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# The Unborn Human

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# Introduction

## Introduction: Conceptualising and Configuring the Unborn Human

Unborn human organisms – embryos and foetuses – experience an unprecedented level of discursive prominence in the contemporary era. Debates about the moral status of the unborn, about their claims to personhood and whether they should be treated as full human subjects, have been continuing for a long time, particularly in areas related to religious philosophy, bioethics and abortion politics. Over the past half-century, however, these debates have become more diversified, intense and complex in response to a number of social, technological and economic changes. More so than at any other time in human history, embryos and foetuses are represented in public forums as beautiful, precious, vulnerable creatures that require the utmost levels of protection. They are commonly positioned as already fully human, indeed as already infants, and hence as deserving of the rights and privileges accorded the infant.

Paradoxically, in other contexts embryos and foetuses have become increasingly commodified and dehumanised. In the marketplaces of in vitro

fertilisation (IVF) services, reproductive tourism, commercial pregnancy surrogacy, gamete donation and human embryonic stem cell (hESC) science and regenerative medicine, embryos and foetuses are commonly configured and treated as valuable entities because of their monetary value. In some countries women are now able to earn significant sums of money by acting as pregnancy surrogates or donating their ova to create embryos for other people. The stem cell industry makes use of human embryos in its experimental research, transforming them into clinical material to create stem cell lines as part of therapeutic treatments. These developments have required many jurisdictions to construct definitions around unborn entities and to legislate ways in which such entities may be used.

This Living Book about Life covers many of these facets of the unborn human. By including academic articles and material from social, news and other digital media sites spanning historical medical, contemporary medical, sociocultural, bioethical and legal perspectives, as well as links to websites offering visual imagery of the unborn, the book demonstrates the various and diverse contexts in which knowledges, concepts, objects and practices work together to configure embryos and foetuses.

## Debates over Unborn Personhood

Depending on the social, cultural and historical context, there are a wide range of ideas about when the unborn – and even the newborn – are considered to have achieved full moral personhood, ranging from the moment of conception to various points along the gestational timeline and even following birth (Duden,

1993; Conklin and Morgan, 1996; Law and Sasson, 2009). Religious, philosophical and ethical beliefs and convictions intertwine with other acculturated concepts in discussions of the claims to personhood of the unborn. For many protagonists in this debate, the early embryo is simply a 'bundle of cells' that has no claims to full personhood and therefore may be treated as if it were any other organic human matter, like organs, tissue or blood. Many supporters of women's right to abortion take this perspective, as do those who support the use of human embryos in stem cell research. Their opponents are those who adopt a position that views personhood as beginning from the moment of fertilisation of the human ovum by a human sperm, producing a conceptus with a unique genetic profile (see, for example, Kreeft, who gives a perspective on this which is based on Catholic theology, or George & Lee's argument from moral philosophy). They therefore oppose the destruction of the embryo or foetus in any situation and at any stage of development, viewing this act as killing a potential person.

Such a position is evident from the earliest publication included in this Living Book, a monograph self-published in 1846 by John Barry, MD, formerly Secretary of the Medical Society of Louisville, USA. His book is entitled *Medico-Christian Embryology or the Unborn Child, Considered in a Medical, Moral and Religious Point of View*. As its title suggests, this text is a fascinating mix of science, religion and superstition, all presented as medical fact. What is immediately apparent is Barry's unapologetic conflation of the 'medical' with the 'Christian' in his title. He makes it clear that he regards human personhood as beginning from conception, at which point, he argues, the conceptus acquires 'an immortal soul upon which is

stamped the image of the divine Creator'. Therefore, Barry contends, 'how great ought not to be our solicitude respecting it' (p. 10). From this perspective, because the unborn have souls and are created in the image of God, they must be considered as already full persons requiring protection.

**Mourning and Remembering the Lost Unborn**

The ambiguity of the unborn's claim to personhood is demonstrated in the contemporary era by the event of pregnancy loss. Individuals who have experienced a miscarriage or stillbirth often position this experience as the loss of a person – in particular, their much loved and wanted 'baby' – even if it occurs very early in the pregnancy. However, as the articles by Kelley & Trinidad, Davidson and Murphy & Thomas demonstrate, the grief felt by parents following a miscarriage stillbirth tends not to be socially recognised or supported. Medical staff members often fail to realise the depth of loss and grief felt by such individuals, to the point that women whose foetus has died before birth are often treated in the maternity ward, surrounded by other people's healthy and living newborns.

It is difficult for individuals who have experienced pregnancy loss to represent their grief in tangible ways, as there is often no ceremony, body or gravestone to memorialise the lost unborn. Parents may keep such artefacts as locks of hair, ultrasound images, footprints or handprints or photographs of the body as a way of remembering the entity for which they are grieving, use ornaments to represent or symbolise them or plant a tree in their unborn's memory (Murphy & Thomas). As other, newer ways of highlighting the grief and feelings

of loss experienced by people who have experienced miscarriage or stillbirth and acknowledging the existence of the entity that has died, memorialisation websites and YouTube videos have emerged. These digital media provide a means by which grieving parents may use visual mementos of their unborn's life such as those described above to create a memorial that may be viewed by thousands of others (see, for example, this memorial YouTube video for twins).

## Struggles Over Dealing with the Unwanted Unborn

Elective termination of unwanted pregnancies is a topic that for centuries has aroused debate, often a very emotional one, about the supposed personhood of the aborted entities. This is evident from Moscrop's article, in which he refers to the political aspects of the use of the term 'abortion' to describe both a spontaneous and an induced loss of pregnancy, including women's dislike of the term to refer to a miscarriage because of its connotations. He found that by the late twentieth century, British medical textbooks and journals no longer tended to refer to spontaneous pregnancy loss as an 'abortion' or 'spontaneous abortion'. Instead they more tactfully moved towards using the term 'miscarriage' to refer to these cases.

Despite the fact that induced abortion is a very common experience for women around the world, many countries continue to make it illegal or obtainable only if the woman's health or even life are threatened. Developed countries tend to have more permissive laws on abortion than do developing countries. As a result, the vast majority of unsafe abortions occur in developing countries. Unsafe abortions continue to

cause high rates of morbidity and mortality in countries where abortion is illegal. In some countries women are also coerced to have abortions by government authorities.

Even in developed countries with relatively liberal abortion legislation, recent political moves have emerged seeking to change or overturn such legislation. Numerous anti-abortion organisations, groups and politicians have recently challenged abortion laws in countries such as the UK and the USA, including those who have been labelled 'personhood' activists. Personhood activists, including several politicians, are seeking to position the unborn as full moral persons from conception. They thus argue not only against induced abortion but also against the removal of ectopic pregnancies and the use of embryos in stem cell research. Many anti-abortion videos representing the unborn as persons may be found on YouTube, including this excerpt from a film called 'The Miracle of Life', produced by a Christian organisation.

The life experiences of women who have an unwanted pregnancy and the complexities of their decisions concerning whether or not to proceed with a pregnancy are often lost in the clamour of pro- and anti-abortion activists. A study investigating experiences of pregnancy termination among women in Malaysia and research focusing on women seeking medical abortion in countries in Latin America that prohibit abortion demonstrate that women may have a range of feelings in response. These include not only grief or sorrow but also relief. This research also shows that many women are highly aware of the social stigma that may accompany their choice to seek a pregnancy termination. From a psychiatric perspective, Stotland

presents a single detailed case study of a woman's experience of seeking an abortion at the age of 19 and her subsequent reactions to this. The discussion attempts to site this woman's experiences within her family and individual history and provides much context for her decision and later feelings about the abortion. It is pointed out in this article that '[i]n the rancorous debates about reproductive rights … the complicated, sometimes heart-wrenching realities of each pregnant woman's life and of her feelings can get lost'. A review of a British documentary, 'My Foetus', similarly refers to the complexities of the abortion experience and the meanings that surround it.

**Assessing the Quality of the Unborn**

The practices and discourses of prenatal screening and diagnostic technologies have also raised issues concerning personhood and how the unborn should be treated. These technologies include maternal serum testing, obstetric ultrasound imaging and genetic tests such as amniocentesis and chorionic villus sampling, all of which are directed at the unborn entity in utero. *Ex vivo* (outside the female body) embryos created for IVF purposes undergo very early assessment by clinic technicians for their 'quality' and state of 'healthiness' so that the highest 'quality' embryos may be selected for implantation. Where once judgement of these embryos was akin to a 'beauty contest,' evaluating embryos on their appearance alone, other indicators are now being evaluated, such as metabolic, protein and genomic markers. A far smaller number of embryos created via IVF are further assessed via preimplantation genetic diagnosis (PGD) for their genetic characteristics. PGD is undertaken in cases of frequent miscarriage, to determine whether the embryos carry genetic

conditions, and for sex selection. Embryos created to be 'saviour siblings' who are to donate tissue to their brothers or sisters with a severe medical condition are tested for the presence of the required genes and their suitability for this purpose (see this account of the history and politics of PGD in the UK).

The explicit purpose of the prenatal testing of *in vivo* (within the body) embryos or foetuses is to identify malformations or genetic abnormalities, so that any which are found to be significantly 'abnormal' may be aborted. In the case of *ex vivo* embryos created for IVF, it is only those embryos that are assessed as being normal/healthy, of high quality, and in PGD, as having the 'right' genetic makeup or the 'right' sex, which may then become viewed as potential babies for the individuals who commissioned the embryos. Those embryos that fail to pass these assessments then take on another identity: that of 'surplus' embryo, or defective material destined for disposal as medical waste or use in hESC research.

The ethical issues that are raised by prenatal testing include the concern that the very early eight-celled embryo (the entity that is tested in PGD for genetic conditions) is as much a full human as is a later foetus or infant, and that any termination of the life of an unborn entity at any stage of development is morally reprehensible. The encouragement of women to undergo prenatal testing also positions the unborn entity as possibly diseased or malformed unless proven otherwise. It has been argued that counselling for pregnant women in relation to prenatal screening tends to be directed towards the option of termination, and women are often unaware of the risks, such as miscarriage, that attend such procedures as

amniocentesis. Aksoy contends that the question needs to be asked 'In whose interests are prenatal tests?' and concludes that the interests of the unborn (or 'prenate' in Aksoy's terminology) are not served, but rather those of society and the family of the unborn. This perspective, of course, assumes that the unborn can possess interests, a point of debate in itself (see below).

Some commentators are concerned that contemporary practices of prenatal screening or diagnostic testing of the unborn are discriminatory, serving to represent people with disabilities or disease as inferior, and indeed as unworthy of life. The implications of these practices are that the lives of people with disabilities should be ended before they have a chance to begin. As a mother of a child with Down's Syndrome, Place notes that having a child with a disability is often represented as a personal tragedy, something to be avoided if at all possible for the negative effects it is assumed to have on the lives of these children's parents and siblings, and on the children themselves. A mother of such a child may even be considered to be responsible for her child's disability because she failed to engage in preventive action (undergoing the appropriate prenatal tests and then an abortion when the condition was discovered).

As this suggests, while 'normal' unborn entities may be considered in some discourses as persons, particularly once they have passed the 24-week gestation mark and are therefore considered potentially viable outside the uterus, those who have been judged to be 'abnormal' are not accorded this privilege or right to protection. This anomaly has not gone unnoticed in the UK, where the law allows for termination of pregnancy only until 24 weeks for foetuses assumed or assessed as 'normal', but

right up until full-term (before birth) for foetuses that have been identified as having the potential to be severely disabled if born. In early 2013 a Parliamentary Inquiry into Abortion on the Grounds of Disability was established to determine whether this law constitutes discrimination against people with disabilities.

**The Surplus Unborn Entity**

How cryogenically-preserved embryos created for IVF purposes should be disposed of when they are surplus to the commissioning couple's requirements also raises issues of personhood. The discourse that refers to the 'adoption' of these embryos by infertile individuals using them for their own reproductive purposes positions them as already infants. This discourse was evident in President George W. Bush's legislative reforms relating to such 'adoption'. The advent of hESC research at the end of last century has played a major role in viewing and using the surplus IVF embryo in different ways. HESC research uses embryos at the stage of development known as the blastocyst, or just a few days of development following fertilisation. Embryonic stem cells are unique cells derived from the inner cell mass of the blastocyst that are pluripotent, or able to differentiate into any other human cell if scientifically manipulated. They can be cultured to produce stem cell lines that can reproduce themselves indefinitely, and are therefore immortal. HESCs offer the potential for therapeutic efforts to regenerate damaged or diseased cells associated with illness or disability. In the process of producing stem cell lines, however, the blastocyst must be destroyed to access its inner cells. As a result, hESC research has incited much controversy over whether these embryos should be destroyed as part of these research efforts and about

how their use, if permitted, should be regulated. Greely provides an overview of legislation in various countries concerning policies on hESC research, highlighting the complexities around the donation of gametes and embryos, the use of surplus embryos and the creation of embryos solely for research purposes.

Those individuals or groups who consider personhood to begin at conception tend to be vehemently opposed to the use of human embryos in hESC. Those who contend that personhood should not be accorded to this very early organism often support hESC, viewing it as a way of using unwanted embryos created for IVF purposes as part of research efforts to develop regenerative medicine therapies for people who are living with significant impairment or major illnesses. For many bioethicists, the embryo and foetus, and even the newborn are not considered to be fully human or full persons from a moral philosophical point of view. Blackford, for example, argues that embryos do not have any meaningful interests or moral rights. They do not feel terror or pain because they have not yet developed a nervous system. He thus supports their use in stem cell research. For their part, Douglas & Savulescu not only contend that such use of surplus embryos is morally permissible, but that so too is creating embryos for this purpose because of the possibility that human pain and suffering could be ameliorated through successful stem cell therapies.

Some bioethicists have focused on the 'potential' of the unborn to become humans and contend that this potential bestows a special status upon them. Manninen evokes the Kantian concept of personhood to argue that because surplus IVF embryos are in a location (the laboratory or cryogenic storage facility)

where they cannot develop into humans (unless transferred into a uterus), they cannot be considered to possess the same kind of potential for personhood as do embryos located within a uterus (see also Sills & Murphy for a discussion of this perspective). She contends that using these embryos in hESC, and therefore in efforts to help 'actual persons', is far more respectful of them than is disposing of them as medical waste. As Sills & Murphy note, this issue of 'respect' may be articulated in an intermediate position on the personhood of embryos, in which it is argued that while embryos are not full moral persons, they are distinct from other human tissue both because of their potential to become humans and the symbolic value they have for many people. Therefore the disposal of surplus IVF embryos should be carried out in a 'respectful' manner; although how this 'respectful manner' is determined is itself subject to interpretation. However George & Lee disagree about this definition of 'respect' for embryos. They state their case that human embryos should be considered 'human beings who deserve the same basic respect we accord to human beings at later developmental stages'. As this suggests, these bioethicists bestow the early embryo with the same status as any other human: only the 'degree of maturation' separates the early embryo from later foetal entities, newborns and adult humans (see Sagan & Singer's response to their argument).

These discussions tend to be based on rationalist philosophical principles, which are removed from the affective and embodied experiences of those people who are commissioning the creation of these embryos in the hope of having children. Qualitative research into how commissioning individuals or couples conceptualise the notion of the 'spare embryo' and how they respond to

making the often very difficult decision about their disposal is able to highlight the complexities of meaning around this entity. This is evident from the British research and interviews with Japanese women confronted with this decision. As this research demonstrates, IVF embryos are often considered as 'a part of me' and as already 'my child'. To discard them is viewed by some individuals as akin to undergoing an abortion. Such embryos may have a value based on relational factors that differentiates them from other parts of the body that may be donated, such as blood or organs, both because they are potential children and also because they are the product of time, expense, emotional investment and onerous medical treatment. As one woman in the Japanese study put it, her IVF embryos were the 'crystallization of my blood, sweat and tears'. She therefore could not countenance the notion of discarding them as medical waste.

**Unborn Entities as Moral Work Objects**

Research with professional workers who use tissue from aborted embryos and foetuses or surplus IVF embryos in scientific research demonstrates that they must also confront the issue of personhood of these entities. The Japanese stem cell scientist Shinya Yamanaka was jointly awarded a Nobel Prize in 2012 for his research into developing induced pluripotent stem cells (iPSCs). IPSCs are adult human stem cells that have been manipulated in the laboratory to be pluripotent, like embryonic stem cells. They thus offer an alternative to destroying human embryos to create stem cell lines. News reports on Yamanaka's research noted that a major reason he had sought to move away from using human embryos in his research was his feeling of disquiet about destroying them in the process.

In one online news report it was noted that Yamanaka had been visiting a friend's fertility clinic and had peered through a microscope at one of the embryos produced and stored in the clinic: 'When I saw the embryo, I suddenly realised there was such a small difference between it and my daughters … I thought, we can't keep destroying embryos for our research. There must be another way.'

As this suggests, professional workers who use matter derived from embryos or foetuses as part of their work may harbour ambivalent feelings and beliefs about this process. They are operating in a context in which the unborn have become increasingly humanised and personalised and must therefore confront these meanings. As evidenced in the words of Yamanaka and as further shown below, at the same time as some scientific and medical workers contribute to concepts of the unborn as already autonomous infants, including sonographers and others who produce visualisations of the unborn as well as those engaging in foetal surgery, others must engage in work practices that confront and disrupt this concept. To operate successfully in this context, scientific and medical workers must undergo a process of decorporealising and dehumanising this matter, seeking to erase its origins (Pfeffer, 2009).

Measuring the quality of embryos as part of IVF and PGD and assisting individuals in making decisions about the disposal of surplus IVF embryos involves detailed work on the part of medical and scientific technicians, counsellors and health care workers in making distinctions and translating their findings to others. This requires not only clinical and technical knowledge but also the making of moral judgements and the negotiation of difficult ethical decisions on the

part of such workers. Such scientific definitions are therefore highly social, cultural and political. As four articles included in this Living Book by Ehrich and her colleagues demonstrate (Ehrich et al.(a), Ehrich et al.(b), Ehrich et al.(c), Ehrich et al.(d)) demonstrate, the unborn are commonly configured as 'moral work objects': that is, objects with which these workers interact and which they use as part of their working lives – but in a context in which moral values and judgements come to the fore.

**Visualising the Unborn**

Unborn entities were once seen as mysterious, hidden creatures, contained only within a pregnant woman's uterus. For the first few months of pregnancy only she was aware of the unborn's presence; the experience of 'quickening', or the first foetal movements, were perceived by her alone. It was not until the later stages of pregnancy that others could see or feel foetal movements through the pregnant woman's abdominal wall. No-one could see these entities while they remained within the womb, and it was not until they were born that their presence was fully confirmed (Duden, 1993). As a consequence, cultures developed a wide range of origin narratives to explain how the unborn were generated and how they grew into the entities that appeared at birth (Law & Sasson, 2009).

This state of mystery and invisibility of the unborn and the privileging of the pregnant woman's knowledge of them began to be challenged in the nineteenth century. Visualising technologies such as the microscope, the foetoscope and the obstetric ultrasound, as well as the practices of dissection of unborn cadavers and foetal surgery, opened up the uterus and the unborn body to

the medical gaze. Following scientific medicine's discovery of the unborn and the development of embryology in the nineteenth century as a discipline devoted to documenting the development and anatomy of unborn entities, scientists, medical students and medical researchers were able to view, dissect and record the features of embryo and foetal specimens (Morgan, 2009; Dubow, 2011). This is evident from Hugh Barniville's article, published in 1914, in which he presents a detailed account of the morphology and histology of a five-week-old human embryo obtained when a hysterectomy was performed, including several anatomical drawings. Barniville was writing at a time in which embryology was a new and fast-developing area of medical research. Embryologists were attempting to obtain as many embryos as possible from pregnancy terminations, ectopic pregnancies and gynaecological surgeries (Morgan, 2009).

Most members of the lay public did not have ready access to these visual representations of the unborn or to embryo or foetal specimens. This changed with the advent in the mid-twentieth century of visualising technologies such as photography, computer imaging and obstetric ultrasound. Such technologies were able to produce detailed images of the unborn which were accessible to the general public (see the 'Making Visible Embryos' website for an historical overview of these technologies). From the 1960s onwards the aestheticised photographs of embryos and foetuses produced by pioneering Swedish photo-journalist Lennart Nilsson represented the unborn as softly glowing objects of wonder. Their appearance to the contrary, nearly all of Nilsson's early photographs were of dead embryo and foetus specimens. He manipulated the images he made of them using colour and lighting

and even the strategic positioning of foetal body parts, such as placing a thumb in the dead foetus's mouth, to portray them as living and baby-like. These images were reproduced in magazines and lushly-produced books across the western world, and later in television documentaries.

More recently, the computerised visualisations produced by the American Alexander Tsiaras's company and published in his book and video *Conception to Birth – Visualized* have also portrayed the unborn as beautiful and awe-inspiring. Computer-generated images of the unborn like those produced by Tsiaras are now available across a range of media, including websites such as 'The Visible Embryo' and 'The Multi Dimensional Human Embryo' and videos uploaded to YouTube (see, for example, these excerpts from a National Geographic documentary , Nilsson's 'The Miracle of Life' and a TED talk by Tsiaras about his visualisations of the unborn). These digital media provide detailed visual displays and textual accounts of what the embryo or foetus looks like at each week of gestational development. (See my collection 'The Sociology of the Unborn' for a range of images of the unborn, from artistic representations and dolls to historic anatomical drawings and models to unborn cadavers kept in specimen jars.)

The development of obstetric ultrasound (sonography) capable of producing detailed images of the unborn *in utero* has also significantly contributed to visual configuration of these entities. An edited collection of discussions by key participants concerning the development of early obstetric ultrasound offer a history of this technology in the UK. As this document demonstrates, once obstetric ultrasound techniques

became reasonably reliable and doctors and technicians had mastered the techniques of taking and interpreting the images produced, such questions as: 'Is there a foetus in early pregnancy? How many? Is it alive? What is its gestational age? Is it normal or malformed?' could now be answered for the first time, even in the early weeks of pregnancy.

Obstetric ultrasound scans became routinely offered to pregnant women in most developed countries in the late 1970s. Such scans are now commonly conducted throughout the world as part of prenatal examinations. Since the turn of the twentieth century, three-dimensional and four-dimensional (3/4D) ultrasound technology has become widely available. It is able to provide greater detail of foetal anatomy, including of foetuses' faces. In response to these technologies, a new commercial market has been generated, in which companies offer 3/4D ultrasound imaging services to pregnant women and their partners, family members and friends as a 'social' rather than a diagnostic experience. Some providers even advertise that they will come to a woman's home as part of a baby shower, offering up images of the unborn as entertainment.

These images also configure an unborn entity whose personality, gender and physical features can be identified before birth. Both sonographers and prospective parents commonly engage in a discourse that seeks to identify the unborn entity they see in ultrasounds as having physical features or personality like its parents: its mother's nose or its father's legs, for example (Roberts, 2012). The role played by 3/4D obstetric ultrasound imaging in representing the unborn as already persons in their own right is demonstrated by British research using such images to

attempt to determine whether facial expressions develop before birth. The authors conclude that as foetuses develop, they show evidence of demonstrating emotion via 'cry-face' and 'laughter' expressions. While they do not go so far as to claim that the foetuses they examined were actually experiencing the emotions associated with these expressions, this type of research does contribute to a wider configuration of the unborn as already like newborn infants, with human facial expressions that can be readily identified.

Pregnant women now frequently upload ultrasound images of their unborn on social media sites such as Facebook, Instagram, Twitter and YouTube, sometimes resulting in thousands of people having access to these images. As I demonstrate in my collection of images 'The Ultrasound as Cultural Artefact, sonographic images have become commodified and used in many ways: 'ultrasound art' (canvases featuring blown-up and colourised ultrasound images to display on the walls of one's home), in advertisements, jewellery, photo frames, fridge magnets, t-shirts, baby shower and pregnancy announcement cards and professional pregnancy photography that superimposes ultrasound foetal images onto the pregnant woman's belly to demonstrate what lies within. In such uses of the obstetric ultrasound image the unborn become aestheticised commodities, their likenesses beautified and humanised in similar ways to the visualisations produced by Nilsson and Tsiaras.

**Risk and Maternal Responsibility**

As I have argued above, embryos and foetuses that are located within pregnant women's bodies have become progressively more valued over the past few decades for

their potential as new humans and their status as already precious infants. In this context the unborn are commonly represented as at risk from the maternal body in which they are located. This discourse positioning the pregnant woman as bearing sole responsibility for the health of her unborn has circulated for centuries. I referred above to the self-published mid-nineteenth-century book by the American physician John Barry. As well as discussing the soul of the unborn in conjunction with detailed scientific accounts of embryonic and foetal development, Barry wrote about such matters as the effect of the state of the pregnant woman's mind upon her unborn: how a significant fright or other agitation, for example, or even gazing upon a deformed animal, might produce a malformed infant, or how a pregnant woman's nervous temperament may cause a miscarriage.

Similar concerns are evident in the published text of the address delivered by the gynaecologist T Arthur Helme fifty years later to a local English branch of the British Medical Association on the topic of 'The unborn child, its care and its rights'. His words evince a eugenic concern about the 'quality of the race' as well as the falling birth rate and the rising infant mortality rate evident in England at the time. Helme suggests that these concerns might be addressed by focusing on the prenatal period and ensuring that pregnant women are encouraged to care for their health, by avoiding alcohol and eating a good diet, for the sake of their unborn. Like Barry, he also refers to the 'mental state of the pregnant woman' and its importance to the development of the unborn and contends that pregnant women should therefore avoid 'shock' and 'mental excitement' (424). Helme also warns against 'overwork'

by women in factories. He proposes that the government should legislate to provide food to those pregnant women who lack it and to prohibit pregnant women working. His address is closely paralleled by a presentation by Barnett Rhetta, an American physican, published in 1915. In his address Rhetta too calls for pregnant women to be mindful of eating a good diet and proper exercise. Here again there is an emphasis on pregnant women's mental state and on how it may adversely affect the unborn. Rhetta also discusses the ill-effects of sexual intercourse after the fourth month of pregnancy and even of dancing.

By the 1960s three 'environments' in which the human unborn developed had been identified: the 'microenvironment' of the uterus, the 'macroenvironment' of the pregnant woman's whole body, and the 'matronenvironment', or the surroundings external to her body in which she is located, including such factors as pathogens, radiation and environmental pollutants or contaminants. It is evident from the contemporary medical literature that emphasis continues constantly to be placed on the pregnant woman to control these 'environments' so as to protect the health and development of her unborn. Contemporary medical articles in this Living Book include those identifying the effects of tobacco smoke on the maternal-foetal circulation system, promoting the importance of warning pregnant women against consuming alcohol so as to avoid foetal alcohol syndrome or foetal alcohol spectrum disorder, measuring the effects of pregnant women's body weight on their unborn and contending that pregnant women should be encouraged to monitor foetal movement regularly as a means of checking foetal wellbeing. The news media often report on and reproduce medical

warnings about pregnant women consuming such substances as alcohol, frequently drawing upon overtly moralistic discourses about the 'irresponsibility' of women who fail to take up medical advice. Pregnant women are expected to manage and promote the health of their unborn even at the expense of their own needs and interests.

Current medical literature also focuses on the mental health of pregnant women. The nature of maternal-foetal attachment, also known as 'prenatal attachment', has attracted attention in recent times. This phenomenon is discussed in a published study protocol in which plans to measure both pregnant Dutch women's and their partners' attitudes to and concepts of their unborn during pregnancy are outlined. The researchers argue that the nature of what they call the 'parental-foetus relationship' is important to bonding once the infant is born. As this article suggests, pregnant women are not only expected to control the substances that enter their bodies in the interests of their unborn but also their emotional states, and to actively work on developing a 'bond' with their unborn while they are*in utero*.

Other articles include accounts of such aspects as how to deal with pregnant women with a pre-existing mental illness and the possible effect of prenatal mental illness on the unborn. A discussion of whether mentally-ill pregnant women should be involuntarily detained to receive psychiatric treatment for the sake of their unborn child's wellbeing indicates the extent to which women's rights might be challenged by virtue of their pregnant state. As these researchers note, some pregnant women have been detained and forced to submit to procedures such as caesarean section against

their wishes, in the interests of 'the child's safety' rather than their own. This detention of pregnant women and the contravening of their rights in the interests of the unborn entity has become an increasingly common phenomenon, particularly in the USA (Hartouni, 1991; Paltrow & Flavin, 2013).

The constant employing of a discourse of risk in pregnancy (Lupton, 1999, 2012; Weir, 2006; Lyerly et al., 2009) also has implications for how pregnant women think about their bodies and the unborn developing inside them. The anxiety that pregnant women may feel in response to this discourse is demonstrated by an article entitled 'Doctor, will that x-ray harm my unborn child?'. In this article various case studies from Canada and Israel are presented in which pregnant women expressed grave fears about undergoing x-rays while pregnant. The authors observe that one woman was so worried that she sought a pregnancy termination after having had an x-ray in early pregnancy because of her concerns that her unborn would be adversely affected by the radiation. Another article presents the findings of interviews with Canadian pregnant women aged 35 years or older about their perceptions of risk related to 'advanced maternal age', a factor that is often represented in the medical and popular literature as having a major impact on the experience of pregnancy and risks to the unborn. The study found that the risks these women identified were not limited to medical risks, but also included social and economic factors, such as how supportive their social network and relationship with their partner were and how flexible their workplace was. These women's assessment of their own health and lifestyle and experiences of knowing family members or friends who had had children later in life also contributed to their

perceptions of their own risk. A third Canadian study interviewing pregnant women about self-care and health care in pregnancy, childbirth and lactation found that many of the women articulated anxiety in relation to prenatal tests and routine obstetric check-ups, particularly if something 'unusual' was found either in relation to their own health or that of the unborn.

A significant number of research studies have been published in various countries suggesting that pregnant women enjoy the experience of undergoing ultrasounds, as they view it as a way of 'seeing my baby' (for example, Gammeltoft, 2007; Han, 2008, Krolokke, 2011, Roberts, 2012). However in their focus on the pleasures of viewing their unborn, pregnant women often do not fully realise that these scans, as part of routine prenatal examinations, are undertaken solely for the purpose of diagnosing embryonic or foetal abnormality. They therefore may not be emotionally prepared for a negative outcome. Viaux-Savelon et al. address the issue of how experiencing an adverse result from an ultrasound screen suggesting that the foetus may have a severe abnormality may affect pregnant women psychologically. They found in their research with 19 French women that even though follow-up diagnostic investigation was able to eventually demonstrate that the foetus was in fact normal, these women experienced deleterious psychological effects that continued even after the birth of their infant.

## Bringing the Maternal Body Back In

The above discussion has focused on how the unborn body and the maternal body are constantly configured either as separate from each other or as interconnected in ways that highlight the responsibility of pregnant

women to put the needs of the unborn ahead of their own. Many feminist critics have contended that in such discourses the pregnant woman becomes positioned as little more than a 'container' or 'environment' for the unborn to grow in, with the priority clearly placed on the unborn's welfare over that of the pregnant woman. These critics have pointed out that the dominant convention of visual representation is that which presents embryos and foetuses as floating free against a black background. There is little indication of the maternal body's connection to the unborn via the umbilical cord or placenta. This convention thus contributes to the configuration of the unborn as independent individuals, seemingly developing autonomously without the assistance of the maternal body (Petchesky, 1987; Hartouni, 1991; Duden, 1993; Maher, 2002; Taylor, 2008).

This discourse reaches its apotheosis in cases of brain-dead pregnant women being kept alive on a life-support system until their foetus is able to mature enough to be safely delivered by caesarean section, as in this case report. It is also frequently employed in discussions of commercial pregnancy surrogates, who are paid to literally act as 'incubators' for gestating other people's unborn. As Riggs & Due contend, such discourses deny the possibility of an emotional and physiological/embodied link between the surrogate and the unborn. These representations support the notion that the surrogate has no relationship to the child, that she is just a vessel for its development and that the surrogacy arrangement consist of the productive use of an empty, unused uterus.

Like dominant visual images of the unborn, discourses on surrogacy tend to erase the fleshy connection of the

placenta and umbilical cord that connects the maternal and unborn bodies and that discounts any emotional connection the surrogate may have to the entity she is nourishing. In response to such images and discourses, some feminist writers have sought to emphasise the connection between unborn and maternal bodies. They have attempted to re-position interembodiment as a phenomenon that benefits both bodies. In particular these writers have sought to configure the maternal body positively as a source of nourishment, bestowing a gift upon the unborn, rather than as a potentially pathological 'environment'. They have argued that a mutual rather than a one-way exchange occurs between maternal and unborn bodies during pregnancy. Just as the maternal body influences that of the unborn, the unborn body affects the maternal body. Substances are exchanged between these bodies across the placenta.

Maher (2002), for example, places particular emphasis on the placenta as a unique organ that belongs neither to the pregnant woman nor to her unborn but that is rather generated between these two bodies/subjects and shared by both. Bosanquet draws both on Maher's work and on that of the feminist philosopher Luce Irigaray to emphasise the otherness of pregnancy, the vivid embodied experiences of harbouring the unborn within one's self. As she notes, Irigaray writes evocatively of the interembodiment of the pregnant self, the two bodies/selves in one that this state uniquely embraces. Irigaray describes her pregnant body/self as 'You/I – we …We are plural'. She positions the placenta acts as a 'mediating space' between the maternal and unborn bodies, with its own autonomy. From this perspective, the placenta is positioned as a site of mutual exchange and interconnection, a way of conceptualising the relationship between the maternal and unborn bodies

that position both as agential.

## Conclusion

As this Living Book demonstrates, human embryos and foetuses have become entities that traverse many social words, spatial locations and temporal zones, their meanings often changing as much as they themselves do. Embryos and foetuses are therefore social objects, configured in and through these sociocultural and spatial contexts. Depending on such factors as the perspective one adopts (viewing the unborn as already human or perceiving them as not-yet-human), the ways in which they are created (*in vivo* or *ex vivo*), the spaces they inhabit (female body, museum exhibit, Petri dish or freezer), the uses to which they are put (to produce a baby or make a stem cell line) and the assessment of their quality, embryos and foetuses can be defined as alive/not-alive, valuable/waste matter, normal/abnormal, a baby/a clump of cells, potential human/therapeutic agent and so on.

Elsewhere (Lupton, 2013), I have introduced the concept of the unborn-maternal assemblage. An assemblage is understood as a bringing together of flesh, space, others' bodies, material objects and discourse. Assemblages are subject to constant change as they move through time and space, interacting with different others and things. The unborn assemblage is at times configured as disconnected from the maternal assemblage (the *ex vivo* embryo, the aborted foetus, the foetus shown floating in black space in visual representations, the unborn gestating within a surrogate's body) and at other times as inextricably intertwined (the foetus 'at risk' from the substances consumed by or the emotional states of the maternal

body, the unborn entity conceptualised by pregnant women as 'part of me'). The unborn assemblage may move between these states, depending on the context. I would argue that this perspective offers a way of theorising the dynamic nature of configurations of the unborn and the maternal body/self. It allows us to understand the complexities of configuration of these bodies and selves in a constantly shifting landscape of practices, images, technologies and concepts directed at human embryos and foetuses across their different stages of development.

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# Articles

## Debates Over Unborn Personhood

P Kreeft
Human personhood begins at conception

R George and P Lee
Embryonic human persons. Talking Point on morality and human embryo research

J Barry
Medico-Christian Embryology, or the Unborn Child (From the Earliest Period of its Existence)

## Mourning and Remembering the Lost Unborn

M Kelley and S Trinidad
Silent loss and the clinical encounter: parents' and physicians' experiences of stillbirth – a qualitative analysis
D Davidson
Reflections on doing research grounded in my experience of perinatal loss: from auto/biography to autoethnography

S Murphy and H Thomas
Stillbirth and loss: family practices and display
Memorial video for pregnancy loss

## Struggles Over Dealing with the Unwanted Unborn

A Moscrop
'Miscarriage or abortion?' Understanding the medical language of pregnancy loss in Britain; a historical perspective

W Tong, W Low, Y Wong, S Choong and R Jegasothy
Exploring pregnancy termination experiences and needs among Malaysian women: a qualitative study
The World's Abortion Laws 2013 website

N Zamberlin, M Romero and S Ramos
Latin American women's experiences with medical abortion in settings where abortion is legally restricted

S Barot
Governmental coercion in reproductive decision making: see it both ways

S Childs and E Evans
The revived debate on abortion is not simply dog whistle politics, but a threat to women's rights

A Peck
Personhood advocates continue war on women's rights despite growing list of defeats
Personhood USA website
'The Miracle of Life' (excerpt from an anti-abortion film)

N Stotland
Abortion: social context, psychodynamic implications

D Murphy
My foetus (review of documentary of this name)

## Assessing the Quality of the Unborn

S Wang
The past, present, and future of embryo selection in in vitro fertilization

A Theodosiou and M Johnson
The politics of human embryo research and the

motivation to achieve PGD
Termination of Pregnancy for Fetal Abnormality in England, Scotland and Wales

S Aksoy
Antenatal screening and its possible meaning from the unborn baby's perspective

F Place
Amniocentesis and motherhood: how prenatal testing shapes our cultural understandings of pregnancy and disability

Parliamentary Inquiry into Abortion on the Grounds of Disability

## The Surplus Unborn Entity

J Conde
Embryo donation: the government adopts a cause

P Andrews, H Moore and A Smith
Human embryonic stem cells: prospects for human health – a 1 day international symposium held at the University of Sheffield

H Greely
Moving human embryonic stem cells from legislature to lab: remaining legal and ethical questions

R Blackford
Stem cell research on other worlds, or why embryos do not have a right to life

T Douglas and J Savulescu
Destroying unwanted embryos in research. Talking

Point on morality and human embryo research

B Manninen
Revisiting the argument from fetal potential

B Manninen
Are human embryos Kantian persons? Kantian considerations in favor of embryonic stem cell research

E Sills and S Murphy
Determining the status of non-transferred embryos in Ireland: a conspectus of case law and implications for clinical IVF practice

A Sagan and P Singer
Embryos, stem cells and moral status: a response to George and Lee

E Haimes and K Taylor
The contributions of empirical evidence to socio-ethical debates on fresh embryo donation for human embryonic stem cell research

S Takahashi, M Fujita, A Fujimoto, T Fujiwara, T Yano, O Tsutsumi, Y Taketani and A Akabayashi
The decision-making process for the fate of frozen embryos by Japanese infertile women: a qualitative study

## Unborn Entities as Moral Work Objects

W Saletan
The healer: how Shinya Yamanaka transformed the stem-cell war and made everyone a winner

K Ehrich, C Williams and B Farsides
The embryo as moral work object: PGD/IVF staff views and experiences

K Ehrich, C Williams and B Farsides
Fresh or frozen? Classifying 'spare' embryos for donation to human embryonic stem cell research

K Ehrich, C Williams, B Farsides, J Sandall and R Scott
Choosing embryos: ethical complexity and relational autonomy in staff accounts of PGD

K Ehrich, C Williams, B Farsides and R Scott
Embryo futures and stem cell research: the management of informed uncertainty

## Visualising the Unborn

H Barniville
The morphology and histology of a human embryo of 8.5 mm

'Making Visible Embryos' website

'Lennart Nilsson Photography' website

'The Visual MD' (Alexander Tsiaras's company) website

'The Visible Embryo' website

'The Multi Dimensional Human Embryo' website

'In the Womb' (excerpt from a National Geographic documentary)

'The Miracle of Life Part 1' (excerpt from Lennart

Nilsson's documentary)

Alexander Tsiaras's TED talk about his visualisations of the unborn

'The Sociology of the Unborn' Pinterest board

E Tansey and D Christie (eds)
Looking At the Unborn: Historical Aspects of Obstetric Ultrasound

N Reissland, B Francis, J Mason and K Lincoln
Do facial expressions develop before birth?

'The Ultrasound as Cultural Artefact' Pinterest board

## Risk and Maternal Responsibility

T A Helme
An address on the unborn child: its care and rights

B Rhetta
A plea for the lives of the unborn

I Monie
Influence of the environment on the unborn

J Machado, P Filho, G Petersen and J Chatkin
Quantitative effects of tobacco smoking exposure on the maternal-fetal circulation

C Spong
Protection against prenatal alcohol-induced damage

S Yazdani, Y Yosofniyapasha, B Nasab, M Mojaveri and Z Bouzari

Effect of maternal body mass index on pregnancy outcome and newborn weight

E Saastad, B Winje, B Pedersen, B. Stray and Froen, J. Frederick
Fetal movement counting improved identification of fetal growth restriction and perinatal outcomes – a multi-centre, randomized, control trial

P Lowe, E Lee and L Yardley
Under the influence? The construction of foetal alcohol syndrome in UK newspapers

K McDonald, L Amir and M-A Davey
Maternal bodies and medicines: a commentary on risk and decision-making of pregnant and breastfeeding women and health professionals

A Maas, C Vreeswijk, E de Cock, C Rijk and H van Bakel
'Expectant parents': study protocol of a longitudinal study concerning prenatal (risk) factors and postnatal infant development, parenting, and parent-infant relationships

E Beveridge, H Anath and H Scurlock
What protection for the unborn child of a psychologically vulnerable adult?

J Dayan, C Creveuil, M Dreyfus, M Herlicoviez, J-M Baleyte and V O'Keane
Developmental model of depression applied to prenatal depression: role of past and present life events, post emotional disorders and pregnancy stress

S Ratnapalan, Y Bentur and G Koren

Doctor, will that x-ray harm my unborn child?

H Bayrampour, M Heaman, K Duncan and S Tough
Advanced maternal age and risk perception: a qualitative study

R Westfall and C Benoit
Interpreting compliance and resistance to medical dominance in women's accounts of their pregnancies

S Viaux-Savalon, M Dommergues, O Rosenblum, M Bodeau, E Aidane, O Philippon, P Mazet, C Vibert-Guigue, D Vauthier-Brouzes, R Feldman and D Cohen
Prenatal ultrasound screening: false positive soft markers may alter maternal representations and mother-infant interaction

### Bringing the Maternal Body Back In

J Souza, A Oliveira-Neto, F Surita, J Cecatti, E Amaral and J Pinto e Silva
The prolongation of somatic support in a pregnant woman with brain-death: a case report

D Riggs and C Due
Gay men, race and surrogacy in India

A Bosanquet
An image carnal and divine: angels playing with placenta

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