real thing to which an image or a sign refers but the *necessarily* real thing which has been placed before the lens'.<sup>22</sup> When this referent is live, as it is in the ultrasound imaging, this

rule does not change, but only gains further consistency as the virtuality or spectrality of life itself.<sup>23</sup>

Before the development of fibre-optics, the fetus as originary human form first appeared in the pioneering work of the photographer Lennart Nilsson. As if to confirm that it is death that governs the medical scene of the body, Nilsson began by using dead fetuses. Nilsson's famous first photograph appeared on the cover of *Life* magazine in 1965. Its title was the 'Drama of Life before Birth'. This picture of a dead fetus placed in a photographic setting, in the idealized conditions of the studio, gives us the first visual *framing* of the originary human form in modern photography. The small human appears to be alive, in a standing, upright position inside the amniotic sac, which is surrounded by a dark background. The contrast between the space-like dark background and the transparent amniotic sac, as well as between the latter and the standing fetus, help to produce the image of the small human as a *distinct* and *viable* life form. Its head is turned left; its feet and hands are crossed. The umbilical cord stretches out the amniotic sac. This kind of figure would later be called, quite appropriately, a 'small astronaut'. Paradoxically, this photograph is also the first *visible* evidence of the isolation of the fetus from its living environment, the pregnant woman's body.

With the aid of fibre-optics, Nilsson has developed his technique and has reached a wide audience. His famous collection *A Child is Born* is subtitled: 'Dramatic and unique new photographs of life before birth'. Of course the photographs taken by a fibre-optic camera are not the same as the images produced by ultrasound imaging. But these images interact in the culture at large and constitute what we might call a fetal intertextuality. As Rayna Rapp has put it, 'fetal images ... cast an aura well beyond the obstetrical suite'.<sup>24</sup> There has been, indeed, a 'spectacularization' of the fetus.<sup>25</sup> The spectacle of the fetus reinforces the perception of it as a small human, a living individual and a viable organic form. The titles of Nilsson's first picture and the later book dramatize the theatre or scene of the formation of the human form as an individual ordeal, a drama. The enigmatic and powerful metaphor of 'life *before* birth' signals this medico-political fantasy, in which what is at stake is not simply the individual, but also the institution and concept of the human subject qua individual. The medico-political fantasy is one of access to the 'before' of the human subject – an expression of the desire to see the event of birth. That which is before the human subject must, by definition, be non-human and non-subject. Its discontinuity or alterity can only

be thought as a radical past that is nevertheless part of the subject, though not identical to it considered as consciousness. By rendering this 'before' visible and sensible in human form, fetal culture erases its otherness, making it continuous with the (narrative of the) human subject: the originary form is *already* the human subject, a separate and autonomous being. This is clear in interviews with Nilsson, in which he emphasizes the immense time and effort he spent to get



the *face* of the fetus inside the womb, and talks about 'the portrait', 'the facial expressions of fetuses', and so on.<sup>26</sup> This desire to capture the face or expression of the fetus is surely not identical with the desire to capture the event of birth, but they appear together in fetal culture.<sup>27</sup>

Ultrasound imaging participates in the production of this medico-political fantasy, either *in extremis*

(when enough fetal behaviour is observed to practise fetal psychoanalysis), or at the mundane level of the family photo album. There is a notable change in the system of medical classification, as well as an increasing blurring of categories and borders: the strange new category of the 'fetus-infant' is now part of both obstetric and other cultural discourses.<sup>28</sup> What is decisive in this fantasy is the production of the fetus as *Gestalt*, the production of an originary human form as visible and accessible. Of course it is also this form that enables the detection of possible pathologies. As is well known, fetal nasal formation gives information about the possibility of Down's syndrome, the length of the femur predict the potential height of the future child, and so on. It is thus increasingly difficult to maintain a *foundational* difference between the fantasmatic and the scientific.

However, this is no reason to ignore the enormous and extremely problematic political implications of this form of visual production. Most of the measurement and diagnosis in ultrasound imaging can only be done *after* the legal time limit for abortion (twenty-four weeks in most countries). But this has not been an obstacle to the appropriation of the originary human form from the medical to the social and political context in anti-abortionist campaigns.<sup>29</sup> In the famous anti-abortionist film *Silent Scream* the presenter, physician Bernard B. Nathanson, begins his narrative with a significant reference to fetology. As the originary human form is already an ethico-political figure, a practice of production of the human subject,<sup>30</sup> there is nothing surprising in this. The originary human form, the medical evidence of the humanity and/or individuality of the fetus, is already a product of the obstetrical regime and medical culture. As feminists have long argued, the anti-abortionist metaphor of 'life' is pitted against the life of the pregnant woman. And, of course, what the anti-abortionist movement calls 'life' is a form, a figure, in fact an installation conceived in terms of the development and ultimate fixing of a visible *form*, a *Gestalt*. This figuring and framing of life, already an aesthetics, a certain organization of the senses and the sensible, is a founding gesture of the political, social, cultural and scientific imaginary. We should begin to think the ultrasound itself as one of its manifestations, motivated by the desire to see the event of birth, the origination of the human form. The citizen of our spectacular-democratic society is already produced in terms of a visible form, a *Gestalt*. What Philippe Lacoue-Labarthe called onto-typology, the installation of a type, is certainly not limited to fascism or nationalism, but is already a constitutive part of the

apparently more flexible consumerist culture.<sup>31</sup> In the anti-abortionist argument, the fetus thus becomes a political figure, a human subject with rights, a small citizen who has a right to life, because it is already *given a visible form* by the medical gaze as well as the spectacular practices of given culture in the cultural fetal text. In this, the woman's body is produced as margin or frame: it is both outside what it frames and yet absolutely necessary to its very visibility as image.<sup>32</sup> What might be some of the possible forms of engaging this hegemonic figuration of life to undo its separationist gesture and its *Gestalt*?

### The fetal text

Focusing solely on the production of the visibility of the fetus, the ultrasound produces an isolated form. But is this all there is to it? A closer look suggests not.<sup>33</sup> First, the ultrasound fetal image is not always upright though it is often made so by photographic manipulation, the uprightness and the erection of a (phallic) figure connoting invisibility in general. Moreover, the ultrasound fetal image does not offer an absolutely clear and transparent sight either; it is a blurred image which one must learn to see even at the most advanced and visible stages of fetal development. We are thus witness to an unfolding that is never absolutely clear, though increasingly perceptible, essentially tied to the medic's guiding discourse and the power of projection of the medical gaze.

However, the alterity of the fetus is irreducible, and something of this alterity is inevitably inscribed on the monitor. Its ghostly apparition is only a trace, never satisfying our expectation of a full appearance, though we continue to be fascinated by the signs of life that it keeps sending. Can the binarisms that organize the cultural context of this fascinating production (mind/body, sign/referent, idea/matter, man/woman) really account for what is at stake in this uncanny appearance? If the fascination and astonishment identified by Vasselu in the context of endoscopy is that much more strongly felt in the face of the ultrasound fetal image, it is because in it we seem to witness the amazing genesis or formation of the human form. Perhaps the 'figuring' of the body's *Gestalt* as the originary human form in which the narrative of the human subject is reinforced and re-inscribed should also be considered in its other senses, such as metaphorizing or allegorizing.

But if the alterity of the fetus and/or body remains irreducible, can it be considered merely as 'object' or 'referent' simply represented or imaged by medical technology? Jose van Dijck has observed one strange

consequence of the use of medical imaging technologies: the more transparent the body is made by medical imaging, the more complex it turns out to be. Hence 'the mediated body is everything but transparent; it is precisely this complexity and stratification that makes it a contested cultural object.'<sup>34</sup> This complexity needs to be borne well in mind, for in noting the discursive–institutional–technological arrangement that governs the whole process by visually isolating the fetus from the woman's body and by producing it as an originary human form, we should also be careful to avoid reducing the whole process to an ideological or technological manipulation that simply and exclusively serves to maintain the system.

If ultrasound imaging is a product of our will to know the 'sensible immediate', as Foucault called it, the medical gaze which this technology takes to a new phase already depends on a 'plurisensorial structure', as he underlined. Is this not the complexity of the body itself, as observed by Jose van Dijck? The prime instrumental mediator in Foucault's narrative, the stethoscope, made the invisible visible by touching and listening. Ultrasound imaging makes it visible by sending inaudible sound waves into the body. What is inaudible to the human ear is registered or 'heard' by the tissural substance of the body, which responds to the source by echoing the sounds it receives. The body – matter – is itself a differential force field. As the tissues of the womb and of the fetus have different densities, they reflect the high-frequency sounds in different intensities. These echoes are then converted into electrical pulses, which are processed and transformed into an image by the ultrasound machine. In the conventional account of this process, the machine uses a part of the body as its object, thus embodying the power of the medical institution over the body of the pregnant woman. However, as the body's tissular morphology participates in the in-formation and in-scription of its image, it is not just passive, inert matter in this process. If the obstetrical regime and its ultrasound machine are a power–knowledge technology in familiar Foucauldian terms, then this power's '*condition of possibility* ... must not be sought in the primary existence of a central point ... it is the *moving substrate of force relations*' (our emphasis).<sup>35</sup> The body's tissular structure is this 'moving substrate of force relations', and this resonating differentiability has a force of (mathematical) *inscription*. This is in fact what Jacques Derrida means when he defines writing as a differential force field:

Force itself is never present; it is only a play of differences and quantities. There would be no force

in general without the differences between forces; and here the difference in quantity counts more than the content of quantity, more than the absolute size itself.<sup>36</sup>

When Jose van Dijck describes ultrasound imaging as an ‘inscription technology ... which seek(s) to dispose of mediation (such as an artist’s drawing) and instead record the interior body directly onto the machine’,<sup>37</sup> she returns to a conventional description of the process of production of fetal imaging and overlooks her own observation on the *increasing complexity* of the body. Van Dijck’s description presumes and reiterates conventional metaphysical distinctions between subject and object, mind and body, active and passive, and science/knowledge and real. This conventional approach forecloses the question of the relation of these terms by taking them as simply separate. What is at stake is of course an inscription, but the relationship between the body (matter, referent, object) and ultrasound machine (mind, science, subject) is not merely external. The body’s increasing complexity means that, rather than simply being the immediate, transparent datum waiting to be recorded and imaged by scientific/technological apparatus, its power of inscription *already* implicates and involves science/technology. The body on which culture or mind works is not non-textual, inert matter. It would be more appropriate to consider it as the scene of inscription. As Vicki Kirby says, the body is ‘unstable – a shifting scene of inscription that *both writes and is written*’.<sup>38</sup> In this sense, *the body is a text without limits*.<sup>39</sup> We should perhaps consider the counter-intuitive thought that, even though babies are born and become human subjects, the body’s work of giving birth to itself, forming and figuring itself, is never done, for it is never itself, but also always already its other. Reading technology as simply a site of domination or alienation is to misread seriously Foucault’s concept of power–knowledge, reducing body to a merely passive receiver submitted to the alienating power of the machine.

This takes us back to the political problem identified above: the contribution of the ultrasound image of the fetus as *Gestalt* or ‘the originary human form’ to the fetal text of culture at large, by its visual appropriation and manipulation by the anti-abortion movement and the articulation of the highly problematic yet powerful concept of the right to life. In thinking the productive undecidability of the body (both written and writing), politics is no longer limited to representationalism. For, if the body is made up of differential forces, rather than a merely

functional whole, its so-called *Gestalt* or originary form is already textual or virtual. That is to say, as a differential force writing, figuring and complexifying itself, the body is always in excess of itself and cannot simply be contained in a single privileged representation, taken as a model or *Gestalt*. (Perhaps difference is becoming-body.) Accordingly, the only possible politics will not be a representational politics of rights. The experience of the ultrasound poses a number of interesting and challenging consequences for researchers, scientists, artists and political organizers. How can we re-figure or re-mark the relationality of the fetus, and of life? How can the relationship between the visible and the articulable be organized in new ways so that new perceptions are opened up, new words are in order? How can we dis-organize or de-compose what seems to be so well composed in medical discourse and imaging? The questions multiply when we take our topic beyond its restricted medical field. Do we have any idea what happens when an inaudible sound wave touches our bodies? What is it that we call hearing? How can we begin to think the universe as ultrasonar, or ‘echographic’ (resonance writing), as the French term for the ultrasound so aptly puts it? If the body’s manifold surface has a power of hearing beyond its organic functionality, what music or silence, what rhythms comprise our bodies? What other figures and forms are they capable of producing?<sup>40</sup> When Foucault described the medical gaze as a plurisensorial structure, he already touched something of the complexity of the body and its heterogeneous powers, through the fascinating textuality of medicine.

### **Placenta: difference and mediation**

Thus far we have spoken of the body as if it is one. This is because, first, in ultrasound imaging both bodies, the pregnant body and the fetus’s body, respond to the high-frequency sounds emitted by the ultrasound machine to produce one image; and, second, because our purpose was to question the opposition between active technology/mind and passive matter/body, in order to be able to think the body differently. Even though we have to talk about two bodies (the woman and the fetus), these ‘two’ are not the opposite of or outside the ‘one’, and vice versa. It would be rather easy to reverse the opposition between opposition and non-opposition, to celebrate the limitless body against the oppositional logic of a given culture/medicine. But this is not our aim here. Binary logic can never simply be left behind. As the production of woman involves the hegemonic oppositions of mind and body, sign

and referent, and so on, the body must be *re*-marked in order to destabilize her place in the economy of sexual difference.

Paul Virilio once wrote: 'man is woman's passenger, not only at birth but also during sexual relations ... you might say that the female is the means man has chosen to reproduce himself, that is to say, to *come* to the world.'<sup>41</sup> As the passenger 'man' is also considered to be the subject of humanness, Virilio's metaphor rewrites and erases sexual difference in the same movement. But this inscription of woman's body as medium or vehicle remains ambiguous. On the one hand, it seems to conform to the way in which the obstetrical regime produces her as *necessary yet non-existing* frame, ground or surrounding in which the human body comes to form itself, allegedly autonomously. On the other hand, the same metaphor of medium or vehicle also admits that the woman's body can actually tolerate the other's presence within itself without incurring illness or death for itself or for the guest/passenger it carries.

In fact, the separation or isolation that is so easily assumed is impossible if we actually attend to the medical and biological evidence. Luce Irigaray refuses to consider sexual difference in terms of a simple distinction between sex (natural given) and gender (social and cultural construction), inviting us to take nature, biology or anatomy seriously.<sup>42</sup> Her argument insists that the nature/culture distinction has significant implications for feminism: woman is conventionally associated with nature and the body, taken to be the mute and passive matter interpreted and constructed by culture/mind/man. In the name of criticizing this biological reductionism, a conventional sex/gender distinction risks leaving nature intact. Accordingly, the biological text cannot emerge as a field of interpretation and intervention, and scientific discourse is also left unquestioned. In this, body or matter is taken as immutable substance. But emphasizing the plasticity of the body and matter, its power of transforming itself, its productivity and mutability, the biological, anatomical or natural betrays a dazzling complexity that does not readily fit into our received notions of science or scientific causality.

In this context Irigaray's short interview with the feminist biologist Helene Rouch is relevant.<sup>43</sup> Rouch's work focuses on the intriguing role of the placenta. This vascular appendage, attached to the wall of uterus, does not merely connect the fetus with the womb; as an arrangement of vessels the placenta actually mediates between the 'self' (the mother's body) and 'other' (embryo/fetus) – even though it is produced

by the embryo. It regulates blood circulation and exchanges between the two organisms by reallocating maternal substances for the benefit of both. The culturally widespread interpretation of the fetus as a sort of vampire in the mother's womb is not substantiated by the evidence concerning the role of the placenta, which rather suggests a peaceful, economic habitation of one with(in) the other. The mother's body recognizes the fetus as an 'other', a different organism that grows within itself, and redistributes its own forces accordingly, while the fetus recognizes similarly this surrounding as a habitat from which it feeds itself through the placental fold. Hence the maternal order of the female body organizes a kind of relationship that is 'respectful of the life of both'.<sup>44</sup> The placenta signifies a form of mediation in which difference is not merely sublated (as it is supposed to be in a conventional Hegelian reading), but maintained. We might also add that the placenta can be seen on the monitor and is examined by the doctor, but there is no special focus on it unless there is a pathological condition such as bleeding or thickening. In appearance, it is a shapeless, bloody lump.

Rouch's emphasis on the role of placenta expresses a different problematic of life than that of the hegemonic fetal culture and obstetrical regime. Hegemonic culture/medicine conceives life in terms of a visible form or *Gestalt*, which introduces a hierarchical opposition of figure and ground, but in the placental model the woman's body is no longer merely the frame or ground of a visible form. Nor is it a merely revalued habitat (or vehicle). The woman's body is now regarded as a singular organism that enables another to live on equal terms with(in) itself. It is important to underline the radicality of this approach: the female body/woman is an *active* organism or life form with its own singular order. Further, in this figuring of the female body, life itself is figured as relationality rather than in terms of an isolated, autonomous form, standing on its own. If life has to do with the form or '*morphe*' and morphology, then the very formation of the form is relational through and through.

Rouch speaks further about the nature of this amazing fold of tissue, particularly with regard to its strength and the several uses to which it is put in contemporary capitalist economies, especially in the cosmetics industry. She argues powerfully for the pregnant woman's right to have the placenta treated as part of her organism. Categorized as a useless excess whose function is complete after the birth, the placenta is usually appropriated by hospitals and sold to cosmetic firms. But there is reason to reconsider the



nature of its use value. The placenta is an organ of a woman's body, which serves a particular function in producing value (children). The fact that it is reused economically hides the fact that this shapeless, bloody lump is the excess of the reference we call body, the very support or medium of its figuring and forming of itself.

In her early work, Irigaray interpreted Plato's cave as the womb, the original matrix, and the philosopher himself as obstetrician.<sup>45</sup> In the allegory of the cave in the *Republic* Plato adds voice and speech to complete the illusion of reality from which ordinary men suffer, associating the echoes with the shadows on the wall.<sup>46</sup> From Plato's text to the ultrasound, there is also a reversal: while Plato makes the voice (resonance or echo) follow and supplement the image (shadows or copies) in the textual articulation of his allegory, the ultrasound image is produced by echo. Plato's allegory is consistent with the myth of Narcissus, in which Echo (the water nymph) repeats his lover Narcissus's words. But if we follow Gayatri Spivak, attending to the original Latin text, Echo's repetition is with a *difference*: to Narcissus's question 'why do you fly from me?' she echoes with the phrase 'fly from me'.<sup>47</sup> Spivak's underlining of this difference also implies that there is always a gap in nature. Its resonance is never without difference – the one is always already two. If the cave/womb is an 'invisible space' in the conventional patriarchal paradigm, it is also an *echo chamber*. Woman's association with the body/matter/nature is not simply an ideological evil, which must be eliminated, but also an opportunity to intervene into the presumption of the unity of this series. Without such an intervention, it is difficult to maintain a viable feminist position against the spectacularizations of capitalist and patriarchal techno-scientific culture. Science and technology, including the medical gaze and the ultrasound, are a major site for this intervention, for it is their unfolding concepts and fields which enable us to approach the multisensorial, complex and ever-changing language of the body.

## Notes

1. A good account of the scale of the use of ultrasound imaging can be found in Lisa Mitchell: *Baby's First Picture: Ultrasound and the Politics of Fetal Subjects*, University of Toronto Press, Toronto, Buffalo and London, 2001, p. 5.
2. Barbara Duden, *Disembodying Women: Perspectives on the Pregnancy and the Unborn*, trans. Lee Hoinacki, Harvard University Press, Cambridge MA and London, 1993, p. 7.
3. Michel Foucault, *The Birth of the Clinic: An Archeology of Medical Perception*, trans. A.M. Sheridan-Smith, Tavistock, London, 1976.
4. *Ibid.*, p. 164. Senses other than the eye were also at work. Touching enabled the doctor to locate 'visceral tumors, scirrhus masses, swellings of the ovary, and dilations of the heart', whereas the ear allowed him to perceive the crackling bones, the rumbling arteries, and the sounds of the thorax or the abdomen.
5. 'The archive, the audiovisual is disjunctive' (Gilles Deleuze, *Foucault*, trans. Sean Hand, University of Minnesota Press, Minneapolis, 1988, p. 64).
6. Foucault, *The Birth of The Clinic*, p. 65.
7. *Ibid.*, p. 165. There is a local circumscribed gaze, a borderline gaze of touch and hearing, as well as an absolute, integrating one that dominates and founds all perceptual experiences. This latter gaze structures multiple senses (the eye, the ear and the touch) into a sovereign unity.
8. *Ibid.*
9. See Ann Oakley, *The Captured Womb: A History of the Medical Care of Pregnant Women*, Basil Blackwell, Oxford and New York, 1986, pp. 12 and 155–71; Bettyann Holtzmann Kevles, *Naked to the Bone: Medical Imaging in the Twentieth Century*, Basic Books, New Brunswick, 1998, pp. 228–50; Edward Yoxen, 'Seeing with Sound: A Study of the Development of Medical Images', in Wiebe E. Bijker, Thomas P. Hughes, and Trevor J. Pinch, eds, *The Social Construction of Technological Systems*, MIT Press, Cambridge MA and London, 1987, pp. 281–303.
10. Duden, *Disembodying Women*, p. 32.
11. See Mitchell, *Baby's First Picture*, p. 212, and Oakley, *The Captured Womb*, p. 156. Naturally the fetus appears in more 'realistic' manner in the 3D ultrasound than in the 2D and, for example, provides a better view of some bodily defects. Although the 2D ultrasound is more frequently used today, with the development of the measurement capacity of the 3D, it will no doubt be used more frequently. There is already considerable media and public attention paid to the 3D image. The 4D image, real-time 3D, is sometimes called dynamic or motion 3D. As the recent example of a walking fetus shows, technological development does not eradicate but further reinforces the fantasmatic aspect of the fetal culture (we will discuss this below). In this article, we are concerned mainly with real-time 2D ultrasound imaging.
12. Foucault, *The Birth of the Clinic*, p. 164.
13. See Cathryn Vasseleu, 'Life Itself', in Rosalyn Diprose and Robyn Ferrell, eds, *Cartographies: Post-structuralism and the Mapping of Bodies and Spaces*, Allen & Unwin, Sydney, 1991, pp. 55–64.
14. Mitchell, *Baby's First Picture*, p. 4.
15. See a report posted in the WorldNetDaily: [www.worldnetdaily.com/news/article.asp?article\\_id=39191](http://www.worldnetdaily.com/news/article.asp?article_id=39191).
16. Michel Foucault, *Discipline and Punish: The Birth of the Prison*, trans. Alan Sheridan, Penguin, Harmondsworth, 1977.
17. We distinguish this concept from what Karen Newman calls 'core schema' following Ernest Gombrich (Karen Newman, *Fetal Positions: Individualism, Science, Visuality*, Stanford University Press, Stanford CA, 1996, p. 3). While Gombrich and Newman assume a prior model or schema which is then applied differently, our 'originary form' is an effect of various discrepant practices of visual and discursive production, assuming a complex

- process of formation.
18. Usually, but not always, the woman's partner.
  19. Vasseleu, 'Life Itself', p. 60.
  20. *Ibid.*, pp. 60, 61. See also Gilles Deleuze, 'Plato and the Simulacrum' in *The Logic of Sense*, trans. M. Lester and C. Stivale, ed. Constantin Boundas, Columbia University Press, New York, 1990, pp. 253–65.
  21. Oakley, *The Captured Womb*, p. 155, emphasis added.
  22. Roland Barthes, *Camera Lucida: Reflections on Photography*, trans. Richard Howard, Hill & Wang, New York, 1984, p. 76.
  23. Jacques Derrida argued that modern technology brings the ghosts back rather than dispelling and exorcising them. See Jacques Derrida and Bernard Stiegler, *Echographies of Television: Filmed Interviews*, trans. Jennifer Bajorek, Polity Press, Cambridge, 2002; Jacques Derrida, *Specters of Marx: The State of the Debt, the Work of Mourning, and the New International*, trans. Peggy Kamuf, Routledge, New York, 1994.
  24. Rayna Rapp, 'Real-Time Fetus: The Role of the Sonogram in the Age of Monitored Reproduction', in Gary Lee Downey and Joseph Dumit, eds, *Cyborgs and Citadels: Anthropological Interventions in Emerging Sciences and Technologies*, School of American Research Press, Santa Fe NM, 1997, p. 32.
  25. Guy Debord, *Society of the Spectacle*, trans. Donald Nicholson-Smith, Zone Books, New York, 1995.
  26. 'Behind the Lens: An Interview with Lennart Nilsson' ([www.pbs.org/wgbh/nova/odyssey/nilsson.html](http://www.pbs.org/wgbh/nova/odyssey/nilsson.html)) and 'Q & A with Lennart Nilsson' ([www.lennartnilsson.com/q\\_a.html](http://www.lennartnilsson.com/q_a.html)).
  27. Gilles Deleuze and Félix Guattari would call Nilsson's desire 'facialization', which they see as the work of an abstract machine of faciality, triggered under a unique set of circumstances. Gilles Deleuze and Félix Guattari, *A Thousand Plateaus*, trans. Brian Massumi, University of Minnesota Press, Minneapolis, 1988, pp. 167–91.
  28. Nicole Isaacson has shown this in a careful reading of the obstetric literature: 'The 'Fetus-Infant': Changing Classifications of *In Utero* Development in Medical Texts', *Sociological Forum*, vol. 11, no. 3, 1996, pp. 457–77. She argues that the production of the hyphenated identity of the 'fetus-infant' depends on a double process of splitting and lumping. Further, referring to paleoanthropological evidence, she shows how, from an evolutionary point of view, the human infant can be categorized as fetus! While there was an increasing need for bigger heads required by a selection for intelligence, the previous adaptation to bipedalism prevented the female pelvis from becoming wider. The result was the compromise solution of premature birth for the hominid young compared to other primates. While they are helpless compared to their chimpanzee cousins, they undergo a far greater degree of brain development in the first year of life (Isaacson, 'The 'Fetus-Infant'', pp. 470–71). This makes the border between the fetus and the human baby entirely problematic.
  29. The 24-week limit is currently being debated in the UK. See Karen McVeigh, 'Forty Years after Steel's Bill, is there a Case for Rethink on Abortion Law?', *Guardian*, 24 October 2007.
  30. See again Nicole Isaacson, 'The 'Fetus-Infant'', which succinctly argues that the fetus-infant is an entirely new medical category that blurs the distinction between before and after, fetus and child, etc. What is at stake here is the production of an originary human form as well as the fantasy of access to the 'before' of the subject.
  31. We refer to Philippe Lacoue-Labarthe's seminal reading of Heidegger's concept of 'installation' (or 'enframing') as well as his 'national aestheticism'. See *Typography: Mimesis, Philosophy, Politics*, ed. Christopher Fynsk, intro. Jacques Derrida, Stanford University Press, Stanford, California, 1989; *Heidegger, Art and Politics: The Fiction of the Political*, trans. Chris Turner, Basil Blackwell, Oxford, 1990.
  32. We draw on Jacques Derrida's well-known deconstruction of frame and framing in his *Truth in Painting*, trans. Geoff Bennington and Ian McLeod, University of Chicago Press, Chicago, 1987.
  33. The following reading owes much to Vicki Kirby's argument in her *Telling Flesh*, though we are solely responsible for it. See Vicki Kirby, *Telling Flesh: The Substance of the Corporeal*, Routledge, New York and London, 1997.
  34. Jose van Dijck, *The Transparent Body: A Cultural Analysis of Medical Imaging*, University of Washington Press, Seattle, 2005, p. 4.
  35. Michel Foucault, *History of Sexuality*, Volume 1, trans. Robert Hurley, Vintage Books, New York, 1980, p. 93.
  36. Jacques Derrida, 'Differance', in *Margins of Philosophy*, trans. Alan Bass, University of Chicago Press, Chicago, 1982, p. 17. In the same place, he refers to Gilles Deleuze's work on Nietzsche: 'Quantity itself is therefore inseparable from the difference in quantity. The difference in quantity is the essence of force, the relation of force with force.' See Gilles Deleuze, *Nietzsche and Philosophy*, trans. Hugh Tomlinson, Columbia University Press, New York, 1983, p. 43.
  37. Van Dijck, *The Transparent Body*, p. 15.
  38. Kirby, *Telling Flesh*, p. 61, emphasis added.
  39. Again we draw on Vicki Kirby's reading of Gayatri Spivak's notion of the 'body as such'. See Vicki Kirby, *Telling Flesh*, pp. 154–5; Gayatri Chakravorty Spivak, 'In a Word: Interview with Ellen Rooney', *differences*, vol. 1, no. 2, 1984, p. 149; See also Mahmut Mutman, 'Writing the Body: Problematizing Cultural Studies, Postmodernism and Feminism's Relevance', *Postmodern Culture*, vol. 9, no. 3, May 1999.
  40. We are reminded of Spinoza's famous remark on our ignorance of 'what a body can do'. Vicki Kirby discusses the example of the Scottish percussionist Evelyn Glennie, 'profoundly deaf since the age of twelve' (*Telling Flesh*, 62–3).
  41. Paul Virilio, *The Aesthetics of Disappearance*, trans. Philip Beitchman, Semiotext(e), New York, 1991, p. 119.
  42. See *Speculum of the Other Woman*, trans. Caroline C. Gill, Cornell University Press, Ithaca NY, 1985; *This Sex Which Is Not One*, trans. Catherine Porter and Carolyn Burke, Cornell University Press, Ithaca NY, 1985.
  43. Luce Irigaray, *Je, Tu, Nous: Towards a Culture of Difference*, Routledge, London and New York, 1993, pp. 37–44.
  44. *Ibid.*, p. 38. See also Ruth Jones, 'Neither Fused Nor Rejected', [www.ruthjonesart.co.uk/essays.html](http://www.ruthjonesart.co.uk/essays.html).
  45. Luce Irigaray, *Speculum of the Other Woman*, p. 263.
  46. Plato, *Republic*, trans. Raymond Larson, Crofts Classics, Illinois, 1979, pp. 174–6 (514bc, 515bcde, 516b).
  47. Gayatri Chakravorty Spivak, 'Echo', in *The Spivak Reader*, ed. Gerald MacLean and Donna Landry, Routledge, New York and London, 1996, pp. 175–202.