

Destruction of the Human Embryo in Stem Cell Research and the Moral Status of the Unborn in the South African Regulatory Framework—A Christian Assessment

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Abstract

One of the most prominent controversies of the last decade has been human embryo research, as obtaining stem cells typically requires the destruction of the embryo. The South African Bill of Rights excludes the embryo from the right to life, yet, in legislation, it is acknowledged that the unborn can suffer harm. The aim of this paper is to help Christians make sense of this state of affairs. First, it highlights a few anomalies in the South African regulatory framework. It then turns to the scriptures, followed by a clarification of crucially important metaphysical concepts and distinctions without which no position on the moral status of the embryo can be adequately assessed and critiqued. The final section comprises a brief response to three objections to the view that the human embryo is in fact a human person.

¹ The views expressed herein are those of the author and do not necessarily represent the beliefs of the South African Theological Seminary.

1. Introduction

South Africa's history took a turn in 1996, when the new Constitution (no. 108 of 1996) and the Bill of Rights (henceforth 'the Bill') came into being. Just as momentous was the passing of the *Choice on the Termination of Pregnancy Act* (henceforth 'the Act') the same year. Government statistics reveal that 500,000 legal abortions have been recorded from 1997 to 2004 (McGill 2006:195–196, also fn. 1). For Christians, the proliferation and legal permissibility of these practices could easily lead to a view among their fellow citizens that human life has very little value, let alone that the 'good' of abortion counts towards the common good (Anderson 2002; De Freitas 2001, 2006; Meilaender 2005; McGill 2006; Vorster 2011).

South Africa is on the verge of entering another phase in its history. Researchers recognised the potential of stem cells² to treat a wide range of human illnesses and diseases which are currently difficult or 'impossible' to treat (Pepper 2010; Schuklenk and Lott 2002; Sommer 2011; Steinbock 2011). What makes human embryonic stem cells so special is that, on the one hand, they are thought to have greater potential for differentiation into a wide range of tissues, and, on the

² It is embryonic stem cells that are in view in this paper, and not 'adult' stem cells. The former are both pluripotent and totipotent. 'Pluripotency' refers to the ability of the stem cells to produce all of the differentiated cell types of the mature organism; during the single-cell stage (of the so-called 'zygote' or fertilised egg), the cells are capable of becoming a whole new embryo, and are therefore 'totipotent'. Adult stem cells are typically 'multipotent'; they are capable of producing only cell types belonging to particular tissue. Whereas embryo stem cells can only be harvested from a pre-implanted human embryo, adult stem cells are extracted from a variety of tissues in the fetus, newborns, and adult human beings, such as bone marrow, body fat, the placenta, and umbilical cord (George and Landry 2012:62–63). Harvesting adult stem cells does not necessarily result in the destruction of a living organism.

other hand, procuring them requires the destruction of the human embryo.³

Destruction of the embryo is widely acknowledged and discussed as problematic for our understanding of the moral status of the unborn.⁴ The South African Bill of Rights excludes the embryo from those considered to have a right to life and the embryo is not recognised as a human being or legal person in South African law. It follows that the destruction of the human embryo is not considered to be murder (the killing of an innocent person). Yet, in legislation, it is acknowledged that the unborn can suffer harm.

The aim of this paper is to help Christians make sense of this state of affairs. First, this paper will highlight a few anomalies in the South African regulatory framework. Focus then turns to a few passages from scripture that form the basis of the clarification of crucially-important metaphysical concepts and distinctions without which no position on the moral status of the human embryo can be adequately assessed and critiqued. The final section comprises a brief response to three objections to the view that the human embryo is a person.

³ The South African Agency for Science and Technology Advancement, a business unit of the National Research Foundation (SAASTA), has informed the public that embryos will be available from fertility clinics; multiple embryos will be produced in case the first embryo is unsuccessfully transplanted, and there will be many unwanted embryo 'leftovers' (SAASTA 2010:2). Only some clinics will keep these 'unused' embryos, while other clinics will leave them to die if they are not implanted. It will also be possible to obtain embryonic stem cells from abortion clinics where they are extracted from embryos that have been produced by a method known as Somatic Cell Nuclear Transfer (SCNT), the same procedure by which embryos are cloned (SAASTA 2010:2–3). For an in-depth discussion of genetic engineering and reproductive technologies, cloning and stem cell research from a Christian perspective, see Dixon (1993) and Feinberg and Feinberg (1993:207–298).

⁴ References to 'unborn' will henceforth include the zygote, embryo, and fetus.

2. The South African Regulatory Framework: Some Inconsistencies

Most countries have legislation controlling human embryonic stem cell research. In South Africa, the regulatory framework for the use of stem cells for therapeutic or research purposes includes the Constitution and legislation in the form of the *Human Tissue Act* (no. 61 of 2003 as amended) and the *National Health Act* (no. 65 of 1983 as amended). The national Health Bill, passed in 2003, makes allowance for human embryonic stem cell research on excess embryos from *in vitro* fertilisation and makes allowance for the production of embryos specifically for the purposes of research.

During January 2007, the Minister of Health published regulations for public comment regarding the use of stem cells and embryos for health research and therapeutics (labels such as 'research' and 'therapeutics' are highly misleading, for both involve the production and destruction of embryos). On 1 April 2011, further regulations relating to the general control of human bodies, tissue, blood, blood products, and gametes (sperm and egg cells) were published. Those regulations are still in draft, which means that South Africa is '*currently operating in a regulatory vacuum in which the rules and guidelines are fragmented*' (Sithole 2011:57).

2.1. The Bill and the Act

Sections 10 and 11 of the Bill stipulate respectively that 'Everyone has inherent dignity and the right to have their dignity respected and protected' and 'Everyone has the right to life'. Section 36 (1) stipulates that these rights 'may be limited only in terms of law of general application to the extent that the limitation is reasonable and justifiable in an open and democratic society based on human dignity, equality and

freedom, taking into account' several relevant factors. Regarding human embryo stem cell research, Sithole (2011:56) correctly observed, 'The concern regarding stem cell research of embryos relates to ethical issues'—issues, we must add, about good and evil, right and wrong, and the truth and falsehood of moral beliefs (Holmes 1984:15). However, before answering the question, 'how the unborn is to be treated?' it is important to first have clarity about what is meant by the term 'embryo'.

Section 12 (2) of the Bill stipulates, 'Everyone has the right to bodily and psychological integrity, which includes the right (a) to make decisions concerning reproduction and (b) to security in and control over their body'. This stipulation allows a pregnant woman to determine the destiny of her unborn, since 'an embryo or fetus is regarded as part of the mother and is not an independent bearer of rights' (Sithole 2011:56). In other words, the rights of the mother trump those of her unborn.

This registers a problem: it is not that the mother should not exercise her rights when her life is endangered by her pregnancy; rather, the Bill and the Act gave women the right to think of their unborn as either not a human being, or, as something less than human. The Bill also seems to say that unborn children only have the worth, value, or dignity that is conferred on them by their mothers. The right to life, in other words, has been reduced to a 'privilege'. However, if a mother is allowed to kill her unborn child because the child is intruding on her bodily autonomy, then, it is unreasonable to disallow her to harm the child using the same reasoning.

Although Section 28 (2) of the Bill stipulates that 'A child's best interests are of paramount importance in every matter concerning the child', it disappointingly stipulates in sub-section (3) that 'child' means

'a person under the age of 18 years'. It is clear that the Bill reflects knowledge of what a child is, but arbitrarily concluded that such a person's life is to be equated with age, which commences at birth.

There also appears to be a contradiction between the Bill and certain stipulations in the Act. Section 2 (b) (ii) and 2 (c) (iii) of the Act acknowledge explicitly that a foetus can suffer—physically and mentally—and can be injured. Thus, if the foetus can suffer and/or be injured, then the foetus is implicitly acknowledged to have the moral status of any child under 18. Suffering and injury, therefore, put the unborn in the position of being a patient. This is confirmed by prenatal genetic testing and surgery on the foetus in utero, which raises the question about the obligation of a pregnant woman toward her unborn child. These facts make it hard to believe that a foetus in the womb can be a legitimate patient and the subject of medical treatment and care, and at the same time, not entitled to the right to life. It is a straightforward interpretation of the biological facts (Condic 2008; George and Landry 2012:32, 42; Lugosi 2007:123–125). Without this kind of reasoning, reference to suffering and injury makes no sense. A hard and fast distinction between an unborn child and a new-born child, therefore, becomes, at best, a highly arbitrary affair. Both the unborn and the new-born are in a process of growth and development; both are in a process of realising their full potential; and both mature as members of the kind they already belong to, namely, human beings. Despite these anomalies, the High Court of South Africa ruled differently, and by so doing, highlighted these anomalies even more noticeably.

2.2. The High Court of South Africa

That the moral status of the human embryo is a problem is evident from the South African High Court judgment in the case of *Christian*

Lawyers Association of South Africa and others v Minister of Health and others (1998 (4) SA 1113). The Christian Lawyers Association sought an order declaring the Act unconstitutional and invalid. The plaintiffs pleaded that the ‘life’ of a ‘human being’ commences at conception, and that the Act is in conflict with the ‘right to life’ clause of the *Constitution of South Africa* because it allows the termination of human life at any stage between conception and birth.⁵ The Court rejected the challenge of the Christians and ruled, amongst other things, as follows: the word ‘everyone’ in Section 11 of the Bill excludes a ‘foetus’ and Section 28 (3) defines ‘child’ as ‘a person under the age of 18 years’. Thus, since the fetus is not a ‘child’ of any ‘age’, the fetus does not qualify for protection rights under the law (De Freitas 2001:122–124).

There are several disconcerting factors about the attitude and approach of the High Court. Three deserve mention. First, the Court stated that

whether the term ‘everyone’ or ‘every person’ as used in the Constitution ... applies to the unborn child from [the] moment of conception does not depend on medical or scientific evidence as to when the life of a human being commences ... Nor is it the function of this Court to decide the issue on religious or philosophical grounds (De Freitas 2006:182–183).

A little reflection on these statements of the Court reveals an underlying philosophical (metaphysical) position: life is not something that begins at conception. But the Court’s choice of words also reflects that the

⁵ Section (1) (a), (b) and (c) of the Act allow for the ‘termination of pregnancy’ (abortion) on request by a woman during the first 12 weeks of pregnancy; for medical or social reasons in the 13th to the 20th week of pregnancy; and after the 20th week, to save the life of the woman or to prevent the fetus being born malformed or injured.

unborn is a child; otherwise why refer to 'the unborn child'? This makes the Court's decision an arbitrary matter. Perhaps it is more correct to say that the Court portrays a segregationist philosophy that allows the Court to discriminate between two human beings, namely, unborn and newborn children.

Second, it seems that the Court's approach is based on the assumption that questions pertaining to life and the moral status of the unborn can be discussed from a neutral ground or independent of any perspective, otherwise why would the Court have decided to exclude medical science, theology, and philosophy from its decision-making process? The fact of the matter is that no person can reason about anything without beliefs about what kinds of entities exist in the world, and how they can be known. It is only then that it is possible to make the decisions on how they are to be treated are formulated. In other words, there is no such thing as neutrality (Meilaender 2003; Nash 1999).

Third, the Court also seems to uphold the core decision-making principle of a democracy in South Africa. That is not to say, however, that when decisions are made according to the will of the majority, that they are necessarily right or ethical. Even if it is legislated that people may exercise the right to gratuitously torture babies, or fondle little children for self-gratification, it would still be wrong. This, therefore, has at least one implication for leaders, namely, the duty to undertake the hard work of making rigorous arguments to convince minds that it is wrong to torture babies (for example), and expressing those arguments in a way that moves hearts.

By way of summary, it would be useful to note Van Oosten's (1999:76) devastating conclusion of his assessment of the Act:

That the Choice on Termination of Pregnancy Act is hardly a model of legislative genius is abundantly clear. Behind its ideological façade, and political clichés, it consists of little more than the decriminalization of abortion, and that result could have been achieved in a fraction of the space occupied by the Act. For the rest, the Act bristles with lacunae, contradictions, inconsistencies and incomprehensibilities, and demonstrates a stunning ignorance of the basic principles of criminal law, an inexplicable ambivalence on the issue of abortion, and a surprising insensitivity of words on the legislator's part.

The foregoing assessments make the clarification of crucially-important concepts and metaphysical distinctions relating to the life and moral status of the unborn all the more urgent.

3. Conceptual Clarification

This section will first focus on a number of passages of scripture that form the basis of the conceptual clarification and metaphysical distinctions.

3.1. Scripture, life, and personhood

The first verse of Genesis 1 states, 'In the beginning God created the heavens and the earth'. Genesis 1:11, 21 and 24 reveal that the Creator also created various kinds of things—vegetation, plants, trees, sea creatures, birds, cattle, creeping things and beasts—each with the capacity to yield seed, bear fruit, and multiply (reproduce) 'after their kind' (cf. Gen 6:19–20; Lev 11:14, 15, 16, 19, 22, 29, 30). These texts allow for the formulation of two reasonable principles: (a) if something cannot come from nothing, then life cannot come from non-life, and (b)

any first member in a series of subsequent members can only pass on to the members what it has in itself to pass on.

Taken together, they serve two purposes. On the one hand, they serve as an obstacle to those who believe that life progressed 'from nothing to something, from inorganic to organic, from animals to humans' (Berry 2007:3). On the other hand, they serve as an obstacle to those, as we shall later see, who believe that there is something like a human non-person, or, put differently, that a human being becomes a person. In short, both principles pertain to, especially, the origin of life and the beginning of human personhood.

The remarkable thing about the biblical record of creation is that, after God created the various non-human living things, he created the first human persons in his image and likeness.⁶ The Bible states: 'Then God said, "Let Us make man in Our image, according to Our likeness" ... Then the Lord God formed man of dust from the ground, and breathed into his nostrils the breath of life; and man became a living being' [lit. soul] (Gen 1:26 and 2:7).

By having created a conscious person (Adam) in mature form capable of action, reasoning, and the power of choice, the Creator manifested his own personhood. The two principles are again demonstrated in the text where it is stated that Adam 'became the father of a son in his own

⁶ 'Image' means an object similar to or representative of something else. This can be seen in statues, replicas, paintings of airplanes on a wall, and idols (Numb 33:42; 2 Kgs 11:8). 'Likeness' can mean one object similar to or as substitute for another object. Image is, therefore, not identical to, but like in substance (cf. Grudem 1994:442–450; Pfeiffer, Vos, and Rae 1975:832–833). Saucy (1993:20) says, 'For that which is by nature the "image" of something else can only be fully understood by knowing that which it images'. For a discussion of the meaning and implications of the concept of the 'image of God' in the context of bioethics, see Magnuson (2000:26–42) and Farish (2000:76–84).

likeness, according to his image, and named him Seth' (Gen 5:3). These texts allow us to make at least six reasonable inferences.

First, the created kinds can be called 'natural kinds',⁷ for each was endowed by the Creator with the ability to naturally reproduce according to its own kind.

Second, in order to reproduce its own kind, they had to be endowed with a set of capacities befitting their natures, for example, for plants to absorb nutrients from the ground, and living creatures to move and obtain food in some way. The point can also be stated differently. Each of the natural kinds had been equipped with a nature which determines the kinds of activities appropriate to and natural for that entity to have (e.g. a dog to bark, and a fish to swim). From this follows that the capacities, properties, or tendencies of every particular kind of thing are grounded in the nature of that thing, and that the nature determines the function of abilities and parts, and not *vice versa*.

Third, the created natural kinds must have been endowed with inherent limits and boundaries beyond which kind variation could not go. It is natural to think that it is impossible for a fruit tree to reproduce an animal, and impossible for an animal to reproduce a human being. However, it is natural to think, for example, that members of the dog, sheep, or horse kind interbreed and reproduce varieties of themselves.⁸

⁷ 'Created kinds' as natural kinds are succinctly captured by the concept of *baramin*, a concept derived from the Hebrew words *bara* ('create') and *min* ('kind') (Frair 1999:5).

⁸ That natural kinds (*baramin*) reproduce only their own kind 'is clearly seen (or rather not seen) in our world today, as there are no reports of dats (dog and cat) or hows (horse and cow)' (Purdum and Hodge 2008:1). Even if two animals or fruits can

Fourth, if every created natural kind had a nature peculiar to itself, then it is the inherent or implanted nature that answers the question: what is it that makes something the kind of thing that it is?

Fifth, the nature (of something or someone) accounts for the continuity and identity of the entity through change over time. For example, a leaf and a chameleon can change colour, from green to brown, and yet, each remains the same 'thing' through the change. Continuity of personal identity through change over time is consistent with other texts from scripture. Psalm 139 suggests that King David is the same essential person from conception to mature adult. In verses 1 to 6, the King admitted that there is nothing in his life that could escape the awareness and knowledge of the Creator (cf. verses 7–12). In verse 16, he described himself as an 'unformed substance', translated by Kaiser (1983:172) as 'embryo'. David saw the person who gave thanks and praise to the living God as the same person who was skillfully woven together in the womb (v. 13), who was also the same person who was known by God inside and out (v. 16). In other words, the person who was being created in the womb was the same person who wrote the psalm. There is, therefore, continuity of personal identity from the earliest point of development to a mature adult.⁹

produce a hybrid, the members will still be of the same kind (e.g. mules—from horse and donkey, and pluots—from a plum and apricot).

⁹ Other passages of Scripture also suggest the continuity of personal identity: Job 3:3, 11; 10:8–11; Psalm 51:5; Luke 1:13, 41–44, 57–63. It is significant that 'man-child' or 'boy' in Job 3:3, which addresses Job's conception, is also used in other parts of the Old Testament to refer to a man and a husband, and thus, a person (Koukl 2010:1–4). There is one passage that appears to suggest a discontinuity between life in the womb and life as an adult: Exodus 21:22–25. Two observations suffice. First, in the words of Kaiser (1983:170), 'There is absolutely no linguistic justification for translating verse 22 to refer to miscarriage [instead of live birth] ... The text literally reads "so that her children go [or come] out"'. Second, the term 'child' makes it clear that a human

Finally, a human being as a person bears similarities to God as the supreme person. The implication for our understanding of the human person is this: there is no such thing as a non-human person. In order to see this, and in further support of this conclusion, it will be necessary to clarify a few concepts and distinctions.

3.2. Concepts and distinctions

Fundamental to any investigation of reality and the question about the kinds of things that exist, their natures, properties, and the relation between them, are categories; they indicate what something is, for example, a particular substance (a human being, a dog, an angel, a leaf), a quality (being strong, being wise), quantity, relation, place (it is always good to ask *where* something exists), time (it is always good to ask *when* something exists), action, event, state, posture, and so on. In short, categories help us to identify or classify things in the world and not to confuse them with things from which they differ. But, the ability to identify things presupposes a concept of what it is that is to be categorised. What does it mean?

For a person to perceive *this* dog *as* a dog or *this* chair *as* a chair, the perceiver has to have a concept of a dog and a chair. That is to say, when the perceiver has an adequate understanding of the dog or chair, then that person has a *proper* concept of the dog or chair. Also, if a person grasps a concept in the mind, the person grasps an object, which is not in the mind.

being is in view here. For a comprehensive exegesis of this passage, see Kaiser (1983:101–105, 169–172). Kaiser concludes his assessment of various interpretations of the text as follows: ‘Most of the evidence is now being conceded by those who previously had adopted the case for miscarriage’ (1983:171, see also fn. 1; cf. Koukl 2010:1–4; Moreland and Rae 2000:235–236).

However, a concept also has a necessary condition, that of being *distinct*. For example, the concept of a dog—being an animal and mammal—entails that one has a positive and distinct understanding (comprehending, grasping, or apprehending) of the essential properties (characteristics, features, tendencies) unique to the dog. As such, a concept requires knowledge of differences between objects and allows us to pick out the unique properties of the things that exist. Finally, it is important to distinguish between a concept and the way one possesses it. A thing can possess a property in different ways or modes. For example, something can run quickly or slowly, and something red can appear clearly or 'fuzzily'. It is likewise with the possession of concepts; a person can have a partial or complete concept of something.

3.2.1. Substance

The most fundamental metaphysical concept to grasp is substance.¹⁰ 'Substance' is a term that refers to all individual natural kinds—particular trees, butterflies, dogs, and human persons—as the standard, clearest examples of substances. Substances, therefore, fall into created kinds called natural kinds,¹¹ for example, a kind of tree, a kind of insect, a kind of dog, and a kind of person. This is explained by virtue of the fact that each member of a natural kind has the very same nature in it. So understood, this means that there is, strictly speaking, no such thing as a tree, insect, dog, or person; there are only *kinds* of trees, insects, dogs, and persons. Examples of the latter, as we have seen, are divine persons, angelic, and human persons.

¹⁰ I am deeply indebted to Moreland (1993: 55–78; 2001) for the insights reflected in what is to follow. See also Chisholm (1989) and Wiggins (2012).

¹¹ Wiggins (2012:8) agrees: 'The *phusis* of a thing is its mode of being. It is the principle of activity of a kind whose members share and possess in themselves a distinct source of development and change'.

A substance¹² is assumed to be the most fundamental category of reality for at least four reasons. First, it is that on which the reality of other things depends; it causes things to happen in the world. Second, a substance is the locus of reality and self-determination because it is itself a first member or principle of change and organised unity; a pile of wood cannot turn itself into a bed, and a human body cannot be arranged the way it is in the absence of an actual organising cause. Third, it expresses what an entity truly is. Lastly, if a substance is to change in its essential nature, it will cease to exist. If the dog Pugsley changes into a fish tomorrow, we will say it exists no more, and a fish came to be.¹³

¹² Here, I follow Hoffman and Rosenkrantz' (1997:5) depiction of the soul as a spiritual substance, which they state as follows: 'As we understand the concept of a soul, a soul is a nonphysical entity. More specifically, a soul is an unlocated substance which is capable of consciousness'. There are at least two ways we can understand the term 'unlocated'. First, the soul is everywhere present in the body, thus diffused throughout almost every part of the body. Second, although the soul cannot be captured in any one of the body's parts, it has direct and immediate causal influence on almost every part of the body. This understanding of the soul's unity with its body explains, amongst other things, why a person can remain the same entity even when the body loses some of its bodily parts. If this were not so, then a person who has lost two legs and both his eyes, has lost four parts of his soul, and that is not so. A person who has lost these bodily parts remains a person. See also Beckwith (2004) and Sullivan (2003). For a thorough treatment of a biblical anthropology, see Cooper (2000) and Saucy (1993:17–51).

¹³ Wiggins (2012:5) argues that 'there is no such thing as something's or someone's getting a new identity ... in respect of being the changeable thing, the cow, horse, human being ... that it is'. 'Where identity is concerned, it seems impossible to make sense of "almost" or "nearly". Why? Well, x is neither almost x nor almost not x. So, if y is x, then y is not almost x or almost not x ... Given also the principle of permanence, one then arrives at the thought that y never was almost x or almost not x'. He concludes that it is only a 'substance that makes it possible to arrive at a ground of identity' (Wiggins 2012:10).

3.2.2. Property

A property is an attribute, a quality, characteristic or feature of a substance, such as blackness, painfulness, rationality, and wisdom. These are examples of degreed properties. One person can be wiser than another, and a person can also experience pain of various degrees of intensity. In contrast, the natures or essences of natural kinds of things, such as the humanness of a human, the 'treeness' of a tree, and the 'dogness' of a dog, are nondegreed properties. Nondegreed properties are either exemplified or not, and either completely present or not. They are not like someone walking into a room with a first step, then a second, until the person finally enters the room. They are all or nothing affairs.

Some properties, such as degreed properties are non-essential properties, precisely because they are characteristics, features, qualities, or attributes of substances. In other words, they characterise their objects—the individual or particular thing that has them as their owner—in one way or another. Also, because they are non-essential, their owners (the substances) are what they are independent of whatever non-essential characteristics they possess. For example, a white painted pipe does not need to be white in order to be a pipe. So, if the pipe loses its colour, it would lose a non-essential property, but it would still remain the same pipe and it would continue to exist as one. In contrast, essential properties constitute the essential nature of a thing. If we then describe an object's essential properties, we will be able to say what kind of thing it is. James, for example, is a human kind of thing, and if James loses his humanness, he will cease to exist.

3.2.3. Relations

Relations (like properties) are universals; they can be in different places and objects at the same time. It requires one or more entities—properties or particulars—to stand in a certain relation to one another. It is important to draw a distinction between internal and external relations. The various parts of an aggregate thing—table or computer—stand in the form of external relations to each other, just as water in a glass. In such objects, neither the water nor the glass need each other. By contrast, an internal relation is in the natures of the entities it connects.

Internal relations are called internal, because they partly constitute the entity to which they are internal. For example, if the relation of the heart to the living human body is an internal relation, then, at least, part of what it means to be a heart is to stand in certain relations to the circulation system and, indeed, to the entire body as a whole. If the heart ceases to be related to the body as a whole, it can no longer be a heart, strictly speaking. In contrast, if parts of a computer stand in external relations to one other, then each part can cease to stand in that relation to one another and still exist.

So understood, it means we can contrast a substance with an aggregated or bundled thing. An aggregated thing derives its existence from something outside itself. It consists of parts that exist prior to the whole, and it loses sameness (identity) through change, for example, when it is dismantled and its parts stored somewhere in a room. Its parts retain their identity even when placed in a storeroom, which means that its unity is artificial. In short, an aggregated or bundled thing is not the bearer of its own existence, and the capacities it has are those imposed on it from the outside. In contrast to an assembled thing, a substance's

unity is ontologically prior to its parts, and parts are what they are in virtue of the substance's nature and their function in the substance as a whole.

3.2.4. Becoming and perishing

Both these notions involve gaining and losing existence. When James, for example, comes to exist, there must be at least one property that belongs to him, i.e. he must be human—at that very moment of his coming to be. By contrast, something that perishes (ceases-to-be) no longer has this property. The problem is that this principle is often confused with *alteration*—an apple ripening, or a leaf turning from green to red are two examples.

Alterations are types of change, but before something can change it must first exist, and the thing that changes must exist at the beginning, during, and at the end of the change. In the case of the ripening apple, the apple exists and continues to exist while it is unripe, during the time it begins to ripen, and when it fully ripens. An alteration is, therefore, a case in which a thing changes in the properties it has; it is not the case in which something changes with respect to existence itself. Another way of making the same point is to say that alteration presupposes existence; it cannot be the same thing as a change in a thing's existence.

3.2.5. Capacities and functions

Substances, like dogs, peanuts, or human souls have capacities or potentialities rooted in their inner essential natures. They also have the power to cause things in the real world. A baby has a number of capacities, even if some are not exemplified at any given moment. For example, a baby has the capacity to cry even though, at present, the

baby is silent. The baby may cry at 24:00 and cause someone to wake up, feed him/her, and by so doing, stop him/her from crying any further.

Although the soul has literally thousands of capacities, the various capacities within the soul fall into natural groupings called *faculties*. We express this insight, for example, by saying that the ability to see colours is part of the faculty of sight. The ability to think about created natural kinds and natures is a capacity within the thinking faculty (the mind). In other words, each faculty of the soul consists of a natural family of related capacities. Among other things, the soul contains five sensory faculties.

If we take the entire ordered structure together, it is evident that it is the substance's principle of activity and that which governs the precise ordered sequence of changes that the substance will go through in the process of growth and development. The essential nature will therefore set limits to the types of changes the substance can and should undergo as it exists. The nature, thus, has a purposeful or teleological structure, a principle of unity and an orderly sequence of activities whose unfolding forms body parts in order to realise bodily functions. From this follows the next truth: when the soul comes into existence, it begins to direct the development of a body. This means that, it is nature that determines function, and not *vice versa*.¹⁴ Thus, if the soul is accepted as an individuated nature, then, every living organism is identical to its soul.

¹⁴ It will take us beyond the aim of this paper to argue in detail how the soul interacts with DNA. Suffice to say here that, according to the 'genocentric view' about DNA, genes are the fundamental units of life; nothing else or more is needed to produce an organism (an ordered aggregate, assembled piecemeal by the activity of the DNA). The 'organocentric view,' by contrast, holds that DNA is not the only thing passed on in reproduction. The genes that compose DNA are tools or instruments the soul uses to

We can deepen our understanding of a substance and its properties by applying our concepts of them to a seed such as a peanut. First, a peanut is the bearer of its own life and properties; it has its principle of growth in itself.¹⁵ Second, it makes other things possible, for example, a growth of a root system, stem, branches, and leaves. Put in the reverse, other things depend on the peanut—the substance—for their existence. This leads to a third observation, namely, it has some definite inherent capacities or potentialities and tendencies. Some of these may be called absolute capacities; others, first-order and second-order capacities that have the first-order capacities, and so forth. The peanut has the ultimate capacity to bear fruit, and so the first-order capacity to draw nutrients from the ground. But if it does not grow a root system (develop a second-order capacity), it will be unable to do so. Fourthly, it remains the same thing during its development and change into a peanut tree, even if it loses some leaves and some green leaves turn brown. Finally, should it find itself in the right conditions and environment, it will do what it is naturally capable of doing—grow and bear fruit. In different words, it has an internal *telos* or purposiveness.

A question that is scarcely asked is this: how is it possible, or what makes it possible, for sperm to fertilise an egg? The biological evidence allows for at least five observations (Condic 2008:1–12). First, human life commences at the precise moment when the membranes of the sperm and egg cells fuse, and not 24-hours later as is often assumed. Second, gametes are equipped with capacities to do certain things—naturally—when the right conditions and environment are in place (e.g.

accomplish its purposes as designed by the Creator. For an insightful discussion of DNA from the perspective of developmental biology see Wells (1998:51–70).

¹⁵ This is naturally speaking, and does not imply that our Creator is not the sustainer of the life or existence of everything that exists (Col 1:17). It is just that he has created the natural order to function that particular way.

a sexual union between two people, a uterus, an umbilical cord, and so on). Third, the sperm and egg naturally need each other; in fact, the natural disposition or tendency of the sperm is to make for the egg, and the egg, as determined by the menstrual cycle, ‘waits’. It thus appears that the egg’s natural disposition is receptivity and its natural capacity is to be fertilised. Fourth, both the sperm and egg have an internal *telos*, an internal purposiveness, to unite with each other. Finally, as with the peanut, interference with the growth of the embryo could mean that no one will see the embryo come to maturity. The human embryo must therefore be protected. Thus, to answer the question, what it is that makes it possible for sperm to fertilise an egg?’ it is the ‘soulish’ potentialities (totipotency) of both the sperm and egg.

Lugosi (2007:123–124) provides the following description of ‘totipotency’. When an egg is fertilised by the sperm (called the ‘zygote’), the new genome—contained in the zygote—is

...internally activated by a biochemical process and assumes control of the whole morphogenetic process from the beginning of embryonic development. The cell divides from one cell into two, from two into four, and from four into eight. These cells are called totipotent, because they have a full range of development capacity to turn into any type of tissues or organs that are part of the adult human body. Totipotent cells are also able to differentiate differently in various environments, and are able to develop into a complete individual. Once the eight-cell stage is reached, the cells lose their totipotency.

The nature of totipotency is to execute a plan according to a given program. Undisturbed by external intervention, left alone totipotent cells will carry out the plan nature intended in an ordered, unique,

and coordinated process. Given the right conditions, an isolated totipotent cell can start its own life cycle.

Moreland and Rae (2000:304, 305) state that

This would be analogous to the way a starfish can build a new organism out of a part that has been disconnected from the original whole ... Each human cell could have the capacity for the development of a soul, actualized in the proper conditions. This would be consistent with our view of how the soul is intimately related to the body. The soul permeates the body and cannot be isolated from any particular part of it.

Feiberg and Feinberg (1993:53–55) provide a description of the physiology of human development. Amongst other things, between day five and nine, after the father's sperm penetrates the mother's egg cell, the baby's sex can be determined; by day 18 the heart is formed; by day twenty, the beginnings of the brain, spinal cord, and nervous system are laid; (at day 18, the baby's one-chamber heart begins beating – Lugosi 2007:125, fn. 27); by day thirty (one month) blood flows in the veins and is separate from the mother's blood supply; at 1½ months (day 45) spontaneous movements begin, and the teeth are developed; at the end of 8 weeks, every organ is present (and the baby demonstrates that he or she can experience pain—Lugosi 2007:126, fn. 29). The child is 3 cm in length when sitting up, and weighs a gram; 3 to 4 days later (at 8½ weeks) the fingerprints are engraved, and will not change for the rest of his or her life.

3.2.6. Metaphysical and material necessity

The discussion thus far has revealed that metaphysical necessity is different from, and deeper than, material (biological) necessity. An object is materially necessary when it comes into existence everywhere

the same way and, if, and only if, the laws of nature and the same features of matter are present. But the laws and the kind of matter could have been different; matter is also contingent. God could have chosen to create human beings without material bodies. By contrast, something is metaphysically necessary when it must come to exist a certain way and not otherwise. For example, if James is a human being and exists, then, he is necessarily a human person.

By way of summary, properties do not appear in the world by themselves. Substances are the owners of their properties; properties are ‘in’ them, but not like water in a glass. A substance is a whole and is not an entity that ‘emerges’ from the interaction between externally related properties, parts, and capacities. A substance’s unity is ontologically prior to its parts, and parts are what they are in virtue of the substance’s nature and their function in the substance as a whole. Put differently, a substance’s capacities are possessed by it solely in virtue of the substance belonging to a natural kind; James’ capacities are his because he belongs to the natural kind ‘being human’. James, as a person or self, is thus prior to his parts; parts are gathered and formed by the direction of an immaterial soul and its nature taken as a whole.

4. The Embryo as a Human Person—a Defence

The purpose of this section is to defend briefly the view that the human embryo is a human person. The defence is directed at the arguments of leading and prominent advocate of abortion and embryo stem cell research, ethicist, and philosopher, Bonnie Steinbock (2011). Steinbock offers the world a theory of the moral status of embryos and fetuses which she calls ‘the interest view’, i.e. ‘all and only beings who have interests have moral status’. The view is ‘conceptually connected to

sentience (the ability to experience pain and pleasure) or conscious experience' (p. xiv). In support of her view, she offers several arguments of which the core ones are as follows: (a) the so-called twinning problem, (b) the embryo is worthy of grades of respect, and (c) an embryo is a potential human person.

4.1. The twinning problem

Steinbock defines an organism 'as an integrated whole with the capacity for self-directed development' (p. 269). For her, the central question is, 'at what stage of development does the human organism begin to exist?' To think that the organism begins to exist at conception or fertilisation would be a mistake. Such a position is hard to accept in view of the fact that the embryo can divide into two or more during at least the first fourteen days after conception. The embryo, therefore, cannot be identified with one and only one human being. Thus, the embryo is just one stage in a 'life cycle of further stages' and the conception position is not true.

First, that the embryo is capable of dividing is just a brute fact. After all, every one of us who is not a twin was at one time (in our lives) capable of dividing into two or more embryos. So, the fact that we are not twins entails that we are single human beings, and her argument is therefore invalid. In other words, an embryo that splits is fully a person prior to 'twinning', just as the twin that comes into being as a result of the split is also fully a person.

Second, Steinbock's argument, that an embryo is just one stage among others, rests on a faulty assumption about temporal existence. In her scheme of things, temporal existence can be compared to a cricket match that consists of a number of innings (stages). Thus, an event like a cricket match is a whole with temporal parts and the whole is the sum

of its temporal parts (innings). The problem is that, despite the fact that a match is a temporally-extended entity that consists of temporal parts, the match does not move *through* time; the match as a whole has a first innings, then a second innings, and so on, but they are just temporal stages of the match. This illustration contrasts with human beings as substances in the sense that substances do not have temporal parts, but move *through* their histories.¹⁶ For example, Roman, the tiger, is fully present at every moment of his life. He is not the sum of individual ‘cat stages’ like a cricket match is a sum of ‘match stages’ (innings/parts).

An event has temporal parts that are temporally located at different moments. Roman’s ontological identity is, therefore, also a continuant that remains the same through change. This implies that change presupposes sameness. If Roman, the tiger, changes colour from fawn to orange, then, the very same tiger must be present at the beginning, during, and at the end of the change. While his properties may be changing—he may regularly lose old parts and gain new ones—his soul, which underlies the change, remains the same through it.

4.2. Grades of respect and value

Although Steinbock stipulates that embryos are without consciousness, they are worthy of respect in just the same way that a country’s flag is. This means that both the embryo and flag do not have intrinsic value, but only what people are willing to confer on them. In her words, ‘Respect can be a matter of degree, depending on the kind of entity in

¹⁶ Lugosi (2007:127) argues that so-called ‘boundaries in the lifespan’ of the unborn are used by the courts and governments to decide when to confer personhood upon a human being. His argument is that there are no boundaries. The idea rests on philosophical distinctions that create illusions and serve political purposes. Boundaries ‘are all artificial and arbitrary concepts that purport to neatly and fairly divide the continuum of life that varies for each unique human being’ (Lugosi 2007:127–128).

question' (p. 271). For example, killing embryos for cosmetic research would be wrong, but killing them in research aimed at understanding and treating serious diseases, is not.

Firstly, killing an embryo for cosmetic purposes or stem cells research is still killing. Her distinction can therefore only make sense to one who holds that an embryo has no intrinsic value. Secondly, the fact that the embryo continues to exist from conception means that it is entitled to the protection of others, but chiefly the protection of the mother. That makes the embryo just as worthy of our respect as any other human being. Thirdly, since existence is an all-or-nothing affair and not a matter of more-or-less, the intrinsic value of the embryo cannot be a matter of degree. However, in order to see why she argues as she does, it requires that one pays careful attention to what her 'interest view' implies, namely, that consciousness requires a brain. And since the embryo does not yet have one, the embryo does not have any interests, and therefore, no intrinsic value.

If she is correct in her assumption, then no person who is asleep or in a coma can be regarded as a human person.¹⁷ But that is absurd; the person who is asleep is not aware if someone is stealing from him, and the person in a coma can experience injury without his awareness. The point remains, if we destroy the embryo, we destroy the life that sustains the embryo's being. In other words, we destroy the capacities already in place and terminate the growth and process of development already on the way. By destroying the embryo's life and nature, we are destroying the very things that make the embryo intrinsically valuable in the first instance.

¹⁷ Space constraints prevent an in-depth discussion of this particular argument. The reader is referred to Beckwith (2004), and Lee and George (2008).

4.3. The human embryo as a potential person

Steinbock's moral theory of graded respect and value rests on the assumption that the embryo is a potential person; the embryo is not yet 'one of us' (p. 275). The problem is that Steinbock has a faulty view of existence. What does it mean to exist?

Moreland (2001:135) lists five features that a good theory of existence ought to have: (a) it needs to be consistent with and explain what actually exists and what not; (b) it needs to be consistent with and explain what could have existed but either does not exist or is not believed to exist by a person advocating a given view of existence; (c) a theory of existence must not be self-refuting; (d) a theory of existence must not violate the fundamental laws of logic: the law of identity (P is identical to P), non-contradiction (P cannot be both true and false at the same time in the same sense) and excluded middle (P must be either true or false). Contrary states of affairs do not exist; and (e) a theory of existence must allow for the existence of acts of knowing. How does Steinbock's view of potential persons square with these features of existence?

Let us remind ourselves that for something to be able to unfold its potential, it must first exist. Recall that it is not at all like someone walking into a room with the first step, followed by a second, until the person has finally entered the room. In any event, the walking presupposes the existence of a person who is doing the walking. A different way of making the same point is to say that the difference between actual and potential is not a normal property like the property of red. Red is exemplified either clearly or fuzzily. But existence is an all-or-nothing affair. It follows that the idea of potential persons violates a fundamental law of logic: P is not identical to P. Contrary to

Steinbock's logic, when a human being comes to be, then the property of being human must necessarily belong to that very particular individual at that very moment.

Furthermore, Steinbock's view of becoming a person confuses change with alteration. Before anything can change, two things must be true of it: (a) the thing changing must exist, and (b) must exist at the beginning, during the process of change, and at the end of the change. Gaining or losing properties is a matter of the coming and going of properties, thus of alteration, and not a matter of change in kind (nature) or existence. Finally, existing living things can only grow and develop according to what they already are. A zygote does not become more of its kind or change into something different from the kind the zygote already belongs to. The zygote matures as a member of its kind because of its human nature, which guides that maturity. Likewise, kittens are immature cats, not potential cats, and the same truth applies to human fetuses. They are immature persons and not potential persons.

Her arguments that there is no moral difference between creating embryos for reproductive purposes, donating 'excess' embryos to research, and producing embryos for research purposes (p. 282) can therefore not be sustained.

5. Conclusion

How can the law have respect for human life without an adequate concept of life, or without understanding the moment when a new life comes into being? The anomalies in the South African regulatory framework are causes for serious concern. Most important is that it creates and disseminates the message that the unborn is either not a human being or something less than human. The value of unborn

children also depends on what others are prepared to confer on them instead of being derived from their intrinsic natures. Biblical principles demonstrate that something cannot come from nothing, including life and personhood, and natural kinds can only reproduce according to their kind and remain the same things through change over time. Clarification of crucially important concepts and distinctions confirms that although not all persons are human, there is no such thing as a human non-person.

Stem cell research that necessarily requires the destruction of human embryos can therefore not be condoned. It follows, that it is immoral and legally wrong to deny unborn human persons the right to life and protection under the law.

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