The End of Human Reproduction?

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ABSTRACT

The pessimistic Norwegian philosopher, Peter Zapffe, argues that human consciousness exposes us to the brutal meaninglessness of our existence. We therefore attempt to anaesthetise ourselves so that we are rarely forced to experience what Zapffe describes as 'cosmic panic'. Zapffe lists four techniques by which we seek to achieve this: isolation, anchoring, distraction and sublimation. Though we rely heavily on these techniques, Zapffe believes they offer a limited protective value. Zapffe regarded women as being less susceptible to 'cosmic panic' because they are "...in general less cognition-prone and hence more secure in their living than men". In this paper, I show that reproduction has served to fulfil a powerful anchoring and distraction strategy for the avoidance of the kind of horror that Zapffe discusses. Once we achieve gender equality so that women are freed from the shackles of uncontrolled fertility, we may be better able to recognise *women's* accounts of their pessimism and despair. But not only does this free up half of our species' members to join in the collective despair, it threatens the status of reproduction itself as one of our most effective anchoring and distraction techniques.

1. Introduction

In his essay, The Last Messiah, the pessimistic Norwegian philosopher Peter Zapffe argues that human consciousness, rather than being a mark of our evolutionary excellence, is a curse (Zapffe 2004).[1] Zapffe regards human consciousness as being the evolutionary counterpart of the enormous antlers of the Irish elk, a species that ultimately became extinct because – it is believed – the antlers were simply not compatible with survival (Moen, Pastor and Cohen 1999). Like the extraordinary antlers of the elk, human consciousness may be magnificent in some respects, but for Zapffe it marks us out as doomed creatures, who are not fit to survive in our environment. Zapffe's philosophy has been discussed by a

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[1] All direct quotes from Zapffe in this paper are taken from The Last Messiah. For simplicity I have not appended a reference to each quotation.

number of scholars, some of whom disagree with his pessimistic vision, others of whom make recommendations as to how humans can cope, given the problems that Zapffe outlines (Moen 2021, Frestedal 2013, Gualeni and Vella 2020, Hendy 2021). In this paper, I do not engage with these debates. My aim here is more limited: to show that consciousness alone is not sufficient to bring about human extinction, whereas consciousness in conjunction with human reproductive design seem to present a much more persuasive challenge to ongoing human existence. Moreover, while empirical evidence tends to undermine Zapffe own claim insofar as it relates merely to consciousness, in recent years it has become evident that there is a significant downward trajectory when it comes to human fertility. This is regarded as being sufficient to require governments, public health authorities, economists and demographers to take urgent action (Jones 2022).

Zapffe's pessimistic vision emerges from the fact that we, along with all other creatures, are destined to struggle and suffer and die in a world that lacks meaning. But unlike other creatures, which pursue their instinctive goals, our overelaborate powers of reasoning enable us to catch glimpses of the unbearable reality we inhabit. These moments of dreadful realisation are described by Zapffe as '*cosmic panic*'. To avoid cosmic panic, we must either remove ourselves from the chaotic horror of existence (through suicide – a choice that Zapffe regards as both rational and in some senses therapeutic) or attempt to anaesthetise ourselves. Our cognitive ability leads us to muse over our status in the world, to ask questions and to seek meaning in life. But we are doomed to find that there is none, according to Zapffe. Therefore, the rational capabilities that are commonly regarded as pride of our existence, are essentially tragic burdens; the equivalent of the enormous antlers of the Irish elk. Zapffe describes a number of techniques and strategies that people commonly fall back on to escape from cosmic panic: isolation, anchoring, distraction and sublimation. Though we rely heavily on these techniques, Zapffe believes they offer a limited protective value. Despite this, he notes that fewer people take the suicidal exit route than might be expected.

The fact that people do not commit suicide in the numbers that Zapffe might predict, could in theory be taken as a challenge to his overall claim. However, of course Zapffe could counter-argue that people are simply very good at employing the four techniques he lists. If actual suicide rates fail to correspond with his

pessimistic view, this is just an indication of how successful we are at self-deception. Yet if this is so, it is not very clear what significance Zapffe's pessmistic vision really has. If our consciousness is so dangerous in leading us towards cosmic panic, it seems that it is even more powerful in its ability to create a world of delightful distractions. Even if we may occasionally peek behind the curtains, so to speak, and experience a momentary thrill of horror, we are – largely – safe in the cosy world we have constructed for ourselves. Thus, our consciousness is *not* the equivalent of the Irish elk's enormous antlers, since we are able to survive and even thrive.

Since being susceptible to cosmic panic does not, in the vast majority of cases, lead to suicide, I suggest that Zapffe's analogy between consciousness and the antlers of the Irish elk is unpersuasive. However, it is increasingly clear that people who are susceptible to *pregnancy*, are likely to take measures to avoid it, in situations where they have a choice (Cheng et al 2022). In this way, I suggest that Zapffe's pessimistic vision could be accurate, though not in the way he envisaged. That is, consciousness and intellect may after all lead us towards species destruction, insofar as they enable us to *choose not to reproduce*. Birthrates are declining, and it seems likely that they will continue to do so if other things that we regard as valuable – the eradication of poverty and the global acceptance of gender equality – are achieved (Savelieva et al 2023). Whether the eradication of poverty will or could ever happen, and whether absolute gender equality can be achieved, are questions that I cannot answer here. But I will show that *if we think they should be* then this could bring Zapffe's pessimistic prophecy closer to fulfilment.

Zapffe, of course, would not object to the idea that humanity might stop reproducing. Since he regarded suicide as a logical response to the human condition, a failure to reproduce might be construed as an acceptable, though less efficient means of achieving the same end. However, I do not suggest that the failure to reproduce is in any way a conscious response to 'cosmic panic'. Rather, my argument is that Zapffe's conception of human consciousness as being akin to the lethal antlers of the giant elk, is indeed partially correct, but not because it leads to cosmic panic per se. It is in conjunction with the brutality of human reproductive design that consciousness becomes dangerous. Consciousness propels us to seek reasons, to make choices, to place value on some things and not others. When women have the power to make choices with regard to reproduction, we open the way for new threats to the continuation of human existence.

Zapffe himself regarded women as being innately less "cognition-prone" and hence less susceptible to cosmic panic than men. Zapffe apparently saw no reason to substantiate this with any empirical evidence or argument. The modern reader might dismiss this as the product of sexist prejudices that would be expected to influence thinkers of Zapffe's time. Even supposing women shared the kind of pessimism that Zapffe ascribes to men, how would we expect women throughout history to articulate this when they were struggling with the burdensome tasks required of females? How would they express it when their opportunities for public life were limited, their leisure for reflection constricted and their education minimal? Who would listen to them if they did succeed in expressing the kind of thoughts that Zapffe believed men were more likely to experience? Once we achieve gender equality so that women are not impoverished, so that they are educated, so that they are freed from the shackles of uncontrolled fertility, we may risk expanding the pool of those who are most at risk of 'cosmic panic'. But this is not my main concern here. Women are and always have been capable of pessimism and despair. But neither men's nor women's cosmic panic seems to lead straightforwardly to destruction. What has changed over the past hundred years is *not* so much that women are now able to join men in the collective cosmic panic, but that gender equality comes at the cost of a considerably reduced birth rate. If women are no longer subject to economic, social or biological compulsion to reproduce, they need *reasons* to have babies. I will discuss the idea that there remains some degree of biological compulsion to reproduce, and consider whether this might help us to avoid the risk of extinction. However, I suggest that the commonest genetic and biological explanations of the 'need' to reproduce are inadequate.

2. Declining birth rates

In recent years, there has been a slew of headlines about the dramatic fall in population rates, along with various speculations as to why, and what should be done about it (Satija 2024, Gallagher 2018). While experts disagree as to the rate of decline, and the appropriate responses, the fact that birth rates are going down is not in dispute. In 2024 an article published in the Lancet warned that by 2050, over three-quarters of countries will have fertility rates below replacement levels. By 2100, this will increase to 95% of countries. Even in lower-income areas where fertility rates are highest, numbers are decreasing, albeit more slowly than in the wealthiest nations. With improved access to family planning

and female education, birth rates are expected to decrease even in nations that are currently characterised by high birth rates. The authors caution that national leaders need to prepare for new challenges to the economy healthcare systems and geopolitical stability caused by these demographic changes (Bhattacharjee et al 2024).

As the authors of the article observe, these trends are associated with educational attainment. The more years of education a woman has, the less likely she is to have children. This is true even in the Scandinavian countries that have some of the most favourable policies for mothers in the world (Hellstrand et al 2021, Savelieva et al 2023). Women, now freed of the *necessity* of reproduction, have to enter the dangerous world of conscious decision-making if they are to have children. And increasingly, they decide not to. While Zapffe puzzled over the fact that people commit suicide less frequently than they should do, given man's predicament, it seems that there may be a different kind of species suicide on the horizon; one that arises from the human ability to reason, but which does not emerge from cosmic panic so much as a rejection of reproduction.

However, we live in a world in which there are many many women who do *not* have the choice of whether to become mothers. Such women currently produce most of the species' offspring, and will continue to do so, according to the Lancet paper cited above, until the wealthy world is almost entirely reliant on women who lack access to education, contraception and abortion, to provide its human resources (Bhattacharjee et al 2024). Do we as human beings really want to premise the survival of our species on the fact that women in some societies are coerced to do the things that we choose not to? Martha Nussbaum urges us to consider capabilities as the focus of charitable endeavours, especially for women. She asks "what are they able to do and be?" (Nussbaum 2002). High birth rates are at least in part the product of women's *incapabilities* arising from economic or social constraints.

At the time of writing, the eradication of poverty and the eradication of gender inequality are numbers one and five of the United Nations Sustainable development goals respectively (United Nations Department of Economic and Social Affairs). Indeed, it seems that some progress is being achieved in this respect. A recent report claims that global poverty has diminished significantly in absolute terms (Ravallion 2020). We are not generally content to let the developing world develop as it pleases. We want to ensure that it reflects and em-

bodies our concepts of economic and gender justice. These moral aims that colour our interactions with other societies, are *anchoring* strategies according to Zapffe's terminology. We attach great weight to their moral importance, and guide our lives by them. This helps us to make sense of an otherwise senseless world. For Zapffe, these values are illusory, with no intrinsic or objective truth. I do not take a position on this. But whether we accept Zapffe's view or not, it seems that in the worst case scenario, the values of Western affluent societies are on a collision course with the ongoing reproduction of our species.

However, perhaps there is a way of avoiding the idea that there *is* a conflict. That is, even if we agree that a world in which poverty and gender inequality had been eradicated, would be one with far fewer babies, it is not *only* gender justice and poverty that affect birthrates. Other factors also influence women's reproductive choices, including other moral and cultural variables, as well as education. Therefore, provided that pronatalist cultural values can co-exist with gender equality, women's reproductive choices could be exercised in ways that are likely to perpetuate the species.

3. Valorising reproduction

Sarah Franklin has argued that "[t]he givenness of 'natural facts', and in particular the 'facts of life', has allowed them to operate as fixed, unquestionable anchors" (Franklin 2002) It is because of this, she suggests, that reproduction is under-theorised' (Franklin 2007) Franklin's use of the term 'anchor' is significant here. Reproduction is one of the most powerful distractions we have in Zapffe's sense, to take our minds away from cosmic panic. But if women become reluctant to reproduce, we may risk losing this anchor. Because reproduction is such a crucial distraction, it is hedged about with supplementary anchors that secure its meaning and central purpose to our existence and which link it to other important anchors. However, there are two points worth noting here. Firstly, some of our commonly held anchors, or moral values, such as gender equality and education, as noted above, seem to be adversely correlated with fertility rates. Moreover, reproduction itself is the focus of 'anchoring' values. We tend to think of reproduction as being natural, normal, beautiful, something we are biologically designed for, and to view pregnancy and childbirth as events that are a meaningful and fulfilling aspect of women's lives. The possibility that these anchors could be used to bolster women's willingness to reproduce – and

thereby 'save' the species is extremely plausible. Indeed, if we think about cultural and other values, they operate powerfully on all countries including those currently manifesting low birthrates.

The fact that women have babies *at all* when they can avoid doing so, could perhaps be attributed to cultural expectation. This commonly manifests itself as reproductive rhetoric. One of the frequent responses to women who fail to reproduce in ways that appropriately satisfy cultural norms is to brandish a variety of these 'anchors' at them rhetorically. An extreme example of this is President Roosevelt's damning statement issued in 1906 to women who failed to reproduce. He accused them of committing "the one sin for which the penalty is national death: race suicide" (Whittington et al 1990). A more recent illustration is the 2016 Italian campaign: the government embarked on a public health programme designed to urge its recalcitrant women to produce babies as a matter of urgency, emphasising the importance of youth and beauty for mothers (Kington 2016, Coppolaro-Nowell 2016). Media discussions of women who fail adequately to fulfil reproductive norms are castigated in a variety of ways. Teenage mothers are castigated for being irresponsible (Duncan et al 2010, Wilson and Huntinton 2006). Those who choose caesarean section (CS) are derided for being 'too posh to push' (Bourgeault et al 2008, Kukla 2008). Women who delay pregnancy are accused of being cold, selfish or ignorant (Shaw and Giles 2009, Hadfield et al 2007).

In most liberal Western democracies, however, governments and health authorities prefer to hint at medical reasons why women should reproduce at certain times or in certain ways. Women are encouraged to reproduce earlier, in order to avoid medical problems such as subfertility (Smajdor 2009). They should avoid CS because it is a major surgical intervention and carries significant risks (Anon 2016). Reproduction is regarded as natural and healthy, but only if undertaken in certain ways. As I will discuss in the next section, of all anchoring strategies, health protection is extremely valuable. We regard medical care and health-related interventions as having a special moral status that supersedes many other values. This is of course partly because it is connected to our own existence. Like reproduction, health is regarded as a necessity for our survival as individuals and as a species. But it is also regarded as something that supersedes mere cultural or subjective interests. It is a universal value.... Indeed, the United Nations' sustainable development goals, which I mentioned above, include 'Good health and wellbeing' at number 3. The point here is that if our societies attempt to encourage women to reproduce by valorising reproduction,

by associating it with powerful anchors that tie it to other values in life, we seem to clash with another powerful value. That is, the value of health itself.

4. Pregnancy as pathology

I have shown how gender equality and other values (or 'anchors' in Zapffe's terminology) commonly held to be important, such as education, independence, are correlated with low birth rates. To put this baldly, at the current time, it is only in places where women are oppressed that enough babies are being born to meet replacement rates (Lancet 2024). Societies that place value on gender equality can and do attempt to increase birth rates in ways that do not resort to outright coercion, by valorising reproduction. However, these methods have not changed the trend towards lower and lower birth rates. Moreover, it seems there is an additional clash. If we valorise reproduction and urge (not coerce) women to have more babies than they might otherwise choose, we are urging them to undertake something that is risky to their health.

Human reproduction is particularly dangerous, in comparison with other animals. This is because it involves a clash of two evolutionary design imperatives. Our big heads contain the large brains that enable us to dominate our environments (and to engage in the kind of abstract thinking that Zapffe believes may lead to cosmic panic). But since the earliest environment for a human being is another human body, that large brain is constrained by the bones and flesh through which it must enter the world. The body that carries the baby has functions to fulfil that are incompatible with maximising its reproductive capacities. Thus, women's pelvises are nowhere near large enough for a pain and risk-free exit for the average baby. Baby and woman are, during the process of birth, locked in a struggle that has the potential to be fatal for one or both participants. For millennia, this has resulted in a kind of evolutionary stalemate. When big head met small pelvis, one or both would die. Because of this, the relationship between reproduction, health and medicine is an uneasy one. Reproduction is natural, yet in places where women have little or no access to medical care, mortality is appallingly high (World Health Organisation 2023). At the same time, 'medicalising' reproduction is regarded as ethically problematic (Nelson and Romanis 2021).

Concepts of health are extremely powerful anchoring strategies. Morally, we have transmuted this into an imperative that gives us not only the right but the obligation to intervene in situations where health is threatened. Hence the high

placement of health in the United Nations' sustainable development goals. Health comes *before* education and *before* gender equality. However the relationship between health and other anchoring strategies is not always straightforward. For one thing, the definitions of health and disease themselves are disputed. Moreover, their relationship with nature and evolution seems to be highly complex. We usually assume that health is our 'natural' state, and find it hard to regard any part of our design as being pathological. Zapffe however, does not hesitate to categorise consciousness itself as pathological and to characterise human design as being biologically flawed. Where psychiatrists regard depression and suicide as indications of malfunctioning or disease, Zapffe regards them as appropriate responses to our situation. Zapffe notes that "[p]hysicians [...] for self-protection will only see the technical aspect of their profession."

Unsurprisingly, therefore, Zapffe's interpretation of pathology is unlikely to map onto any orthodox medical model. However, it is in some regards more scientifically plausible than the blind assumption that we are "biologically fated for triumph" to use Zapffe's words. The Irish elk whose antlers gradually evolved to be incompatible with its continued survival is key here. I suggest a possible definition of pathology as 'an aspect of the organism that reduces its chances of continued survival in the environment it inhabits'. On this view, the elk's antlers can be seen as pathological. With this definition, Zapffe's understanding of consciousness as possibly pathological also seems plausible, though perhaps less obviously so than the example of the elk. Of course, we cannot know for sure that the species *will* perish. But there may be good reasons to think that this is the trajectory that we are on. For my suggested definition of pathology, this is all that is required: a threat; a diminution of the likelihood of survival in comparison to some other way of designing the species that might appear to increase these chances. Thus, in the elk's case, having smaller antlers would have improved its chances of survival.

My interpretation of pathology also includes a reference to environment. The elk with the large antlers might survive in a different environment. The human species is expert in changing and modifying the environment. Indeed, the cognitive faculties that threaten our existence in some respects, are precisely the same faculties give us the possibility of adjusting the world around us. A pathological trait may be eliminated not just by redesigning the organism, but by redesigning the environment, so that the trait becomes a likely advantage, or at least loses its negative impact. This is something Zapffe does not discuss in his

essay, but I note it here as a potentially interesting avenue. I have already highlighted the human capacity to control and manage their environment. Perhaps, if we wanted to, we could even modify ourselves to be less intelligent, or less prone to cosmic panic (Moen 2021). In a later section, I will discuss the possibility of finding alternative – less risky – modes of reproduction.

The point here is that we cannot rescue reproduction through appealing to the anchor of health, if reproduction itself is a pathology. As noted, natural human reproduction is extremely hazardous. In the past, vast numbers of women and babies died during the difficult process of delivery. Despite this, pregnancy is not usually considered pathological, perhaps partly because it is the only means by which are species can reproduce. Could it be considered pathological despite this? In recent years, some scholars have argued that it indeed it could be, despite its necessity for human reproduction (Smajdor and Räsänen 2024). Pregnancy leads in many cases to childbirth, which causes death in a small, but significant proportion of those affected and results in pain, injury and complications for huge numbers of women (World Health Organisation 2017). Of course, it is not easy to think of childbirth as a pathology. We are strongly socialised to valorise pregnancy as discussed above. However, some more analysis of risk factors may help here. It is known that the contraceptive pill carries with it some medical risks including thrombosis and depression. Yet the risks of both thrombosis and depression are considerably *higher* with pregnancy than with the contraceptive pill (Eichinger et al 2013, Skovlund et al, 2016, O'Hara and Wisner 2014). Thus, the woman who seeks to avoid risks to life and health should take the pill rather than becoming pregnant. If she does become pregnant, it is medically safer for her to undergo an abortion within the first trimester, than to continue with the pregnancy (Raymond and Grimes 2012). This is because a woman is more likely to die in childbirth than from an abortion (Gerdts et al 2016).

The WHO describes maternal deaths as "the tip of the iceberg [...] For every woman who dies of pregnancy-related causes, 20 or 30 others experience acute or chronic morbidity, often with permanent sequelae that undermine their normal functioning" (Firoz et al 2013, Thompson et al 2014). The business of working out exactly how many women are harmed through childbirth, and how severely, is difficult because there is no standard definition way of defining, quantifying or monitoring injuries arising through childbirth (Creanga et al 2014). What we do know is the rates of serious injury resulting from childbirth are increasing even in some Western countries, such as the US (Fink et al

2023). Urinary and faecal incontinence and pelvic organ prolapse are among the commonest complications following childbirth. These can cause lifelong problems for women (Brown et al 2015). Globally up to half of all women who have given birth to a child suffer some degree of clinical prolapse. It is vaginal delivery that is the primary causal factor, meaning that CS is protective against prolapse (Carroll et al 2022). Yet CS is regarded as something that should be *avoided* in many maternity settings (Cattani et al 2021). There is an interesting discrepancy in hospital consent procedures for childbirth. Women undergoing CS are required to give 'informed consent'. This requires that the risks of the procedure must be divulged. Because of the high likelihood of injuries, it has been argued that pregnant women should be informed about the risks related to vaginal birth (O'Boyle et al 2002). Vaginal delivery is associated with a 67% increased risk of urinary incontinence compared with CS as well as a higher risk of prolapse" (Gyhagen et al 2013a, Gyhagen et al 2013b) .

Unsurprisingly given these risks, *fear* of childbirth is a problem for many women. Women who fear childbirth are more 'at risk' of undergoing elective CS (Eide et al 2019). Here, the pathologisation of what might seem a perfectly reasonable wish to avoid risk is striking. It is notable that a) the experience of birth itself does not tend to reduce the fear, and b) that higher socio-economic status – which is associated with higher levels of educational attainment – is a key risk factor (Räisänen et al 2014). It seems that the women who know most, either through direct experience, or through education, are more afraid of what childbirth holds for them.

All the phenomena I have outlined here seem to call into question the idea that human pregnancy can be viewed as part of a 'benign natural design' in a way that separates it categorically from the ill-design of the Irish elk. But as I have shown, public health messages consistently urge women *not* to avoid or postpone reproduction. Women are told to get pregnant 'naturally' and give birth vaginally, and to avoid 'unnecessary' CS even though this is known to increase the risk of prolpase. As I have shown, these 'health' messages are not designed to help women reduce health risks in their lives. Rather, they are aimed at preserving the anchoring status of reproduction. Even in the West, women are not simply free to manage their reproductive lives as they choose. They are subject to a barrage of exhortations about how and when to get pregnant and give birth. The one thing that is lacking in this outpouring of advice, is *why*. *Why* should women get pregnant and give birth, in view of the health risks I have outlined?

One answer might be that they are genetically compelled to do so. We accept the risks of reproduction because we are *driven* by our genes to replicate them through reproduction. If this is the case, the pathological nature of reproduction may not really matter. Perhaps pathology is the wrong way of looking at these phenomena. After all, our genes do not care about our health and wellbeing. Their interest is simply in their own survival. From this perspective, it would make sense to suppose that there is an inbuilt, inescapable drive to reproduce. As I have suggested, the existence of such an urge seems somewhat questionable in view of women's increasing failure to act upon it. However, as I will show, much of the discourse concerning reproduction seems to take it that this urge *does* exist: we are programmed to perpetuate our genes and therefore, we need not really think about why or whether to reproduce, but just when and how to do so.

5. The reproductive urge and the perpetuation of genes

The 'end' of reproduction could have two meanings. End, in the sense of cessation, is the way I have been using the term so far. When women stop having children, reproduction ends. However, there is another sense of 'end', and the two are in some ways connected. That is, 'end' as purpose or goal. What is the 'end' of reproduction in this sense? We are often told that animals have an urge to perpetuate their genes. It is commonly accepted that reproduction is the best way of achieving this. Likewise, the idea that there is a link between genes, urges and reproduction is very prevalent. Many of those who have written about reproduction focus specifically on its natural, biological or genetic aspects (Hayry 2001, Harris 1997). John Robertson's conception of reproductive autonomy is rooted in its connection with biology and genes. According to him, there is a 'basic biologic [...] drive to have a biologically related family' (Robertson 1994) Similar ideas can be found in policy documents. The Warnock Report asserted that people experience '...a powerful urge to perpetuate their genes through a new generation' (Warnock 1985) A joint report published by the Human Genetics Advisory Committee and the Human Fertilisation and Embryology Authority (HFEA) states: 'The wish for genetic offspring is a natural human aspiration...' (Human Genetics Advisory Commission and the Human Fertilisation and Embryology Authority 1998) Dr Lisa Guntram, explaining how medical professionals in Sweden have justified the development of uterus transplanta-

tion, notes the degree to which a supposed "'biological drive' or 'instinct' to reproduce" play a part in explaining and emphasising the necessity of uterus transplantation (Williams 2016).

There are several questions to be addressed in this context. Firstly, is genetic programming really what drives us to have children? And secondly, what is the specific *content* of this programming? Thirdly, why should we focus so closely on genes in this context rather than any other entity, such as chromosomes, genomes, nucleotides or even specific sequences of base pairs? What is so special about genes? Robertson and others who argue in favour of reproductive autonomy often fail to address these questions. I will address firstly the question of whether there is an inbuilt biological urge to perpetuate our genes, and if so, what this should mean in terms of our understanding of reproduction.

It has been suggested that the sacrifices we make for our offspring are the result of an evolutionary mechanism that seeks to preserve our genes and maintain a possibility of those genomes surviving over time – to immortality.[i] Our interest in propagating our own genes serves to benefit the species as a whole (Bjorklund et al 2002). This, it is claimed, translates into a powerful 'genetic imperative' that impels us to seek to have genetically-related offspring, and – once they exist – to ensure their survival even at some cost to our own individual interests.

The strength of the genetic imperative lies in its universal appeal, and the fact that it cuts across other considerations, apparently making further questions unnecessary. Ann Oakley notes that IVF doctors are particularly prone to using the language of genetic determinism to argue that *women* have a fundamental urge to reproduce (Oakley 1993). Evidence of this is not hard to come by. Patrick Steptoe, one of the developers of IVF, claimed: 'It is a fact that there is a biological drive to reproduce. Women who deny this drive, or in whom it is frustrated, show disturbances in other ways' (Chadwick 1994). Further studies specifically investigating the perceptions of IVF doctors seem to confirm this belief in a biological urge to have genetically-related children (Malin 2002, Stakes 2003). British fertility expert Lord Robert Winston has stated that the biological urge to reproduce is so strong that the misery suffered by those whose drive is thwarted is 'worse than cancer' (Henderson 2005).

References to biology, genes, or human nature can play a role in framing certain urges as needs rather than as mere desires (Chan and Ho 2006, Burley 1998). Moreover, if we take it that women are subject to an inexorable, inbuilt

drive to perpetuate their genes, perhaps we do not need to worry about the 'fertility as pathology' challenge, and we can set aside the possibility that absolute reproductive control for women might one day lead to the cessation of natural reproduction. Instead, women *need* to reproduce because they are programmed to want to perpetuate their genes. However, the relationship between the need and the genetic component of reproduction is seldom articulated. The interest in new reproductive technologies is almost entirely founded in their genetic relationship with the person for whom they are provided. Tsai and Takeuchi suggest that '[w]hile infertility due to relatively advanced female age can now be successfully treated with oocyte donation, most couples are more interested in generating their own child' (Tsai and Takeuchi 2000). What it means for a child to be one's 'own' is here understood in purely genetic terms.

The need to pass on one's genes, thus generating one's 'own' child, according to the IVF doctors quoted above, generates a *conscious* desire for offspring. However, Oakley argues that these assumptions are false, that they emphasise women's specifically reproductive role at the expense of other interests, and that the reproductive urge is socially-constructed rather than biologically inbuilt. I have already noted the degree to which reproductive rhetoric serves as an anchoring mechanism in Zapffe's sense. This does indeed seem to corroborate Oakley's claim that we are loading women with social pressure and then retroactively explaining their wish for offspring by appealing to an inbuilt genetic imperative. However as the popular saying goes "just because you are paranoid does not mean they are not out to get you". Oakley is certainly right that social pressures are at play. But perhaps there is *in addition to this* a powerful genetic imperative of the sort that the quotes above refer to.

6. Alternatives to genetic reproduction

As I have shown, even those who might not regard themselves as genetic determinists frequently give much weight to genes in their discussions on reproduction. For example, Mary Warnock specifically cites 'the need to pass on one's genes' as the primary motivation for those who seek fertility treatment (Warnock 1985). Those who do not have the need for treatment satisfy their need to pass on their genes through *natural* reproduction. Either way, both are needs of one sort or another and both concern genes. But how well do we understand the role of genes in reproduction? Children inherit 23 chromosomes from each parent and genes are located on these chromosomes. However, each time

a sperm or egg is formed, the genetic information in the chromosomes is reshuffled (Johnson 2007). There is no guarantee that a child will inherit any specific gene from its parent. This is why for example, white parents sometimes give birth to black children. Traits which have lain dormant for many generations may re-emerge as a result of this random shuffling. From this perspective it is odd to say that we 'pass on' our genes to our children. The process is more complex than this.

It seems undeniable that genes play an important role in people's understanding of what makes their children 'theirs'. But to believe literally in the 'genetic imperative' leads to some strange conclusions. It has been claimed that 'children are a parent's most direct route to genetic immortality' (Bjorklund et al 2002) and this seems to be accepted to some degree in most discussions about what drives people to have children. But if genetic immortality is really the 'end' of the reproductive urge, there are ways of preserving our genes in far more efficient ways than having babies. Technology offers us the opportunity to reproduce our genes *and* to go much further towards guaranteeing their survival than 'natural' reproduction ever could. It could also obviate all of the risks currently involved in reproduction for women. One option would be to use the cloning technique involved in the creation of Dolly the sheep (Franklin 2007). As in Dolly's case, the nucleus of an adult cell could be inserted into an enucleated egg cell. However, the resulting blastocyst could be halted at an early stage of development, while it still consists of only a few cells. It is at this stage that embryonic stem cells are formed (French et al 2008). Each of these is a complete genetic replica of the 'parent'. These stem cells can be harvested and kept in culture. Embryonic stem cells are 'immortal' (Kim et al 2008). That is, unlike all other kinds of cells (apart from some cancers) they are not pre-programmed to perish. Because of this, they can theoretically survive forever in the laboratory.

Another alternative is still simpler. That is, we make a copy of a person's genome, with all the base pairs in order – CATG – and keep it intact, perhaps in a word document, or printed out. It could be backed up, copied, transferred, saved in multiple locations. In this way, my DNA configuration not only survives well beyond my biological lifespan, but gets to replicate. Some might argue that a sequences of letters on a document – CATG – cannot really fulfil the 'needs' of genes. If so, we could 'print' them out as actual DNA molecules out using techniques that are already in use (Hoose et al 2023, Hughes and Ellington 2017). We do not yet have the capability to print a whole human genome, but it has been predicted that this will ultimately be possible. If so, the person who

seeks to propagate her genome can simply store a digital version of it until such time as the DNA printing techniques allow for transformation of it into biological material. Again, this is a low resource, physically undemanding mode of genetic reproduction.

These two options are the closest any one of us can get to achieving genetic immortality. Both offer a far more accurate and reliable mode of preserving and transmitting our genes, than having actual children. If perpetuation of one's genes were really the vital thing in reproduction *and* there were a conscious urge to do so, my suggestion of a more efficient mode of reproduction will be eagerly taken up by anyone who reads this paper. Not only is it more efficient in purely genetic terms than normal reproduction, but it is far safer for women. It is also better for the environment and for population levels. However, I suspect that, attractive though my suggested solution is, it will *not* be enthusiastically endorsed. If not, this seems to suggest that reproduction is not so closely linked with genetic determinism as is popularly thought. Genetic transmission seems to be a partial symbol of what it means for a child to be thought of as 'one's own'. Because of this, we cannot assume that women experience some kind of biological or genetic compulsion to reproduce. If they do have babies, when they have the option not to, it is because they choose to do so. Currently, their choices are heavily imbued with rhetoric that enforces the idea of reproduction as natural, healthy, inexorable, beautiful, etc. As I have suggested, these modes of 'anchoring' reproduction are problematic in two senses. Firstly, if one assumes that the extinction of humanity is a bad thing, it seems that our current anchoring techniques, in the Western world, are not functioning particularly well. Clearly, reproduction is hugely significant, but these values have not succeeded in stemming the downward trend. The second issue is that if we place importance on other anchoring values, such as honesty, clarity of motivations, and the importance of autonomy and uncoerced choice, we have to recognise that the rhetorical pushing and shoving of women is ethically problematic. What would our reproductive future look like if we ceased to bombard women with valorising messages about reproduction? If it looks worrying, what should we do about it?

7. Conclusion

It is undeniable that many, perhaps most women, at some stage in their life, want to have a baby. However, to explain this through appealing to an inbuilt urge to

perpetuate one's genes is simply implausible. It seems far more likely that a variety of what Zapffe terms 'anchoring' strategies reinforce social expectations that women should have children. As Zapffe notes, although anchors can be powerful in helping us to structure our world and give it meaning. However, these anchors are fallible: "...all the inherited, collective systems of anchorings are punctured by criticism, and anxiety, disgust, confusion, despair leak in through the rifts ('corpses in the cargo.')" Reproduction is such a critically important aspect of our lives, that we have erected many anchors around it. Many of those that I have discussed here appear to be unstable, or uncompelling, such as the idea that women have a biological need for children, or that reproduction is a benign aspect of our natural design. As long as we cling to the anchors and distract ourselves with attempts to repair them, we will not be in a position to acknowledge the threats to reproduction arising from poverty reduction and gender equality.

In order to grapple with these challenges, we need to recognise that fertility itself could be construed as pathological insofar as it relates to women, especially in conjunction with the cognitive faculties that go along with being human. As noted above, I do not argue that this gives immediate grounds for thinking that the species *cannot survive*. However, I argue that it does make us 'biologically unsound', to use Zapffe's phrase, in that we can clearly identify ways in which our survival chances would be improved if it were changed. We could improve our chances of species survival by reducing the ability of women to exercise conscious choice in reproductive decisions, either by means of social coercion (withdrawing the rights they have been afforded), or perhaps by means of impairing their cognitive abilities. This could be achieved through restricting access to education, or by direct biomedical intervention. These suggestions are of course abhorrent to those who place value on the anchors of gender equality, education, health and poverty reduction.

Another possibility is to understand natural design in a more generous way, to include our own ingenuity in devising technological means of circumventing the existing problems associated with reproduction. If so, reproduction is pathological only as long as we allow it to be so. Perhaps we can develop alternatives to current modes of reproduction that need not challenge our concept of ourselves as the pinnacle of evolutionary excellence (Smajdor 2012). However, I suggest – and perhaps this is more in line with Zapffe's own thinking – that we must simply acknowledge that there *is* no design. We are a product of more or

less random and chaotic processes whose chance alignment allows us for a moment the illusion of being the star performer among nature's creatures.

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