

*Human Cloning: Four Fallacies and their Legal Consequences*, KERRY LYNN  
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Imagine a world of myriad human beings, mirroring their genetic creator in every moving finger, in every breathing action. Imagine a type of post-Apocalyptic world where non-human animals are cloned to beget even more cloned animals. Wake up to the nightmare scenario of individuality assaulted by the creation of non-unique cloned artefacts of a science that has gone a bit askew. These are some of the myths about cloning that are commonly held. The primary purpose of Kerry Lyn Macintosh's exciting and challenging book is to debunk and de-mystify a number of fallacies about human cloning. This is a truly wonderful book which is mesmerising in the way it achieves its simple purposes. Macintosh sets out the science, the psychology, and the law relating to cloning and, in so doing, she addresses, with keen insight and unwavering clarity, the fallacies that have grown up in our commonly held perceptions and fears about human cloning.

The very first, very visible, attribute of the book is the ease with which it can be read from a sheer physical point of view. The font size is big, the margins are wide, the bold signposting is visually compelling. This structure includes unambiguous setting out of the content to be covered at the outset of each chapter and clear, concise chapter summaries at the end. All of this creates a book that is attractively presented. It appeals to the lazy part in me, the part that cannot be bothered reading dense academic text. The simplicity of the structure of the book does not, however, imply simplicity of content or lack of rigour in approach. Scientific myths are debunked with precision and rich sources of evidence.

Furthermore, Macintosh skilfully links science to psychological reasoning using a continuum of interesting fallacies: identity,<sup>1</sup> artefact,<sup>2</sup> imposter,<sup>3</sup> and resurrection fallacies.<sup>4</sup> The identity fallacy considers that a non-human animal born through cloning will have the same traits as the donor with the same nuclear DNA (p. 27). The artefact fallacy is that 'animals (or, potentially, humans) born through cloning are necessarily the flawed products of a technological process and can never be functional members of their species' (p. 16). The imposter fallacy includes 'the concern that humans born through cloning will be doppelgangers capable of stealing our assets, jobs, loved ones, and individuality' (p. 64). Finally, the resurrection fallacy comprises of 'the notion that an animal or person born through cloning extends or adopts the life of her donor' (p. 27). These fallacies are presented as being connected to essentialism. The relevant law pertaining to human cloning is presented clearly and succinctly. Although she paints a picture primarily of a North American legal context, Macintosh draws non-American readers into that landscape because the picture painted is international in nature and will appeal to an international audience. This is a book that is of immediate relevance, as the day of the human being created from the DNA of three people has emerged and, in the UK at least, is the subject of imminent

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<sup>1</sup> 'Identity and Essentialism', Ch 4.

<sup>2</sup> 'Artifacts and Essentialism', Ch 5

<sup>3</sup> 'Imposters and Essentialism', Ch 6.

<sup>4</sup> 'Resurrection and Essentialism', Ch 7

legislation.<sup>5</sup> Indeed, new emerging practices in creating babies from different forms of DNA means that the world of some form of human cloning may be just around the corner.

This book is divided into three parts, and in Part I Macintosh examines the science of cloning.<sup>6</sup> In the first chapter she explores the different methods that have been used to clone non-human animals.<sup>7</sup> Macintosh describes how non-human animals, including Dolly the sheep, who are born through cloning are individuals and not simply copies, explains why they are unique, and how they have their own lifespans. In Chapter 2 she considers the individuality of non-human animals who have been born through cloning, and examines why they do not often look like or act in the same manner as the non-human animals involved in the DNA donation.<sup>8</sup> Macintosh thus explores the identity fallacy and explains that non-human animals born through cloning do not possess the same physical, intellectual, psychological, or behavioural characteristics as the DNA donors, and have normal lifespans. This, according to Macintosh, dismisses the fallacy that cloned non-human animals carry on the lives of their DNA donors.

In Chapter 3 Macintosh looks at the scientific possibility of cloning human embryos, and refers to biological principles as well as experiments based on non-human animals to predict the traits of humans born through cloning.<sup>9</sup> She considers the following questions: ‘[c]ould cloning produce warm bodies ad infinitum to house the soul? Could it resurrect dead loved ones - or, more menacingly, dictators and psychopaths?’ (p. 43). She explains why humans born through cloning will not be resurrections of the dead but ordinary members of our species, notwithstanding the reality that no credible reports of cloned humans or cloned human pregnancies exist. The results of experiments in non-human animal cloning are thus the best evidence of what we can expect for humans.

Macintosh argues, in Part I, that the efficiency of non-human animal cloning is improving, and that the majority of non-human animals who survive birth and the first few weeks of life are healthy. They are ‘functional members of their species’ (p. 61) and not ‘carbon copies’ of their DNA donors. They are unique (p. 61). Thus, if humans are cloned, they will be born as babies, will have their own lifespans (p. 62), and, as such, ‘the artefact, identity and resurrection fallacies will prove just as false for humans as animals’ (p. 62). In Part I, Macintosh explores a world of scientific possibility, and opens the door to avenues of research into human cloning that are almost within our grasp and may only be limited by our imaginations. The science is described in clear and unambiguous terms, and there are no convoluted arguments. Rather, there is a symphony of well constructed and well written chapters that tease out stimulating and interesting scientific concepts and practices.

In Part II, Macintosh turns to the perception of human cloning in popular culture and politics.<sup>10</sup> Liberals and conservatives, according to Macintosh, both oppose cloning, and the notion that cloning human babies ‘must be stopped’ (p. 63) arises from safety concerns as well as from the existence of the four fallacies. Macintosh introduces the concept of psychological essentialism which, in its classic formulation, holds that ‘the brains of human

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<sup>5</sup> See ‘Vote Approves Babies With Three People’s DNA’ (Sky News, 24 February, 2015) <<http://news.sky.com/story/1432869/vote-approves-babies-with-three-peoples-dna>> accessed 24 April 2014.

<sup>6</sup> ‘The Science of Cloning’.

<sup>7</sup> ‘Animals born through cloning are ordinary members of their species’.

<sup>8</sup> ‘Animals born through cloning are unique individuals and have their own lifespans’.

<sup>9</sup> ‘Humans born through cloning will be unique individuals and have their own lifespans’.

<sup>10</sup> ‘The Cognitive Psychology of Cloning’.

beings intuit that certain categories possess an intrinsic nature or essence' (p. 64). She discusses the relationship between the four fallacies and popular culture in relation to the concept of essentialism throughout Part II. For example, Macintosh presents a comprehensive list of films where the identity fallacy can be seen, including *Star Wars II: Attack of the Clones* where 'Jango Fett and the men generated from his DNA share an identical appearance, physical strength, and the ability to fight well. These traits are preserved across hundreds of thousands of soldiers, with 1 million more to come' (p. 81).<sup>11</sup> The identify fallacy can also be seen in media reports, influential books, such as *Future Shock*,<sup>12</sup> and in government reports (p. 82).<sup>13</sup> Cloned humans are thus commonly presented as multitudinous copies (p. 100), and while '[b]iological science predicts the individuality of humans born through cloning, no matter how many there are ... psychological perception trumps biological reality' (p. 100). Macintosh argues that government reports do not 'unmask the role of essentialism in the cloning debate, nor do they advocate the public education or counselling that could equip parents to raise healthy children in an informed and fair-minded society' (p. 101). This point elucidates the complexity of the issue of cloning and the need for public education to address ever-widening perspectives on this contentious issue.

Chapter 5 concerns the artefact fallacy and the (incorrect) idea that cloning creates technological products instead of ordinary members of species (p. 103).<sup>14</sup> Macintosh explores the essentialist view of artefacts and highlights the fact that human beings cannot be regarded as artefacts of this ilk. Again, she looks at popular culture and uses the example of *Star Wars II* to exemplify how the artefact fallacy has been used within this culture to perpetuate hidden fears that exist within social consciousness. The exploration of this example makes for riveting reading. Macintosh effectively uses film and media as a tool to connect complex scientific facts to a communal understanding of science that has developed through our engagement with scientific concepts in the mythical and fraudulent landscape of science fiction. We know *Star Wars*. We connect to it. We share common understandings about the non-human species shown on our screen. Macintosh helps to build a bond between this understanding of science in a media-specific arena, the world of psychology, and the world of fallacy. By engaging with film and media in this way, she bridges the gap between the science of the real world and the science of science fiction, and, somewhere in that gap, human cloning is there as a reality or as a fantasy or as a fallacy which we both fear and revere.

The imposter fallacy is explored in Chapter 6.<sup>15</sup> This fallacy occurs in two versions. An extreme version is often seen in TV and film, and involves 'a person born through cloning [who] is a dangerous doppelganger who impersonates the DNA donor in order to steal his assets, job, spouse or partner, and life' (p. 125).<sup>16</sup> The more subtle version is evident in media and government reports where it is implied that the individuality and uniqueness of the

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<sup>11</sup> 'Identity and essentialism', Ch. 4.

<sup>12</sup> A Toffler, *Future Shock* (New York: Tuttleback Books, 1999).

<sup>13</sup> E.g. National Bioethics Advisory Commission, *Cloning Human Beings, Report and Recommendations of the National Bioethics Advisory Commission* (1997): <<https://bioethicsarchive.georgetown.edu/nbac/pubs/cloning1/cloning.pdf>> accessed 24 April 2015.

<sup>14</sup> 'Artefacts and essentialism'.

<sup>15</sup> 'Imposters and essentialism'.

<sup>16</sup> This is apparent in, e.g., *The Island* (Dream Works/Warner Brothers, 2005) where it is suggested that the cloned impersonators have the capability to destroy their donors and take hold of their possessions, see Macintosh, 131-132.

original DNA donor is under threat by the construction of the clone (p. 125).<sup>17</sup> Macintosh says that, in theory, a human clone can be created from a single cell, and that ‘the imposter fallacy focuses on the supposed menace that cloning poses to you or me’ (p. 125). The existence of fear is a noteworthy factor motivating the antagonism towards human cloning. This part of the book strikes at the core of the hidden fears that many of us have. These fears are unmasked, and the fraudulence and false view of cloning that lies behind them are revealed in the substance of these compelling arguments. We are thus startled out of our blind acceptance of the fallacies that we have subliminally accepted. Macintosh’s examples and stories ‘benefit from essentialist intuitions that make it seem credible that a severed somatic cell could transmit historical path from donor to another person’ (p. 144).

With regards to the resurrection fallacy and its relationship to essentialism, this fallacy is a popular theme in science fiction films (p. 147).<sup>18</sup> Macintosh suggests that it may have its roots in psychological essentialism, and that ‘[i]f one believes that a unique essence permeates the body of a dead person, one may also believe that cloning transmits that essence to a new body via the donor cell’ (p. 163). Her arguments here are persuasive and compel the reader to investigate further into both the science and psychology that form the discussion around human cloning.

Overall, in Part II Macintosh explains *why* there is such widespread belief in the four fallacies. She argues that the fallacies have their roots in psychological essentialism, and that ‘it makes sense that essentialism yields multiple misconceptions that depend on context’ (p. 168). The chapters in this Part summarise and analyse four particular fallacies that are attributed to human cloning: identity, resurrection, imposter, and artefact. Macintosh shines a light on our deepest fears and nightmare visions of what a brave new world of human cloning might bring about. In so doing, she clarifies the most ridiculous of our assumptions, and demystifies the scientific realities of cloning.

In the final Part of this book, Macintosh examines the legal consequences of essentialist intuitions about cloning.<sup>19</sup> She looks separately at reproductive cloning (the cloning of babies), and research cloning (the creation of cloned embryos for stem cell research and possible therapy). In Chapter 8 Macintosh analyses the political and legal responses to human reproductive cloning.<sup>20</sup> She explores how the different fallacies have impacted on the public, legislators, and regulators, and argues that psychological essentialism is a hidden driver behind the response to human reproductive cloning. This heuristic has led liberal lawmakers to betray their longstanding allegiance to reproductive freedom, and has lured liberals and conservatives into supporting laws that run counter to egalitarianism (p. 198). In Chapter 9 Macintosh considers how conservatives take advantage of cloning fallacies to ban all forms of cloning, whereas liberals use the fallacies to ban reproductive but not research cloning.<sup>21</sup> The concern is that, as Macintosh points out, ‘[t]hey don’t seem to realize ... that their strategy also makes the slippery slope seem all the more dangerous. In the end,

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<sup>17</sup> This more subtle version is evident in, for e.g., the California Advisory Committee on Human Cloning, *Cloning Californians? Report of the California Advisory Committee on Human Cloning* (2002) 26: ‘[t]he person who is the source of the genetic material (if still alive) may experience loss of self worth rooted in the knowledge that he or she is no longer unique, but now has a genetic copy’: <[bioethics.stanford.edu/conference/cloning\\_california.pdf](http://bioethics.stanford.edu/conference/cloning_california.pdf)> (accessed 11 May 2015), Macintosh 139-140.

<sup>18</sup> ‘Resurrection and essentialism’, Ch. 7.

<sup>19</sup> ‘Anti-Cloning Laws Violate the Equal Protection Guarantee and are Unconstitutional’.

<sup>20</sup> ‘Essentialism and the law of reproductive cloning’.

<sup>21</sup> ‘Essentialism and the law of research cloning’.

Congress may react by banning all human cloning, including cloning for stem cell research' (p. 220).

What is good about this book? Macintosh sets out her objectives very clearly and, by the end of the book, it is evident that those have been achieved. The language used within this book is, perhaps, its greatest strength. Macintosh successfully takes difficult, scientific, psychological and legal concepts, and describes them in a way that is, to a large degree, free of jargon. The reader will not get lost in labyrinthine and complex argument. Indeed, at times the language is almost poetic; it grips the reader and takes us into this world of science, psychology, and law. Ideas are presented that suit a multiple audience. A student of law would find the legal argument interesting and relevant. A reader of psychology would find the analysis of the essence of the human being and the interplay of a number of variables in the formation of that essence an argument of resonating sense. A proponent of science would find the description and analysis of the scientific procedures involved in human cloning to be of significant interest. And for the reader who has no particular commitment to these fields but is interested in the human condition and the potential of science to impact on that condition, this book should be a compelling read.

Having said that, Part III of the book which deals with the law is the weakest Part. Unfortunately, Macintosh paints an incomplete legal landscape, and does not include sufficient analysis of the international law that impacts on human cloning and scientific innovation. She also fails to fully address the consequences of the legal limits that can be applied to these forms of scientific endeavour. The reality is, of course, that there is little legal discourse around this subject and the parameters of future legislation are unclear. In this context, the law is another country and the territorial boundaries of it have not yet been drawn or tested in the courts. However, the failure of Macintosh to address the legal context as completely as she addresses scientific and psychological contexts, is not a failure but represents the fact that human cloning could happen within a legal context that is yet to be fully tested.

It is worth reading this book for a number of reasons. Macintosh considers an interesting and future-focused topic, and applies a new psychological perspective to a scientific process. The marriage of science and psychology in the book is comfortable. The debunking of the myths that surround the named fallacies get us to think beyond what is portrayed as fact. We are empowered to seek out the truth that lies behind what is publicly portrayed as scientific fact. If you are interested in the world of scientific possibility and in unpacking that scientific possibility from the point of view of human psychology and legal reasoning, then this book is for you. If you are interested in what happened to Dolly and what might happen to all the Dollys that might be created, then this book will also appeal to you. This is not a book to sit on a coffee table, collecting dust, and forming the basis of polite conversation. It is a book to be devoured.