"Dissecting Bioethics," edited by Tuija Takala and Matti Häyry, welcomes contributions on the conceptual and theoretical dimensions of bioethics.

The section is dedicated to the idea that words defined by bioethicists and others should not be allowed to imprison people's actual concerns, emotions, and thoughts. Papers that expose the many meanings of a concept, describe the different readings of a moral doctrine, or provide an alternative angle to seemingly self-evident issues are therefore particularly appreciated.

The themes covered in the section so far include dignity, naturalness, public interest, community, disability, autonomy, parity of reasoning, symbolic appeals, and toleration.

All submitted papers are peer reviewed. To submit a paper or to discuss a suitable topic, contact Tuija Takala at tuija.takala@helsinki.fi.

The Moral Imperative for Ectogenesis

ANNA SMAJDOR

The United Kingdom, like many other affluent Western societies, is apparently in the grip of declining fertility. The resultant strain on the economy caused by an aging population is being exacerbated by what has been characterized as the selfishness of women who delay reproduction in their efforts to secure financial and social status before getting around to starting a family.[1] Such women may only begin to think about having children in their mid-30s, an age that, according to research, is a predictor of "serious morbidity" in pregnancy and childbirth.[2] And for many of those who try to start families when in their 30s, their fertility may have declined so that they may not be able to have children at all or may need to resort to reproductive therapies to do so.

The obvious response to this is to persuade women to reproduce earlier, regardless of the effect on their careers or other interests. However, there is more at stake than just this. In fact, women do not necessarily have children only to fulfill their own biological desires. Society at large may also have an interest in reproductive matters, and it is here that the difficulty emerges. Encouraging women to curb their other interests and aspirations in order to have children at biologically and socially optimal times reemphasizes that it is *women* who take on the risks, whereas society in general profits from these sacrifices. This, I suggest, is a prima facie injustice. Yet it is founded on a physical necessity: Babies must be gestated in women's bodies.

But there *is* an alternative approach to this problem: Rather than putting the onus on women to have children at times that suit societal rather than women's individual interests, we could provide technical alternatives to gestation and childbirth so that women are no longer unjustly obliged to be

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the sole risk takers in reproductive enterprises. In short, what is required is ectogenesis: the development of artificial wombs that can sustain fetuses to term without the need for women's bodies. Only by thus remedying the natural or physical injustices involved in the unequal gender roles of reproduction can we alleviate the social injustices that arise from them. My argument that follows is based on work by Justine Burley,[3] who in turn develops her position from Ronald Dworkin's views on the subject of equality in healthcare distribution.[4]

Burley's Argument: A Right to Fertility Treatment?

Dworkin talks of integrating health care into other goods and regarding all these goods in terms of distributive justice.[5] He argues from this that natural inequalities may generate a prima facie right to restitution. Thus, if a person is born blind, she may be regarded as the victim of a prima facie injustice that could lead to a claim for compensation. Burley extrapolates from this that the infertile can also claim compensation in the form of state-funded fertility treatment.[6]

However, there is a potential difficulty here that Burley observes, namely, that having children could be regarded as being merely an expensive taste. On Burley's reading of Dworkin, those tastes that we cultivate do *not* necessarily constitute grounds for compensation, but where expensive tastes have been acquired *in*voluntarily, the claim for compensation could still stand. Here she cites Dworkin's stipulation that if people's tastes are related to their conception of the "good life," then restitution is not necessarily warranted. If individuals could be offered the means of removing or relieving the desire or taste for X in a way that did not encompass the provision of X, but they chose to retain the desire, they would not be eligible for compensation. So someone addicted to truffles and caviar could not demand compensation if she characterized the possession of this desire as being something desirable in itself.

The desire for children tends to be characterized by its high place in people's priorities, as Burley notes.[7] Generally, if infertile people long for children, they do not want to receive treatment aimed at removing the desire or healing the emotional pain of childlessness: They want provision of children themselves or at least the wherewithal to generate them. Burley's reading of Dworkin so far indicates that state funding for fertility treatment is *not* justified.

However, Burley then moves on to consider the problem from a different angle: We have established that the desire for children is likely to be intricately tied up with people's conception of the good life and as such cannot be regarded as a handicap of which sufferers have a right to be relieved. This means that people who *do* have children and who find that their finances are adversely affected have no claim to restitution despite the fact that their impersonal resource holdings may be adversely affected. This is not simply because they have *chosen* to have children, but more specifically because their choice to do so is intrinsically connected with their ethical beliefs and their assumptions about what constitutes a good life. If a deficit is to merit compensation, it must be possible to construe it as a limitation upon the possibility of one's pursuit of the good life.

But people who cannot have children do not choose their infertility, nor do they construe *childlessness* as part of their conception of the good life. Individuals may be infertile

through no fault or choice of their own, but through mere brute luck. Therefore, when compared with fertile people, the personal resource holdings deficit of the infertile *may* merit compensation.[8] Thus, for Burley, fertility treatments can be fitted into Dworkin's framework as a form of redistributive justice, based on redressing the deficit in personal resource holdings that may result from no voluntary choice of the individual concerned and that may inhibit that person's capacity to pursue her life goals.

So far, Burley's argument doesn't prove anything *more* than a prima facie entitlement: The question of where to place fertility treatments in the funding hierarchy remains. There are many prima facie claimants for funding, but only limited resources. Dworkin recommends a quasi "veil of ignorance"[9] approach, in which people would choose which handicaps to make provision for, without necessarily knowing which handicaps they would suffer from. Only those conditions that the aggregate have chosen to insure against would be compensated. Burley suggests that in this kind of scenario, the social and economic weight given to reproduction is so pervasive that "[i]t is plausible to insist that individuals in the aggregate would stipulate infertility as one handicap they were particularly concerned to receive compensation for."[10]

Applying the Burley/Dworkin Argument to "Natural" Fertility

As we have seen, natural inequalities can be argued to constitute prima facie grounds for restitution. In what follows I bring these arguments to bear on my own contention: The fact that women have to gestate and give birth in order to have children, whereas men do not, is a prima facie injustice that should be addressed by the development of ectogenesis.

At this point, it seems clear that there may be a problem: Natural inequalities are frequently beyond our power to remedy. If we cannot make the blind see, increase someone's IQ, or relieve women of the burden of gestation and childbirth, then surely it follows that we cannot have any moral obligation to do these things. An act cannot be a duty unless we can be sensibly be commanded to perform it (*ought* implies *can*).[11] Accordingly, our responsibilities in terms of redistribution of natural goods are circumscribed by what is feasible.[12]

However, this seems short-sighted in the context of our rapidly moving technological achievements. If the only argument against someone's having a need met is that no one *can* meet that need, perhaps resources should be diverted toward being able to meet that need. That is to say, in some circumstances, perhaps *ought* implies *ought to be able to*. Kant's point, of course, holds when to fulfill a duty would be a *logical* impossibility. However, many things that are currently impossible (e.g., ectogenesis) are merely contingently so. We have either chosen not to focus research in these areas or are still struggling to find answers to the problem.

As long as there is no *logical* impossibility, we are not exempted from our moral duties simply by the fact that we do not yet have a way of solving the problem.

In fact, although the possibility of incubating babies in artificial wombs (ectogenesis) has long been regarded as the province of science fiction, it no longer seems incredible that within the foreseeable future, babies could be gestated without the need for a woman's body. Ectopic pregnancies show that the development and survival of a fetus outside the uterus is possible,[13] and ad-

vances in neonatal care have meant that the number of weeks' gestation necessary for a baby's survival are diminishing steadily.[14] Meanwhile, at the other end of the spectrum, laboratory techniques have enabled scientists to create and cultivate embryos in vitro for up to 2 weeks before implantation. Restrictions on this timeframe have been due to legal and ethical cutoff points rather than technical problems. Thus, the window of time required for pregnancy is shrinking and could feasibly become redundant.

Therefore, arguments such as those I am making based on the Burley/Dworkin angle cannot be dismissed on the grounds that they are beyond our current capabilities. If there *is* a prima facie injustice involved in reproduction, then it would seem that there could indeed be a prima facie moral duty to consider the possibility of alleviating it.

But this seems to leave us with a problem. If natural inequalities can constitute prima facie grounds for restitution, *and* current impossibility does not rule out a duty to channel resources in particular areas, we might find ourselves compelled to pour funds into research to raise IQs or enhance people's memories or other physical or mental attributes. Negative interventions might also be claimed: If there are some people who are "naturally" deaf, I could demand to become deaf too, since Dworkin's theory—on which I am basing my argument—avoids drawing barriers and boundaries between therapeutic interventions and enhancements or stipulating any objective benchmark as to what should be regarded as desirable.

I think this can be answered by emphasizing that all we have tried to establish at this stage is a *prima facie* right to restitution. Although it might be surprising if some of the kinds of intervention I've mentioned, such as elective deafening, were prioritized *beyond* the prima facie stage, it does not seem inherently problematic that these possibilities share with ectogenesis a place at the merely prima facie stage of meriting attention. We must simply be sure that there is an effective means by which competing claims can be judged.

To progress the claim for restitution *beyond* the prima facie stage, we need to consider the "veil of ignorance"-type scenario as described above, where individuals make judgments based on which disabilities they would provide for, without knowing in advance whether they would suffer from these disabilities. Although Dworkin rejects explicitly using criteria such as well-being or suffering to distinguish *objectively* between claims, he leaves it open as to what criteria the *individual* might use in his/her analysis of the options from behind the veil of ignorance and how these considerations might affect the aggregate outcome.

So what *would* motivate people's judgments in these conditions? The probability of having a particular condition is thought by Burley to be a significant factor. Burley also assumes that social proclivities, such as the desire for genetically related offspring, would be a motivating factor.[15] I want to add my own ingredient to this speculative mix, namely, the association of the condition with pain and suffering.[16]

Gestation and childbirth, it seems to me, are very likely to be associated with pain and suffering in a way some other conditions might not be. Moreover, a susceptibility to these problems afflicts around 50% of the population (assuming that in this particular veil of ignorance scenario, the individual does not know which gender they will be). Thus, on these two grounds alone, I would suggest that choosing—if the choice was open—a technological alternative to gestation and

childbirth from behind the veil of ignorance would be entirely plausible.

Pregnancy Is Barbaric

懷孕是野蠻的

There has been a conceptual failure in medical and social and ethical terms to address the pathological nature of gestation and childbirth and to tackle the health problems it poses from a justice perspective. Here, I want briefly to highlight some of the risks involved in pregnancy and childbirth. I want to suggest that the desire of women to be able to reproduce as men do, without risking their physical and mental health, economic and social well-being, and—crucially—their bodily integrity, can be defended against charges of being mere whim, preference, or expensive taste. The effects of gestation and childbirth on women's health alone mean that the claim of women to be relieved from this means of reproduction can be firmly located within a recognizably health-oriented need.[17]

Fifteen percent of all pregnant women develop potentially life-threatening complications.[18] Over the years 2000–2002, the overall maternal mortality rate in the United Kingdom was 13.1 maternal deaths per 100,000 maternities.[19] Pregnant women are likely to suffer health problems including back pain, exhaustion, bowel problems, and urinary incontinence extending for 6 months after delivery and beyond.[20] The prevalence in particular of fecal incontinence following childbirth is something that has only just begun to be recognized, and it has been suggested that for this reason alone, "natural" birth should be something for which women give informed consent based on a full understanding of these risks.[21]

Morbidity associated with childbirth has been systematically neglected.[22] Perhaps for this reason, research shows that mothers experiencing their first childbirth find the event worse than they had expected.[23] Where women *are* aware of the risks involved, this can increase fear of childbirth.[24] Fear itself can raise the likelihood of their having caesarean sections due to complications arising from tension and trauma at the time of birth.[25] Caesareans, of course, entail all the usual risks of major surgery.

Despite the known dangers associated with caesareans, more and more women choose this option with all the attendant risks.[26] They are often castigated for this ("too posh to push"[27]). But no one *likes* having major surgery; the fact that some women are tempted by the possibility of this procedure can be taken to demonstrate that "natural" childbirth is a fearsome prospect. As Shulamith Firestone said, "pregnancy is barbaric."[28]

Put simply, however much modern medicine can do to improve outcomes in pregnancy and childbirth, it cannot remedy the fact that these processes impose risks on women that far exceed the risks of normal day-to-day living. The health-related consequences of childbirth and labor also permeate into women's ability to function as mothers and as members of society. A difficult labor increases the chances of posttraumatic stress syndrome[29]; incontinence and back pain may keep women out of work or severely restrict their employment options and thus impair their financial well-being.

The final point to make here is the well-known one that, for expectant mothers, the fact of encompassing another life in their bodies often takes a serious toll on their autonomy. Pregnant women are routinely expected to subsume their appetites and desires into those that would be in keeping with the well-being of the fetus. Not

only this, but their abilities and rights to make decisions about their medical care are at risk of being overridden in favor of the interests of the unborn child. Respect for one's bodily integrity, something that most men may take for granted at least in a medical setting, is by no means assured for women even in societies that pride themselves on concern for ethics and autonomy. Women are still sterilized against their will and undergo forced abortions and forced caesareans.[30]

Voluntary Risk

One could, of course, argue that in these days of modern contraception, women aren't forced to have children. It is a *choice* that women make. If they choose to accept the risks involved, they can have no claim to restitution.

Burley neatly illustrates the idea of choice and risk in an analogy that I borrow here.[31] Suppose two people go bungee jumping, knowing that this is a sport that entails a certain degree of risk. One of the jumpers suffers detached retinas; the other is unscathed. Burley states that the injured bungee jumper does not have a claim to compensation, because she voluntarily underwent the same risks as the other jumper. In fact, it is a case of option luck as opposed to brute luck.

In my argument, pregnancy is the bungee jump. Granted, women *do* often voluntarily make the choice to jump and thus assume the risks involved. However, the prima facie injustice involved lies in the fact that when *men* decide to jump—or to have a genetically related child—they are able to do so without assuming any of these risks that affect women in similar situations. When a man wishes to have offspring, he is able to do so without risking his bodily integrity, his health, or his privacy. Thus, in terms of personal resource holdings, women are systematically at a disadvantage. In the context of reproduction, men and women are *not* like the two bungee jumpers in Burley's analogy: The choices and risks open to them are vastly unequal.

Applicability of the Argument to Men or Surrogates

Just as some women might wish to be free of the burdens of childbirth and gestation, so some men might long to be able to experience these things. I concede that if there were men who wished to gestate and give birth, the lack of this capacity could be regarded by such men as a deficit in their personal resource holdings. Such men, according to my argument, would also have a prima facie right to restitution. However, just as women would have to rely on other factors to advance their cause beyond a mere prima facie right, so would men in these circumstances.

There is another possibility to consider here. In fact, a woman does not always *necessarily* have to gestate and give birth in order to have genetically related children. A less technologically pleasing solution is currently at hand: surrogacy. If those women who do not wish to give birth could routinely delegate the task to those who do, the injustices I've been describing would seemingly evaporate. Just as a man can currently use his wife or partner as a surrogate to carry his child, rather than carrying it in his own body, so in this new arrangement, his wife or partner would also be able to avail herself of a surrogate.

However, this scenario is unlikely to be appealing. Apart from the difficulty of ensuring that sufficient surrogates would offer themselves, without veering into coercion, it simply seems to reframe the problem in a narrower context. Part of the objection about the current

reproductive situation is that a subset of individuals in society (women) is, in effect, obliged to act as surrogates for men. If we simply reduce the number of that subset, without addressing the inherent inequality (namely, that it *has* to be women who are the surrogates, rather than men), we come no closer to solving the injustice.

Effects on the Child

There is, of course, a fundamental ethical consideration to be addressed in relation to the question of ectogenesis: What effect would it have on the child? It might be argued that "ecto-children" would lack some essential bond with their mothers that other children have. At the very least, it would seem extremely technically demanding to ensure that an artificial womb provided all the nutrients necessary for the well-being of the child. And what about the effect on the mother/child relationship? Surely this would be fractured by the removal of the physical bond between them.

With regard to the safety of ectogenesis, I assume for the purpose of this argument, that sufficient research would need to be carried out to establish this. However, the difficulties of mother/child bonding still remain. I want to make two points in response to this possible obstacle. First, those who suppose that the mother's bond is entirely dependent on her physical gestation of her child do a huge disservice to all the step- and adoptive parents who love their children dearly. More importantly, they sweep away any possibility of claiming that fathers can love their children as much as mothers do. Of course I don't claim that fathers always *do* love their children as much as mothers, but I think it self-evident that they *can*.

Conversely, mothers' physical connection with their babies does not guarantee a secure and unconditional flow of motherly love. Plenty of women fail to bond with their naturally born children. Arguably, the traumatic processes of birth are partly implicated in this: Postpartum depression (which affects 13% of women who have given birth) may cause the mother to reject her child or to refuse to nurture it, all of which have a negative effect on the child's subsequent development.[32]

Another point to make here is that, in the current age of prenatal testing and diagnosis, the phenomenon of the "tentative pregnancy" has been well-documented.[33] That is to say, women undergoing prenatal tests speak of a need to re-form bonds with their fetuses after receiving test results. There are also considerations related to the development of visualization techniques during pregnancy: For many couples, being able to "see" the baby on screen is a highly significant moment. This is not connected with the knowledge that the baby is inside, which has been evident all along, but is tied up with the idea that the baby *looks* like something, that it can be seen *despite* being inside the mother.[34]

Physical gestation of a child is thus neither necessary nor sufficient for the development of a loving parental bond. The permutations of childrearing in our society are diverse, and it seems highly dubious to locate some kind of mystic essence of parenthood in gestation and childbirth if neither of these things can be directly associated with the development of the loving bond or with benefits to the child.

因此，孩子的身體妊娠對於發展充滿愛的父母紐帶既沒有必要也不夠。

Arguing for Prioritization

To return to the argument in favor of ectogenesis: I have suggested that there are prima facie grounds for women to

be relieved of the natural inequalities involved in reproduction and have attempted to deal briefly with some of the more obvious objections to this claim. In this final section, I want to address the major difficulty: where to locate ectogenesis in a competing hierarchy of claims for state assistance. As suggested by the Dworkin/Burley model, a version of the veil of ignorance is required, in which individuals make decisions based on their preferences and their judgments of the likelihood of being afflicted by certain disorders, and the aggregate of these choices receives priority in funding. I've emphasized that Dworkin's approach does not require that anything be objectively definable as a disease, disability, or disorder, so the fact that gestation and childbirth are "natural" for women is not in itself an argument against their appearance in the list of contenders for restitution.

Burley's argument in favor of the provision of state-funded artificial reproductive technologies rests heavily on her assumption that this veil of ignorance test would yield a result that prioritized fertility treatments. I think that this assumption is hasty. Burley does not discuss the relationship between fertility treatments and remedies for other natural inequalities, and I see no reason to suppose that it would *necessarily* be prioritized in the way she assumes. Infertility as a condition is not *necessarily* associated with suffering in the way that say, appendicitis is. Only a subset of those who are infertile will actually *wish* to reproduce. For those who do not, they might never even realize that they lacked the capacity.

In theory at least, there might be greater scope for ectogenesis to be prioritized due in part to the pain and trauma that even the best-managed childbirth entails. There is also the fact, as I've pointed out, that susceptibility to this trauma affects around 50% of the population—considerably more than Burley's 1 in 10 couples who may suffer from infertility. But our society would need to undergo a major conceptual shift for sufficient numbers to regard female fertility per se as something that merits compensation. For this reason, I suspect that the veil of ignorance test would be *un*likely to work if embarked on now. However, if women—and men—feel that there is a genuine justice issue here, it remains with them to convince the skeptical masses of this fact.

The democratic nature of the Dworkin/Burley argument that I've borrowed here requires more than abstract theorizing: People need to be persuaded. Probably the "yuck factor" will be too strong for it to prevail as yet. But just as it was thought absurd that women should vote or ride horses astride, so it may come to seem absurd that they were chained to the degrading and dangerous processes of pregnancy and childbirth simply because of our inability to get our heads round the possibility of an alternative.

I would like to close with an imaginary scenario: You, the reader, from behind the veil of ignorance, are asked whether you would prefer to be born into society A, where women bear all the risks and burdens of gestation and childbirth, as they do now, or society B, where ectogenesis has been perfected and is routinely used. You do not know whether you will be born as a man or a woman. Which would you choose?

Notes

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4. Dworkin R. The foundations of liberal equality. In: Peterson GB, ed. *The Tanner Lectures on Human Values*. Salt Lake City: University of Utah Press; 1990:XI:3–119.
5. See, for example, Dworkin R. Justice in the distribution of health care. *McGill Law Journal* 1993;38(4):883–98 at p. 886.
6. See note 3, Burley 1998:132.
7. See note 3, Burley 1998:142.
8. There is a question here, of course, about the degree to which infertility is brought on by personal choices and the degree to which this might affect Burley's argument. However, there is not scope to address this problem in this paper, and, although I think it may be a problem for Burley, it does not apply in the same way to my application of the Burley/Dworkin argument.
9. See note 5, Dworkin 1993:889.
10. See note 3, Burley 1998:142.
11. Kant I. *The Moral Law Groundwork of the Metaphysics of Morals*. London: Hutchinson & Co LTD; 1948.
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15. See note 3, Burley 1998:142.
16. In fact, although Dworkin does not explicitly endorse freedom from pain as being an objective good, he assumes that freedom from pain is likely to be an important aspect of well-being, so my inclusion of pain as a consideration here may be seen to be in line with what Dworkin himself might accept as being a likely factor in people's decisionmaking from behind the veil of ignorance. See note 4, Dworkin 1990:43 (especially the footnote on that page).
17. Of course, from Dworkin's perspective, categorizing something as an authentic medical need is not in itself necessary to justify providing compensation. However, I am focusing on the criteria that might motivate people to elect for the provision of such compensation, and I am aware that concepts of medical need might play a role here.
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22. See note 2, Herbert 1999:942.
23. See, for example, Oakley A. *From Here to Maternity*. Harmondsworth: Penguin; 1979, especially chapter 5: The Agony and the Ecstasy.
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27. See, for example, Asthana A. "Too posh to push" births under fire. *The Observer* 2005 Sep 4.
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31. See note 3, Burley 1998:136.
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