

THAWING OUT PERSONHOOD: AUSTRALIAN LAW AND CRYONICS

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The adoption of cryonics poses fruitful questions about personhood, consumer protection, trusts, taxation, crime, human rights and other law. Cryonics involves the long term storage of human cadavers at subzero temperatures with an expectation that in the indefinite future the legally dead will be ‘reanimated’. The article discusses the culture and law of cryonics in relation to Australia. It draws on Martha Fineman’s vulnerability theory to critique claims by proponents of cryonics, asking whether unsubstantiated claims regarding reanimation are unconscionable and necessitate a specific statutory prohibition. The article further considers the implications for health, welfare and other law if cryonics was practical.

Lynn Stout’s elegant ‘The Corporation as Time Machine: Intergenerational Equity, Intergenerational Efficiency, and the Corporate Form’¹ offered a novel and persuasive analysis of one category of artificial person as a mechanism for transcending the finitude experienced by all natural persons. There is increasing interest in some Australian and overseas communities regarding cryonics – cold storage of humans for ‘reanimation’ at an undetermined future time – as a mechanism for transcendence on the part of natural persons. The adoption of cryonics poses fruitful questions about personhood, consumer protection, trusts, taxation, crime, human rights and other law rather than what the Stoics considered to be our mistaken fear of death.

This article engages with questions about cryonics in relation to Australian law, arguing that existing consumer, succession and criminal law offers an effective framework for the regulation of a new technology and consequent shaping of social practice. As such it represents a substantive addition to Australian literature.²

Part I offers an introduction to cryonics, whose adherents expect that future advances in technology will enable the ‘revival’ of cadavers, in essence the unprecedented reinstatement of personhood.³ Part II draws on vulnerability theory in examining consumer protection issues, which range from outright fraud or negligence on the part of for-profit cryonics service providers through to questions about unconscionability in the marketing to vulnerable people of services that as of 2020 are empirically nonsensical. It touches on responsibility under Commonwealth, state and territory consumer protection and criminal law. Part III considers some implications for succession, health and welfare law if cryonics was practical. Part IV offers concluding remarks, including recommendations for coherent national regulation.

I PLACING LIFE IN THE FREEZER

The inescapability of death has preoccupied generations of philosophers, theologians and authors. It is something experienced by all humans and their companion animals, thus distinguishable from the traditional meme that the only ‘universals’ are death and

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¹ Lynn A Stout, ‘The Corporation as a Time Machine: Intergenerational Equity, Intergenerational Efficiency, and the Corporate Form’ (2015) 38(2) *Seattle University Law Review* 685.

² There has not been a substantial addition to the Australian legal literature since George P Smith III, ‘Intimations of Immortality: Clones, Cyrons and the Law’ (1983) 6(1) *University of New South Wales Law Journal* 119.

³ Bruce Baer Arnold, ‘Is the Zombie My Neighbour: The Zombie Apocalypse as a Lens for Understanding Legal Personhood’ (2016) 14(1) *Canberra Law Review* 25.

taxes, with much of the legal profession endeavouring with varying degrees of success to ensure that tax is escapable and personal assets are distributed post-mortem in accord with an individual's wishes. (This article will return to that point below in discussing the implications of cryonics for succession.)

Death might be postponed by self-regulation (for instance avoidance of self-harm through consumption of fast foods, disregard of self-isolation during pandemics and participation in dangerous sports or occupations) and by legal frameworks that seek to deter murder and inhibit workplace injury. It might be postponed through effective diagnosis and clinical treatment of bodily ills. However, it comes to us all, irrespective of whether we are Charles Foster Kane,⁴ King George V (eased into the afterlife with a shot of morphine)⁵ or an Indigenous person who sleeps rough.⁶

Cryonics offers what proponents view as a radically new proposition, in other words that death can be defeated through preservation of a cadaver – human or otherwise – in a way that will allow future reanimation.⁷ Bringing the dead creature back to life might take place when medicine has discovered a cure for cancer or another disease that afflicted the person. It might instead take place when science has discovered how to reverse aging or transfer an individual's consciousness. Some proponents thus argue that whole-body reanimation will be unnecessary, as the person's mind can be ported to the Cloud or a robot or transferred to a new body grown 'in vitro'. You die, for example, looking as wrinkled as Rupert Murdoch or W H Auden and reawaken in 2200 looking as sprightly as a 20 year old Justin Bieber or Kim Kardashian, presumably with your reanimated cat or dog.⁸

Absent references to liquid nitrogen and other contemporary technologies, such promises of immortality or death indefinitely deferred are in fact not new.⁹ They are a feature of alchemy in European and Chinese culture over several centuries, marked by a feverish search for elixirs and other nostrums that would allow unlimited or merely vastly extended life for emperors, kings and other members of an elite.¹⁰ They are also a feature of traditional anxieties about the embodiment of mind (or soul) in frail flesh.¹¹

⁴ Peter Bogdanovich, 'Interview with Orson Welles' in James Naremore (ed), *Orson Welles' Citizen Kane: A Casebook* (Oxford University Press, 2004) 19, 48.

⁵ J H Rolland Ramsay, 'A king, a doctor, and a convenient death' (1994) 308(6941) *British Medical Journal* 1445; and Michael J Kelleher, 'Arranging the death of a king' (1998) 19(1) *Crisis* 6.

⁶ James J O'Connell, *Premature mortality in homeless populations: A review of the literature* (National Health Care for the Homeless Council, 2005); David S Morrison, 'Homelessness as an independent risk factor for mortality: results from a retrospective cohort study' (2009) 38(3) *International journal of epidemiology* 877; and Felicity Reynolds, Janelle Kwong, Kim Rayner, Karyn Walsh, Stephen Nash, Liz Thomas and Stephanie Brennan, 'Ending chronic homelessness and measuring results: The vulnerability index in Australia' (2012) 25(6) *Parity* 35.

⁷ Romain notes language within the cryonics community, with for example death being characterises as temporary deanimation, the cadaver as the 'patient' and the treatment of the dead person as a matter of 'vitrification', 'cryopreservation', 'freezing', 'cryogenic internment', 'biostasis', 'cryostasis', 'cryonic suspension', 'cryosuspension' or 'suspension'. Tiffany Romain (2010) 'Extreme Life Extension: Investing in Cryonics for the Long, Long Term' (2010) 29(2) *Medical Anthropology* 194, 198.

⁸ <https://www.cryonics.org/resources/pet-cryopreservation>.

⁹ Michael Shermer, *Heavens on Earth: The Scientific Search for the Afterlife, Immortality, and Utopia* (Henry Holt, 2018).

¹⁰ Nathan Sivin, 'Chinese alchemy and the manipulation of time' (1976) 67(4) *Isis* 513; David Gordon White, *The alchemical body: Siddha traditions in medieval India* (University of Chicago Press, 2012); Claudia Kren, *Alchemy in Europe: a guide to research* (Routledge, 2012); and Peter G Maxwell-Stuart, *The chemical choir: A history of alchemy* (Continuum, 2008).

¹¹ David B Hershenov, 'Why transhumanists can't survive the death of their bodies?' (2019) 10 *Ethics, Medicine and Public Health* 102; Antonio Sandu, 'The anthropology of immortality and the crisis of posthuman conscience' (2015) 14(40) *Journal for the Study of Religions and*

Cryonics does not rely on ingestion of dragon blood, powdered amber and rhinoceros horn, cinnabar, colloidal gold, mumia or other concoctions that in Australian law would now be unrecognised by the Pharmaceutical Benefit Scheme,¹² contrary to the therapeutic goods regime¹³ or endangered species conventions,¹⁴ and attract sanctions if prescribed by a health practitioner.¹⁵ It is instead predicated on the expectation that human brains¹⁶ or whole bodies can be chilled, stored indefinitely (typically in a vat of liquid nitrogen) and successfully ‘reanimated’. The reanimation of the cadaver – someone who ceased to be a legal person at the time of death and is recognised by the state as being dead¹⁷ – would be without loss of memory and cognition. It would reinstate, or in the view of cryonics proponents, allow the previously ‘suspended’ entity to autonomously reaffirm their personhood.

Cryonics has been a feature of popular culture since at least the 1960s, with for example speculation about deep freezing of Walt Disney’s severed head,¹⁸ appearances in science fiction (gently debunked in Woody Allen’s 1993 *Sleeper* and Matt Groening’s 1999 *Futurama*),¹⁹ mordant gibes about repositories for meat-flavoured popsicles,²⁰ visions of reanimating Captain Scott and other Antarctic explorers,²¹ and millenarian

Ideologies 3; and Julian F Henriques, ‘Digital Immortality’ in Steve Goodman, Toby Heys and Eleni Ikoniadou (eds), *AUDINT—Unsound: Undead* (MIT Press, 2019) 161.

¹² *National Health Act 1953* (Cth),

¹³ See for example *Therapeutic Goods Act 2010* (Cth) and *Poisons and Therapeutic Goods Act 1966* (NSW).

¹⁴ Chryssee Bradley Martin, ‘Combating the illegal trade in rhinoceros products’ (1987) 21(3) *Oryx* 143; and Jon Hutton and Barnabas Dickson (eds), *Endangered Species Threatened Convention: The Past, Present and Future of CITES, the Convention on International Trade in Endangered Species of Wild Fauna and Flora* (Earthscan, 2000).

¹⁵ *Health Practitioner Regulation National Law Act 2009* (Cth) and corresponding state/territory statutes.

¹⁶ Bronwyn Parry, ‘Technologies of immortality: The brain on ice’ (2004) 35(2) *Studies in History and Philosophy of Science Part C: Studies in History and Philosophy of Biological and Biomedical Sciences* 391.

¹⁷ Recognition is provided in a range of statutes, for example *Births, Deaths and Marriages Registration Act 1995* (NSW) Pt 7 and *Human Tissue Act 1983* (NSW) s 33. Australian legislatures have provided statutory definitions that accommodate practices such as organ transplantation and elective ventilation. See for example *Transplantation and Anatomy Act 1978* (ACT) ss 30 and 45; *Human Tissue Act 1983* (NSW) ss 26 and 33; *Transplantation and Anatomy Act* (NT) ss 21 and 23; *Transplantation and Anatomy Act 1979* (Qld) s 45; *Death (Definition) Act 1983* (SA) s 2; *Human Tissue Act 1985* (Tas) ss 25A and 27A; and *Human Tissue Act 1982* (Vic) ss 26(7) and 41.

¹⁸ R W Pommer III, ‘Donaldson v. Van de Kamp: cryonics, assisted suicide, and the challenges of medical science’ (1993) 9 *Journal of Contemporary Health Law & Policy* 589, 594.

¹⁹ Grant Shoffstall, ‘Freeze, wait, reanimate: cryonic suspension and science fiction’ (2010) 30(4) *Bulletin of Science, Technology & Society* 285; and Justin S Wales, ‘Futurelawma: 21st Century Solutions to 31st Century Problems.’ (2013) 68 *University of Miami Law Review* 87.

²⁰ ‘Simon wants to be turned into a popsicle!’ *OK! Magazine* (London, 23 February 2009) 7; and Jonathan Petre, ‘Simon Cowell: I’m going to freeze my body when I die so I can be brought back to life’ *Mail on Sunday* (London, 22 February 2009) 12.

²¹ Danila Medvedev of KrioRus talks of transporting the 1912 Scott expedition explorers to his facility in Russia: ‘There is still time to get there. Most likely the temperature was low enough that we could preserve the brains and revive them in the future. It’s still on our to-do list.’ Courtney Weaver, ‘Inside the weird world of cryonics: From the US to Russia, companies are freezing people hoping for a second shot at life’ *Financial Times* (London, 18 December 2015) 12.

enthusiasm²² among readers of works such as Robert Ettinger's *The Prospect of Immortality*.²³

Overseas it has recurrently attracted small-scale investment, particularly in some technology communities, alongside longevity research that is promoted as allowing favoured individuals to live 150 or 250 years²⁴ or achieve a 'transhuman' immortality for Silicon Valley billionaires²⁵ by shedding their bodies in transferring their consciousness to the cloud to provide a 'substrate-independent mind'.²⁶

Much of that investment has been on an ostensibly not-for-profit basis among enthusiasts, with no major health services provider entering the field and no cryonics start-up listing on the NASDAQ or other innovation capital markets. That is unsurprising, given the problems discussed below. In essence no dead or living animal, human or otherwise, has been reanimated after long term cryonic storage and there is, at best, little reason to believe that reanimation will be feasible in future, something that provokes questions about consumer protection.

Within Australia there have been sporadic media items about the establishment of commercial cryonics facilities.²⁷ None seem to have progressed to the stage where people are in storage or attracted institutional endorsement and substantial consumer participation,²⁸ reflected in the absence of local scholarly literature on cryonics regulation and issues. Overall cryonics has not attracted the funding and academic attention that has been gained by other 'resurrection science' such as the commercial

²² John Bozeman, 'Technological millenarianism in the United States' in Thomas Robbins and Susan J Palmer (eds), *Millennium, Messiahs, and mayhem: Contemporary apocalyptic movements* (Routledge, 1997) 139, 146; David Bosworth, 'The New Immortalists' (2015) 17(2) *The Hedgehog Review* 26; Oliver Krüger, 'The suspension of death. The cryonic utopia in the context of the US funeral culture' (2010) 15(1) *Marburg Journal of Religion* 1; and Oana-Mara Stan, 'Cryonics suspension—debating life finitude, extending time capital and cancelling death' (2016) 7(2) *Journal of Comparative Research in Anthropology and Sociology* 71.

²³ Robert Ettinger, *The Prospect of Immortality* (Doubleday, 1964). See also Jill Lepore, 'The Iceman: What the leader of the cryonics movement is really preserving' (2010) 85(46) *The New Yorker* 24.

²⁴ Ray Kurzweil and Terry Grossman, *Fantastic voyage: live long enough to live forever* (Rodale, 2005). See also Gilbert Meilaender, *Should We Live Forever?: The Ethical Ambiguities of Aging* (Eerdmans, 2013); and Herbert Anderson, 'Forever is always finite: Reflections on radical life extension' (2019) 17(2) *Theology and Science* 223.

²⁵ David Martin Jones, 'The Utopian Ambitions of Silicon Valley' (2018) 62(3) *Quadrant* 12; and Chip Walter, *Immortality, Inc.: Renegade Science, Silicon Valley Billions, and the Quest to Live Forever* (National Geographic Books, 2020).

²⁶ Randal A Koene, 'Uploading to substrate-independent minds' in Max More and Natasha Vita-More (eds), *The transhumanist reader: Classical and contemporary essays on the science, technology, and philosophy of the human future* (Wiley, 2013) 146; and Massimo Pigliucci, 'Mind uploading: a philosophical counter-analysis' in Russell Blackford and Damien Broderick (eds), *Intelligence Unbound: The Future of Uploaded and Machine Minds* (Wiley, 2014) 119. More broadly see Steve Fuller and Veronika Lipinska, *The Proactionary Imperative: A Foundation for Transhumanism* (Springer, 2014); and Andrew Pilsch, *Transhumanism: evolutionary futurism and the human technologies of Utopia* (University of Minnesota Press, 2017).

²⁷ See for example Benjamin Shuhyta, 'First cryonics lab in southern hemisphere proposed for southern New South Wales' *ABC Riverina* (ABC) 8 March 2016; and Barbara Miller, 'Cryogenics facility in NSW to accommodate those in the market for life after death' *Lateline* (ABC) 14 Feb 2017. As of May 2020 Southern Cryonics reports 27 members for its facility in Holbrook: www.southerncryonics.com.

²⁸ As of 2019 Alcor, the largest US service, reported 1,731 members, including 172 in cold storage (96 only as heads). KrioRus, the largest Russian service, reported a smaller membership and fewer cadavers. See also Richard Huxtable, 'Cryonics in the Courtroom: Which Interests? Whose Interests?' (2018) 26(3) *Medical Law Review* 476 for other head counts.

cloning of companion animals²⁹ and *Jurassic Park* de-extinction initiatives.³⁰ Cryonics has not been endorsed by the Australian Medical Association, Royal Australian College of General Practitioners or corresponding overseas professional bodies. It has not received funding by the Australian Research Council or National Health & Medical Research Council. As a practice it has no recognition by leading bodies such as the US National Academies of Science and of Medicine.

A *Faith, Fear and Speculative Technologies*

It is axiomatic that once death occurs human and other animal cadavers degrade, with some organs irreversibly deteriorating more quickly than others. Kidneys and corneas for example can be 'rescued': the basis of the widespread organ transplantation that is expressly recognized in Australian law.³¹ Ova and sperm can be harvested post-mortem within a short window after death and used thereafter, something that is reflected in inconsistent judgments³² that address aspects of assisted fertility.³³ Livers have some scope for regeneration, whether in a recipient of an organ donation or in a person who is on life support. Brains are less robust, ceasing to function and exhibiting fundamental structural changes when blood circulation is unavailable beyond a short period.

Cryonics is predicated on three things, expressions of faith. The first is that there will be intervention immediately after an individual dies, with that person being progressively cooled and placed in low-temperature storage to preserve the integrity of the whole body or head as the basis for reanimation in the indefinite future. As discussed below, that is a matter of problematical logistics where time is of the essence. The second is that storage will be undisturbed over a period of decades or centuries. The third, most saliently, is that the cooling and storage processes will permit

²⁹ Autumn Fiester, 'Creating Fido's Twin Can Pet Cloning Be Ethically Justified?' (2005) 35(4) *Hastings Center Report* 34; Ivan Oransky, 'Cloning for profit: cloned kittens are cute, but how profitable are animal cloning companies?' (2005) 19(2) *The Scientist* 41; Susan McHugh, '10 Bitches from Brazil: Cloning and Owning Dogs through the Missyplicity Project' in Nigel Rothfels (ed), *Representing Animals* (Indiana University Press, 2002) 180; and Jennifer Parks, 'Lassie Come Home: Ethical Concerns about Companion Animal Cloning' in Christine Overall (ed), *Pets and People: The Ethics of Our Relationships with Companion Animals* (Oxford University Press, 2017) 143. For a broader view see Francesca Minerva, *The Ethics of Cryonics: Is it Immoral to be Immortal?* (Palgrave Macmillan, 2018).

³⁰ Beth Shapiro, 'Pathways to de-extinction: how close can we get to resurrection of an extinct species?' (2017) 31(5) *Functional Ecology* 996; Carrie Friese and Claire Marris, 'Making de-extinction mundane?' (2014) 12(3) *PLoS biology* e1001825; Norman F Carlin, Ilan Wurman and Tamara Zakim, 'How to permit your mammoth: Some legal implications of de-extinction' (2013) 33 *Stanford Environmental Law Journal* 3; David E Blockstein, 'We can't bring back the passenger pigeon: The ethics of deception around de-extinction' (2017) 20(1) *Ethics, Policy & Environment* 33; and Ronald Sandler, 'De-extinction: Costs, benefits and ethics' (2017) 1(4) *Nature Ecology & Evolution* 0105.

³¹ *Transplantation and Anatomy Act 1978* (ACT); *Human Tissue Act 1983* (NSW); *Human Tissue Transplant Act 1995* (NT); *Transplantation and Anatomy Act 1979* (Qld); *Transplantation and Anatomy Act 1983* (SA); *Human Tissue Act 1985* (Tas); *Human Tissue Act 1982* (Vic); and *Human Tissue and Transplant Act 1982* (WA)

³² See for example *Re Cresswell* [2018] QSC 142; *Re Denman* [2000] 2 Qd R 565; *Re Gray* [2001] 2 Qd R 35; *Baker v State of Queensland* [2003] QSC 002; *AB v Attorney-General* [2005] VSC 180; *Y v Austin Health* [2005] VSC 427; *Edwards, Re Estate of Edwards* [2011] NSWSC 478; *Re H, AE* (2012) 113 SASR 560; *Re Section 22 of the Human Tissue and Transplant Act 1982 (WA)*; *Ex parte C* [2013] WASC 3; *S v Minister for Health (WA)* [2008] WASC 262; and *GLS v Russell-Weisz* [2018] WASC 79.

³³ Andrew Lu, 'Life after death and post mortem sperm harvesting' (2012) 20(9) *Australian Health Law Bulletin* 130; Tom Faunce and Jatine Patel, 'Re Edwards (2011) 4 ASTLR 392: who owns a dead man's sperm?' (2012) 19(3) *Journal of Law and Medicine* 479; and Marett Leiboff, 'Post-mortem sperm harvesting, conception and the law: rationality or religiosity?' (2006) 6(2) *Queensland University of Technology Law & Justice Journal* 193.

reanimation. As of 2020 that is an insoluble challenge, raising fundamental questions about consumer protection and the exploitation of vulnerability, discussed in Part II of this article. If, very improbably, reanimation is feasible it raises questions about social justice, succession and other law, discussed in Part III below.

Preservation of meat and other organic matter through freezing is an unremarkable phenomenon, something that Australian consumers take for granted when visiting a supermarket. Inhibiting the decomposition of a cadaver through low temperatures is a common practice in government morgues and private sector funeral homes. That storage, typically for a few days or weeks, addresses the inconvenience of decay.

Cryonics adopts that model of preservation, with an additional element. The expectation is that immediately an individual is pronounced legally dead, the person's body temperature can be lowered through packing in ice as the basis for preparation and then storage at a subzero temperature in a way that will supposedly not result in irremediable damage to the complex network that we call the brain.

Transhumanists,³⁴ adherents of a millenarian faith about transcendence, sometimes gibe that humans are carbon-based bipeds, inferior to a more robust disembodied silicon-based consciousness that might exist in perpetuity. It is more pertinent to characterize humans as water-based entities, given that much of the weight of a brain is attributable to water in cells, cerebral fluid and blood. Enthusiasts for reanimation after low temperature storage accordingly need to grapple with water expanding on freezing, meaning that cells 'shatter' when frozen/thawed and that protein chains irreparably deform, corrupting the connections and encoded data that are the basis of cognition and memory. If you want to be reanimated you cannot have the seat of your consciousness, the ghost within the machine and for many people the basis of your personhood, ending as a cold mush.

On that basis cryonics services engage in perfusion, a process in which a 'cryoprotectant' chemical solution is pumped through the dead person's bloodstream to replace much of the water and thus – it is hoped – prevent systemic structural damage associated with extreme cooling/warming. After completion of perfusion the individual is typically wrapped in foil and immersed in an insulated container with liquid nitrogen, ultimately reduced to around to minus 196 degrees Celsius. The expectation is that the container will be maintained at that temperature pending removal of the body at some point in the future, with cryonics proponents envisaging that 'suspended animation' – a suspension rather than erasure of personhood – would be followed by 'reanimation' of the 'head in the vat' or whole cadaver in the container.

The following paragraphs suggest that cryonics is at best highly speculative and a sadly misplaced faith in a secularized 'sure and certain resurrection' for 'cryonauts'³⁵ or what Foley characterises as 'an industry built on little more than hope mixed with a dash of egotism'.³⁶ It is a cottage industry, one with little regulatory attention and without the need for unique legislation.

³⁴ See Gregory R Hansell, *H+/-: Transhumanism and its Critics* (Metanexus, 2011); and Nick Bostrom, 'Transhumanist values' (2005) 30(Supplement) *Journal of Philosophical Research*, 3; and Greg Klerkx, 'The transhumanists as tribe' in Paul Miller and James Wilsdon (eds), *Better Humans? The Politics of Human Enhancement and Life Extension* (Demos, 2006) 59.

³⁵ David Sanders Stodolsky, 'The growth and decline of cryonics' (2016) 2(1) *Cogent Social Sciences* 1167576; and Oliver Krüger, 'The Suspension of Death: The Cryonic Utopia in the Context of the U.S. Funeral Culture' (2010) 15 *Marburg Journal of Religion* 1.

³⁶ Elizabeth Price Foley, *The Law of Life and Death* (Harvard University Press, 2011) 43.

B *Inconvenient Practicalities*

Wariness about the faith reflects a cluster of inconvenient practicalities rather than merely disagreements about ethics³⁷ or the self-conscious (and self-regarding) renegade status of adherents.³⁸

Proponents of cryonics typically envisage that participants in cryonics schemes – in other words, consumers – would be processed immediately after death and thereafter kept in cold storage pending reanimation when science has advanced to the point that the disorders associated with old age, terminal disease or just mundane aches and pains can be reversed. Time is of the essence. Inconveniently, not everyone dies on schedule in a location where processing support is on hand, given that few countries have discrete cryonics facilities and perfusion is not a standard feature of a general practitioner's toolkit. In what one service provider characterises as an emergency situation the cadaver may suffer irreparable damage before perfusion commences.³⁹

One response among enthusiasts has been to suggest that consciousness is best preserved if the person is processed pre-mortem (crudely, chilled and perfused while still alive), characterised by some as analogous to an induced coma rather than murder or suicide and by others as cryoethanasia.⁴⁰ Such characterisations are consistent with language in which people are temporarily 'suspended' or indefinitely 'deactivated' rather than dying, a rhetoric that is at odds with the legal understandings of death discussed below. The language implies that personhood continues while the cadaver awaits reanimation. The characterisations are also at odds with the wariness about assisted suicide/dying in most jurisdictions,⁴¹ founded on relief from irremediable suffering⁴² as distinct from 'assisted dying while young to leave a cryopreserved beautiful corpse', a millennial version of James Dean's advice to live fast, die young and leave a beautiful corpse.

Given that no-one has been reanimated, restored, reactivated or otherwise brought back to consciousness after long-term cryonic storage we cannot say with certainty that the toxicity of cryoprotectants is trivial.⁴³ Solutions used in perfusion to prevent damage at the cellular level may over time fundamentally injure the brain and other organs they are meant to protect. The speculative nature of cryonics means that challenge is side-stepped by enthusiasts, who appear to assume that when the time

³⁷ One point of entry to the ethics literature, complementing work on transhumanism noted above, is Francesca Minerva, *The Ethics of Cryonics: Is it Immoral to be Immortal?* (Palgrave Macmillan, 2018).

³⁸ John Paul LaBoueff, 'He wants to do what: Cryonics – Issues in Questionable Medicine and Self-Determination' (1992) 8(2) *Santa Clara Computer and High-Technology Law Journal* 469, 497.

³⁹ <https://www.cryonics.org/emergency-situations/>

⁴⁰ Ryan Sullivan, 'Pre-Mortem Cryopreservation: Recognizing a Patient's Right to Die in Order to Live' (2010) 14(49) *Quinnipiac Health Law Journal* 49. See also Francesca Minerva and Anders Sandberg, 'Euthanasia and cryoethanasia' (2017) 31(7) *Bioethics* 526; R W Pommer III, 'Donaldson v. Van de Kamp: cryonics, assisted suicide, and the challenges of medical science' (1993) 9 *Journal of Contemporary Health Law & Policy* 589; John Paul LaBouff, 'He Wants To Do What? Cryonics: Issues in Questionable Medicine and Self-Determination' (1992) 8 *Santa Clara Computer & High Tech Law Journal* 469; and *Donaldson v Lundgren* 4 Cal. Rptr. 2d 59 (Cal. Ct. App. 1992).

⁴¹ In Australia note *Voluntary Assisted Dying Act 2017* (Vic) and *Voluntary Assisted Dying Act 2019* (WA). Neither enactment refers to or accommodates cryoethanasia, discussed in Francesca Minerva and Anders Sandberg, 'Euthanasia and cryoethanasia' (2017) 31(7) *Bioethics* 526.

⁴² See for example *Voluntary Assisted Dying Act 2017* (Vic) s 9(1) and the discussion in Lindy Willmott, Ben White, Christopher Stackpoole, Kelly Purser and Andrew McGee, 'Failed Voluntary Euthanasia Law Reform in Australia: Two Decades of Trends, Models and Politics' (2016) 39(1) *UNSW Law Journal* 1.

⁴³ Benjamin P Best, 'Cryoprotectant Toxicity: Facts, Issues, and Questions' (2015) 18(5) *Rejuvenation Research* 422.

comes for revival medical science will have found a way through nanotechnology or other nascent mechanisms to address any problems.

At a mundane level, discussed below, those enthusiasts assume that storage will be uninterrupted and that there will be no mishaps regarding handling of the frozen cadaver.⁴⁴ Custodians of bodies in a cryo crypt will continue to care for what is in the vats, for example periodically topping up the liquid nitrogen and (as with historic tombs cases)⁴⁵ ensuring that the departed are undisturbed. That assumption is contestable, with for example one do-it-yourself enthusiast being affected by freezer failure.⁴⁶ Danila Medvedev, founder of service provider KrioRus, is reported as bizarrely proposing to address contingency by storing half his brain in Russia and half elsewhere to hedge against a natural disaster.⁴⁷ The proposal is consistent with much of the enthusiasm within the cryonics community, where understanding has been shaped by engineers rather than researchers with a strong base in the life sciences.

Educational or professional associations do not certify the practice of cryonic perfusion and there is no Australian standard. It is unclear whether practitioners are self-taught (and self-regulated, in the absence of attention by health officials) or drawing on skills acquired as embalmers.⁴⁸

II VULNERABLE OR MERELY FOOLISH CONSUMERS?

Animals are defined by their mortality and their fragility,⁴⁹ a vulnerability to disease and injury that justifies intervention through law to minimise harms. That universal vulnerability underlies the work of legal theorists such as Thomas Hobbes.⁵⁰ It is central to the work of Martha Fineman, who in understanding law through a lens of vulnerability recognised that we are all born defenceless, are often enfeebled through age or illness, are subject to natural or other disasters and might be failed by social institutions that should support our flourishing but instead enshrine discrimination.⁵¹ Fineman, like John Rawls, has attracted attention in arguing for a state that actively ensures substantive equality of opportunity.⁵² In thinking about cryonics we might

⁴⁴ The consequences of dropping unthawed organic matter stored in liquid nitrogen are a feature of much high school and undergraduate science teaching: the substance shatters.

⁴⁵ *Re Hooper* [1932] 1 Ch 38; and *Re Vaughan* (1886) 33 Ch D 187. Note however *Re Pacella* [2019] VSC 170. The New Zealand Law Commission comments ‘We all die. And someone must care for the dead, who, as mortician Caitlin Doughty has said, “have become useless at caring for themselves”’. *New Zealand Law Commission, Death, Burial and Cremation: A New Law for Contemporary New Zealand* (R134) (2015) iv.

⁴⁶ Angelique Christafis, ‘Freezer Failure Ends Couple’s Hopes of Life After Death’ (2006) *The Guardian* (17 March 2006) 15; and Elizabeth Price Foley, *The Law of Life and Death* (Harvard University Press, 2011) 44. Another media piece refers to a body preserved at home through a weekly load of dry ice: Jessica Hamilton, ‘The strangers linked by the ‘frozen dead guy’ of Nederland — and a plan to cheat death’ ABC Radio National (18 August 2019) <https://www.abc.net.au/news/2019-08-17/frozen-dead-guy-in-nederland-on-ice-for-30-years/11386726>.

⁴⁷ Courtney Weaver, ‘Inside the weird world of cryonics: From the US to Russia, companies are freezing people hoping for a second shot at life’ *Financial Times* (London, 18 December 2015)

⁴⁸ For certification of embalmers see for example *Public Health Regulation 2012* (NSW).

⁴⁹ Martha Albertson Fineman, ‘The Vulnerable Subject: Anchoring Equality in the Human Condition’ (2008) 20 *Yale Journal of Law & Feminism* 1, 9.

⁵⁰ For a concise introduction see Alice Ristroph, ‘Criminal Law for Humans’ in David Dyzenhaus and Thomas Poole (eds), *Hobbes and the Law* (Cambridge University Press, 2012) 97, 98-99.

⁵¹ Martha Albertson Fineman, ‘The Vulnerable Subject and the Responsive State’ (2010) 60 *Emory Law Journal* 251, 267.

⁵² *Ibid*; and Martha Albertson Fineman, ‘Vulnerability and Inevitable Inequality’ (2017) 4(3) *Oslo Law Review* 133.

however use Fineman's thoughts on vulnerability as a heuristic for conceptualising questions about dignity, consumer protection and state intervention.⁵³

At the most abstract level, cryonics is founded on a common vulnerability: the mortality that involves a departure from our loved ones and an erasure of our identity, often alongside indignity and suffering in the process of dying. It is a vulnerability that is open to exploitation by enthusiasts who suggest that death is not the end and not inevitable, merely something inconvenient and readily addressed (if a consumer has both the resources and determination) through cryonics. While acknowledging the possessive individualism that is a foundation of the liberal democratic state we might be wary about a promise to suspend death through cryonics and, like Stout's corporation, accordingly enjoy personhood in perpetuity.

That wariness about exploitation of consumers facing an existential challenge is salient because the promise of cryonics appears highly unlikely to be fulfilled. Is receipt of payment by people seeking preservation a matter of unconscionability under equity and the Australian Consumer Law because of the consumer's vulnerability and because no-one will be revived?

A *Selling a lottery with no winning tickets*

As a society Australia is permissive of donations by religious adherents to faith-based organisations⁵⁴ as indicia of commitment to a belief system that features rewards in the afterlife but does not promise a physical return by 'some one already domiciled on the other side of the inevitable river', as a UK Court mordantly noted in the 1927 *Chronicle of Cleophas Case*.⁵⁵

Cryonics purports to indefinitely defer that afterlife, without the justifications of sociability and charity that legitimate law's recognition of religious belief.⁵⁶ Although based on the mortality that animates much religious belief, cryonics might more aptly be understood as a lottery, an existential wager in which consumers pay for a chance of defeating death. As such it provokes questions about respect for autonomy and about consumer protection.

Australia permits lotteries and other games of chance, typically conceptualised as entertainment, embodying a notion of fairness⁵⁷ and bounded by restrictions regarding the capacity of consumers, in other words vulnerable people.⁵⁸ Cryonics fits awkwardly within that regulatory model, given that in all lotteries there is an expectation that someone other than the lottery operator will win. The science noted above indicates that it is highly improbable, if not impossible, that any consumer will ever win their wager against death, despite having paid on a scale that dwarfs the payment made by a

⁵³ Martha Albertson Fineman and Anna Grear, 'Vulnerability as Heuristic—An Invitation to Future Exploration' in Martha Albertson Fineman and Anna Grear (eds), *Vulnerability: Reflections on a New Ethical Foundation for Law and Politics* (Routledge, 2013) 13.

⁵⁴ See for example *Commissioner for Australian Capital Territory Revenue Collections v Council of Dominican Sisters of Australia* (1991) 101 ALR 417.

⁵⁵ *Cummins v Bond* (1927) 1 Ch 167.

⁵⁶ In *Foundation for Anti-Aging Research v Charities Registration Board* [2015] NZCA 449, the only significant judgment in Australia or New Zealand relating to cryonics, the Court of Appeal appears to have been unpersuaded by claims from the Foundation for Anti-Aging Research and Foundation for Reversal of Solid State Hypothermia regarding the public benefit of research into cryonics and of cryonics *per se*.

⁵⁷ See for example *Lotteries and Art Unions Act 1901* (NSW) ss 2, 17; *Gaming Machine Act 1991* (Qld) s 1A; and *Gambling Regulation Act 2003* (Vic) ss 1.1, 3.5.4 and 7.4.1.

⁵⁸ See for example *Lotteries and Art Unions Act 1901* (NSW) ss 2, 17; and *Gambling Regulation Act 2003* (Vic) s 3.5.33A.

consumer of fortune telling, of homeopathic products or of the chook raffle at the local football club.⁵⁹

As part of ongoing secularisation of law Australia has decriminalised the commercial provision of statements about what will happen in the future, in other words advance notice of inescapable individual destiny through the use of palm reading, crystal balls, communication with spirit guides and other fortune telling practice.⁶⁰ We regard that practice as entertainment and only intervene where the service provider has engaged in unjust enrichment, in other words has received an inordinate reward through egregious exploitation of the consumer's emotional or intellectual vulnerability.

Cryonics is not a matter of entertainment, in other words a hedonic pastime in the here and now that brings pleasure but has no stated therapeutic benefit and that occupies the consumer's time during their life on a recreational basis.⁶¹ In contrast to the ten or thirty minute consult with the New Age chiromancer it involves non-trivial expenditure by the consumer. More importantly, it involves expenditure where the benefit is existential rather than recreational and occurs after legal death, if it comes at all, rather than during the individual's non-working hours.

It involves a choice by the consumer, an exercise of that person's dignity through agency regarding allocation of personal resources. There has not been an authoritative Australian or overseas study about why people want reanimation through cryonics. We might infer that the choice is founded on vulnerability in terms of the fear of death, the hunger for continued existence and the consequent susceptibility to exploitation through provision of a service that at best is aspirational. Preceding paragraphs in this article have argued that consumers are not going to reanimate and resume their personhood; they will remain dead and thus will not be in a position to discern that the money they spent to defeat the grim reaper has been in vain. A mere fear of death and ambition to postpone the afterlife is not however a recognised special disability under Australian equity law.⁶²

Payment for cryopreservation *per se* does not indicate that the consumer lacks capacity or is presumed to be subject to undue influence.⁶³ Absent indications that a consumer was knowingly deceived or that an evident disability was exploited a gift to a cryonics organisation or a payment for services would stand. An entity offering cryonic services in essence simply needs to alert consumers that its operation is aspirational, that there is no guarantee reanimation will be feasible and that the cost of reanimation (as distinct from storage) is both unknown and outside any agreement with the service provider. Drawing on *Amadio* and *Garcia* astute Australian service provider might alert the potential consumer to the significance of independent advice.⁶⁴ In practice adherents

⁵⁹ Courtney Weaver, 'Inside the weird world of cryonics: From the US to Russia, companies are freezing people hoping for a second shot at life' *Financial Times* (London, 18 December 2015) 12 reports that Alcor charges US\$200,000 for a full body or US\$80,000 for just a head. Full body cryopreservation by KrioRus' costs US\$36,000, with US\$12,000 for a head. Reanimation costs are extra.

⁶⁰ See for example the *Vagrants, Gaming and Other Offences Act 1931* (Qld) repealed by the *Summary Offences Act 2005* (Qld) and *Criminal Code Act 1899* (Qld) s 432 repealed by the *Justice and Other Legislation (Miscellaneous Provisions) Act 2000* (Qld). Similar provisions regarding spiritualism and fortune telling featured in the *Summary Offences Act 1953* (SA) s 40, *Vagrancy Act 1966* (Vic) and *Fraudulent Mediums Act 1951* (UK).

⁶¹ *Hamilton Island Enterprises Pty Ltd v Commissioner of Taxation (Cth)* [1982] 1 NSWLR 113; (1982) 60 FLR 285.

⁶² See in particular *Blomley v Ryan* (1956) 99 CLR 362, 405 (Fullagar J) and 415 (Kitto J).

⁶³ *Tulloch (dec'd) v Braybon (No 2)* [2010] NSWSC 650, [38]; *Commercial Bank of Australia v Amadio* (1983) 151 CLR 447, 474 (Deane J); *Watkins v Combes* (1922) 30 CLR 180; *Johnson v Buttress* (1936) 56 CLR 113; and *Louth v Diprose* (1992) 175 CLR 621.

⁶⁴ *Commercial Bank of Australia Ltd v Amadio* [1983] HCA 14; (1983) 151 CLR 447. See also *Garcia v National Australia Bank Ltd* [1998] HCA 48; (1998) 194 CLR 395.

of cryonics are unlikely to be persuaded by advice that resembles the scepticism evident in this article, so as with the ‘independent advice’ noted by the Hayne Royal Commission alerting has a formal rather than substantive basis.⁶⁵

One overseas response to vulnerability has been a British Columbia’s statutory prohibition of commercial cryonics. That jurisdiction’s statute provides that

No person shall offer for sale or sell any arrangement for the preservation or storage of human remains based on cryonics, irradiation or any other means of preservation or storage, by whatever name called, that is offered or sold on the expectation of the resuscitation of human remains at a future time.⁶⁶

The prohibition in disregarding autonomy⁶⁷ implicitly addresses what we might deem as credence claims, in other words claims that the consumer has no scope to test, given that the outcome of cryopreservation if successful will be in the indefinite future, a future after the consumer’s death.

If we are conscious of vulnerability we might allow consumers to exercise their autonomy by paying for preservation but amend the Australian Consumer Law to require providers of cryonic services to clearly state that they are selling a wish and dream rather than something realisable. That might accordingly require a more robust warning than the reference by Australian initiative Southern Cryonics to

the expectation that future medical technology may be able to repair the accumulated damage of aging and disease at the molecular level, and restore the patient to health.

Continuing progress in medical technology strongly suggests that treatments will be found for most currently fatal conditions and as a result our expected healthy, vigorous lifespans will get very much longer within the next few decades.⁶⁸

Importantly, that warning might alert potential consumers to the absence of information about the cost of reanimation, which will presumably involve more than simply thawing the cadaver and flushing the cryoprotectant from that body’s cells. Proponents of cryonics assume that the technology needed for reanimation will be available at some stage in the future and will be affordable. As with expectations that preservation will be successful, the assumption that nanotechnology or other reanimation mechanisms will be both cheap and effective is based on faith rather than any substantive data. Part III of this article accordingly asks whether cryopreservation represents an exercise of futility, with custodians of the frozen cadaver ultimately facing questions about conventional disposal of the cadavers on the basis that ordinary consumers will have insufficiently provided for the cost of reanimation as distinct from storage.

An outright ban on the provision in Australia of cryonics services is not necessary. It is however appropriate and practical to address other consumer concerns through existing law.

B *Fraud and Failure*

Putting aside questions about death deferred, death cryonically defeated, what about the delivery of the services? One starting point is the form of the contract between the

⁶⁵ Royal Commission into Misconduct in the Banking, Superannuation and Financial Services Industry, 2019

⁶⁶ *Cemetery and Funeral Services Act 1990* (BC) Pt 5, S 57.

⁶⁷ Sarah Conly, *Against Autonomy: Justifying Coercive Paternalism* (Cambridge University Press, 2012).

⁶⁸ <https://southerncryonics.com/what-is-cryonics/>

service provider and hopeful consumer. Who can enforce that contract, given that the person in storage is dead and thus no longer a legal person?

Enforcement is relevant given instances of fraud by cryonics promoters, with bodies not being processed and stored, for example the cadaver not going into the freezer or not being properly maintained.⁶⁹ Some services have billed trusts set up by consumers but not maintained services, for example not topped up the liquid nitrogen or not paid the security and power bills.⁷⁰ That failure is a function of both inadequate regulation of the US funeral sector, consistent with the practice mordantly described by Jessica Mitford in *The American Way of Death* or Evelyn Waugh's *The Loved One*,⁷¹ and a preservation ethic that in seeking to transcend death emphasises hope over inconvenient science and valorises amateurism over expertise.⁷² In Australia storage would need to be authorised under state/territory law as part of each jurisdiction's public health regime.⁷³ That law currently does not make specific provision for cryonics and, as discussed below, the development of a coherent national regime is unlikely because we will not see establishment of cryonics facilities in most jurisdictions.

Assuming that the technology works and all goes according to plan, what are some implications for other areas of law?

III AFTERLIVES

A return from the dead is wondrous but legally and socially inconvenient, given that it requires an unsettling of arrangements and affections in place after someone is known to have died or is presumed to have died.⁷⁴

⁶⁹ Larry Johnson, *Frozen: My Journey into the World of Cryonics, Deception and Death* (Hachette, 2009). See also Oliver Krüger, 'The Suspension of Death: The Cryonic Utopia in the Context of the U.S. Funeral Culture' (2010) 15 *Marburg Journal of Religion* 1, 8.

⁷⁰ Cryonics Society of California founder Robert F 'Bob' Nelson, a television repairman rather than an individual with life sciences qualifications, was famously responsible for the so-called 1979 Chatsworth Scandal that featured the abandonment and decomposition of nine cryonic cadavers. Nelson had placed multiple 'patients' in undersized storage vessels and prior to abandonment of the facility had disregarded expectations regarding accountability.

⁷¹ Jessica Mitford, *The American Way of Death Revisited* (Knopf, 1998); and Evelyn Waugh, *The Loved One: An Anglo-American Tragedy* (Chapman & Hall, 1948).

⁷² Grant W Shoffstall, 'Failed futures, broken promises, and the prospect of cybernetic immortality: toward an abundant sociological history of cryonic suspension, 1962-1979' (PhD thesis, University of Illinois at Urbana-Champaign, 2016).

⁷³ In New South Wales for example see *Public Health Regulation 2012* (NSW) Reg 50, Reg 54.

⁷⁴ For presumption see *Axon v Axon* [1937] HCA 80; (1937) 59 CLR 395, Latham CJ at 401 and Dixon J at 404; *Administration and Probate Act 1958* (Vic) s 7; *Administration and Probate Act 1929* (ACT) s 9A; *Re Jeanette Williams and Secretary, Department of Social Security* [1992] AATA 36; and *Peter Dale Hills* [2009] SASC 176. Among studies see D Stone, 'The Presumption of Death: A Redundant Concept' (1981) 44(5) *The Modern Law Review* 516; and David Kelly and Julius Varsanyi, 'Declarations of Death: Reappearance and Status' (1971) 20(3) *International and Comparative Law Quarterly* 535. See also House of Commons Justice Committee, UK Parliament, *Presumption of death: twelfth report of session 2010-12* (2012); and Frances Jalet, 'Mysterious Disappearance: The Presumption of Death and the Administration of the Estates of Missing Persons or Absentees' (1968) 54 *Iowa Law Review* 177.

It is evident in historic case law such as that involving Martin Guerre,⁷⁵ Roger Tichborne⁷⁶ and the Kumar of Bhawal⁷⁷ or recent insurance-centred ‘death fraud’⁷⁸ incidents such as Stonehouse,⁷⁹ Gordon⁸⁰ and Darwin.⁸¹ That law sits alongside depictions such as Stanley Spencer’s 1933 *Parents Resurrecting* – a world inconveniently “filled to capacity with the thawed remnants of previous generations”⁸² – and the rich literature, such as Janecek’s *Makropolous Affair* or Rice’s *The Vampire Lestat*, of the existential angst experienced by the deathless.⁸³ As with much law, art provides greater insights about the human condition than black letter law.

A Not dead, just suspended?

Questions about suspension, reanimation and inconvenience pose conundrums for people who conceptualise life in terms of a pulse and enough breath to fog up a mirror or that the ending of personhood is a matter of a speech act, in other words someone is dead because a medical practitioner has said so and that certification has been noted in a register of births, deaths and marriages – foundational registers for the personhood of natural persons.⁸⁴

Fortunately Australian legislatures have provided statutory definitions that accommodate practices such as organ transplantation and elective ventilation⁸⁵ and might be reflected in a regime that embraces ‘assisted dying’,⁸⁶ given the tenet that the

⁷⁵ Natalie Zemon Davis, *The Return of Martin Guerre* (Harvard University Press, 1983).

⁷⁶ Carrie Dawson, ‘The Slaughterman of Wagga Wagga’: Imposture, National Identity, and the Tichborne Affair’ (2004) 21(4) *Australian Literary Studies* 1; Rohan McWilliam, *The Tichborne Claimant* (Continuum, 2007); Robyn Annear, *The Man who Lost Himself: The Unbelievable Story of the Tichborne Claimant* (Text, 2011); Christopher Kent, ‘Victorian Self-Making, or Self-Unmaking? The Tichborne Claimant Revisited’ (1991) 17(1) *Victorian Review* 18; and Sara Murphy, ‘No Two Men Were Ever Alike Within’: The Tichborne Trial, The Lord Chief Justice, and The Narration of Identity’ (2013) *Law, Culture and the Humanities* 1.

⁷⁷ Partha Chatterjee, *A Princely Impostor? The Strange and Universal History of the Kumar of Bhawal* (Princeton University Press, 2002).

⁷⁸ Elizabeth Greenwood, *Playing dead: A journey through the world of death fraud* (Simon and Schuster, 2016); and Jeanne Carriere, ‘The Rights of the Living Dead: Absent Persons in the Civil Law’ (1990) 50(5) *Louisiana Law Review* 901.

⁷⁹ *DPP v Stonehouse* [1978] AC 55; and G R Sullivan, ‘Crossing the Rubicon in Miami’ (1978) 41(2) *Modern Law Review* 215. See also the self-exculpatory John Stonehouse, *Death of an Idealist* (WH Allen, 1975).

⁸⁰ Harry Gordon, *The Harry Gordon story: how I faked my own death* (New Holland, 2007).

⁸¹ *R v Darwin & Anor* [2009] EWCA Crim 860. For a popular account see Tammy Cohen, *Up the Creek Without a Paddle – The True Story of John and Anne Darwin: The Man Who ‘Died’ and the Wife Who Lied* (Kings Road Publishing, 2008).

⁸² Cedric Mims, *When We Die: The Science, Culture, and Rituals of Death* (Robinson, 2000) 215.

⁸³ Works such as Don DeLillo, *Zero K* (Scribner, 2016) depict the angst of those people who have not had a shot at ‘immortality’ through cryonics and thus will not be extant when their parents, partners or other loved ones ‘reanimate’.

⁸⁴ Ian Freckelton and David Ranson, *Death Investigations and the Coroner’s Inquest* (Oxford University Press, 2006) 130 and 137. Russell Smith, ‘Refining the Definition of Death for Australian Legislation’ (1983) 14(2) *Melbourne University Law Review* 199 remains useful. For the registers see for example *Births, Deaths & Marriages Registration Act 1997* (ACT) ss 33 and 35; *Births, Deaths & Marriages Registration Act 1995* (NSW) ss 36 and 39; *Births, Deaths & Marriages Registration Act 1996* (SA) ss 33 and 36; and *Registration of Deaths Abroad Act 1984* (Cth).

⁸⁵ *Transplantation and Anatomy Act 1978* (ACT) ss 30 and 45; *Human Tissue Act 1983* (NSW) ss 26 and 33; *Transplantation and Anatomy Act* (NT) ss 21 and 23; *Transplantation and Anatomy Act 1979* (Qld) s 45; *Death (Definition) Act 1983* (SA) s 2; *Human Tissue Act 1985* (Tas) ss 25A and 27A; and *Human Tissue Act 1982* (Vic) ss 26(7) and 41.

⁸⁶ Penney Lewis, *Assisted Dying and Legal Change* (Oxford University Press, 2007). See also Joanna Sikora and Frank Lewins, ‘Attitudes concerning euthanasia: Australia at the turn of the 21st century’ (2007) 16(1) *Health Sociology Review* 68; and Lorana Bartels and Margaret

state reserves a monopoly on lawful ending of life.⁸⁷ Resistance to assisted dying means that the legislatures are unlikely to embrace cryoethanasia, precluding a cryonics tourism in which healthy people travel to the cryonics facility and are assisted to die in an expectation that it is best to be perfused on the spot rather than dying several kilometres away and trusting that there will be no disruptions with transport.⁸⁸ Law regarding assisted suicide – death as an exit from intolerable suffering rather than a way station pending defrosting – sits uncomfortably with the notion that people will be processed while still alive.

We differentiate between the induced coma, the temporary non-reliance on a human heart during surgery, and death (construed in terms of the cessation of neurological activity – ‘brain death’ rather than absence of a pulse). Under existing law the chilled cadaver would be conventionally dead rather than ‘suspended’. One consequence is that in some Australian jurisdictions the processing/storage of the body would be an ‘interference with a corpse’ offence under that jurisdiction’s Crimes Act or Criminal Code.⁸⁹

Any recognition of suspension raises the sort of questions that feature in law tutorials. Would the chilled cadaver, anomalously deemed to be alive, be entitled to the aged or other pension, an income support mechanism that might be quite useful as the years go on and science fails to enable successful thawing?⁹⁰ What about defamation law: dead people cannot sue for injury to reputation, irrespective of the pain experienced by their grieving survivors, because in legal terms that reputation dies with them.⁹¹ Obligations to vote would presumably not be a problem, given that there is some requirement for capacity under electoral statutes.

What about potential disagreements about disposition of the person’s assets⁹² or body,⁹³ given that an individual’s heirs might want to enjoy the ‘undead’ estate rather seeing it tied up indefinitely pending the cryonaut’s supposed return or might instead

Otlowski, ‘A right to die? Euthanasia and the law in Australia’ (2010) 17(4) *Journal of Law and Medicine* 532.

⁸⁷ That monopoly is most commonly exercised by the armed forces in military conflict. See also *Death Penalty Abolition Act 1973* (Cth); Lynne Forsterlee, ‘Death penalty attitudes and juror decisions in Australia’ (1999) 34(1) *Australian Psychologist* 64; William Schabas, *The abolition of the death penalty in international law* (Cambridge University Press, 2002); and James Wyman, ‘Vengeance Is Whose: The Death Penalty and Cultural Relativism in International Law’ (1996) 6(2) *Journal of Transnational Law & Policy* 543, with the latter indicating the usefulness of a Rawlsian test in addressing cultural contingency.

⁸⁸ Among discussions see Elizabeth Price Foley, *The Law of Life and Death* (Harvard University Press, 2011) 45. R W Pommer III, ‘Donaldson v. Van de Kamp: cryonics, assisted suicide, and the challenges of medical science’ (1993) 9 *Journal of Contemporary Health Law & Policy* 589 considers *Donaldson v Lundgren* 4 Cal. Rptr. 2d 59 (Cal. Ct. App. 1992), the salient US judgment.

⁸⁹ Queensland Law Reform Commission, *Review of the Law in Relation to the Final Disposal of a Dead Body (QLRCWP Working Paper, 2004)*

⁹⁰ Andrea Ugaz, Jessica Floyd and Hannah Wahlen, ‘Freeze a Jolly Good Fellow: Cryonauts and the Law’ (2016) 11 *Law & Social Deviance Journal* 54.

⁹¹ *Civil Law (Wrongs) Act 2002* (ACT) s 122; *Defamation Act 2005* (NSW) s 10; *Defamation Act 2006* (NT) s 9; *Defamation Act 2005* (Qld) s 10; *Defamation Act 2005* (SA) s 10; *Defamation Act 2005* (Vic) s 10; and *Defamation Act 2005* (WA) s 10.

⁹² See for example *Levy v Watt* [2012] VSC 539; *Nicholson & Ors v Knaggs & Ors* [2009] VSC 64; *Brown v Wade* [2010] WASC 367; *Schneider & Anor v Sydney Jewish Museum Inc & Anor* [2008] NSWSC 1331; and *Kay v Fisher* [2009] WASC 193.

⁹³ Among examples see *AB v CD* [2007] NSWSC 1474; *Burrows v Cramley* [2002] WASC 47; and *Calma v Sesar & Ors* (1992) 106 FLR 446. More broadly, Kieran McEvoy and Heather Conway, ‘The Dead, the Law, and the Politics of the Past’ (2004) 31(4) *Journal of Law and Society* 539; and Mavis Maclean, ‘Letting Go ... Patients, Professionals and the Law in Retention of Human Material After Post Mortem’, in Andrew Bainham, Shelley Sclater and Martin Richards (eds), *Body Lore and Laws* (Hart, 2002) 79.

simply want a conventional burial?⁹⁴ One implication is that a person's successors might indefinitely defer reanimation so that the cryonaut could not retrieve assets once defrosted. Keegan Macintosh speculates that 'suspended' people might accordingly memorise a bitcoin key, providing custodians with an incentive for reanimation,⁹⁵ raising questions about the longevity of bitcoin and what happens to a substantial asset if reanimation when impossible. In practice such mechanisms seem beside the point, given that Australian law has no imperative to recognise cryonically 'suspended' humans as being alive.

How would laws operate if the chilled person was married prior to cryopreservation and the deceased's spouse remarries during the period of suspension? Would that marriage still be valid when the former partner returns from the dead? If a claim was to be made by a dissatisfied beneficiary on an estate, how would that affect funds set aside for ongoing cryopreservation of the cadaver and for reanimation?

What would happen if further funds are required for upkeep of cryonaut two centuries hence, after the enthusiasm of volunteers has expired and someone needs to deal with an aging storage facility occupied by cadavers? Can the legal representative or descendants be approached for the further funding?

A Property

Is a processed body – no longer a legal person – property, reflecting the uncertain jurisprudence since *Doodeward v Spence*,⁹⁶ often misread as affirming Blackstone's statement⁹⁷ on no property in a cadaver. Drawing on recent Australian judgments regarding gametes we might conclude that perfusion means there has been sufficient exercise of skill to allow us to construe what is immersed in the liquid nitrogen as property.⁹⁸ That however prompts the question, whose property? As things stand the frozen body has no personhood and no legal rights: it cannot vote, has no standing in litigation, has no capacity and absent a recognition that it is alive can not itself hold property. Assuming reanimation might be feasible, should it be regarded as analogous to an embryo or foetus that are claimed by some bioethicists to have some rights, derived from legislation rather than common law and exercised on its behalf by a benevolent state? Those rights might extend to protection for 'premature' ending of storage (ie disposal of a chilled cadaver on the basis that storage in perpetuity is futile or contrary to *ordre moral*) or premature reanimation.

B Social equity

If cryonics is technologically viable, what about social equity? In drawing on Fineman we might conclude that the human condition is one of vulnerability but some individuals through wealth, social connections, status and access to expertise can offset that vulnerability. Deferring/defeating death through cryonics raises questions about fairness, typically not addressed by proponents of cryonics who – in an echo of alchemists – appear to assume reanimation will be appropriately restricted to elites

⁹⁴ *Carly White v Candice Williams* [2019] NSWSC 437; *Smith v Tamworth City Council* [1997] NSWSC 197; *Darcy v Duckett* [2016] NSWSC 1756; and *State of South Australia v Smith* [2014] SASC 64; (2014) 119 SASR 247.

⁹⁵ Keegan Macintosh, 'Bitcoin and Cryonics' *Biostasis* (15 October 2016) http://www.biostasis.com/pdfs/bitcoin_cryonics.pdf

⁹⁶ *Doodeward v Spence* [1908] HCA 45; (1908) 6 CLR 406 and *Leeburn v Derndorfer* [2004] VSC 172 for example indicate that there are typically no property rights in a cadaver and, as noted in *R v Sharpe* (1856-57) Dears & Bell 160; 169 ER 959. no comprehensive rights of possession.

⁹⁷ William Blackstone, *Commentaries on the laws of England: A Facsimile of the First Edition of 1765-1769*, IV (University of Chicago Press, 1979), 236.

⁹⁸ Bruce Baer Arnold and Wendy Bonython, 'Still a vexed question: post-mortem gamete removal and use' (2018) 26(8) *Australian Health Law Bulletin* 134.

and are unconcerned about law enabling privileged people to engage in a form of time travel that is unavailable to the masses.

Romain refers to the premise that cryonics is

an investment in the possibility of an extended future and a potential insurance policy against death ... an attempt to gain sovereignty over the limits of biological time, achieved through both monetary investment and the banking of biological objects understood to be actual selves. Cryonics demonstrates a unique way in which time, capital, and biotechnoscience can come together in the name of future life.⁹⁹

That investment is however unlikely to be available to all. Romain notes that cryonics

is a particularly American social practice, created and taken up by a particular type of American: primarily a small faction of white, male, atheist, Libertarian, middle-income and upper-middle-income, computer/engineering “geeks” who believe passionately in the free market and its ability to support technological progress.¹⁰⁰

Through the lens of COVID-19, where the 1% were able to escape pandemic hot spots (in some instances supposedly heading to ‘apocalypse bunkers’ in New Zealand), we might be forgiven for suspecting that elites would be better placed to suspend death and preserve assets for enjoyment after reanimation. Huxtable comments that the persuasiveness of state support

might mount, at least if or when cryonics approaches viability. At present, however, the science is so speculative that this does not appear to be a worthwhile use of the public purse. As such, at least at the present time, cryonics appears best left as a private matter, for those optimistic—some would say deluded – few who are willing to make the investment.¹⁰¹

The ‘right to health’ has typically construed as preventing exclusions from access to health services on the basis of ethnicity or religion rather than a justiciable requirement for states to provide all citizens with the highest standard of healthcare, including free/subsidised medical products and services to offset the vulnerability of people who are disadvantaged because of poverty, gender, location or status. Irrespective of unlikelihood that an Australian government would include chilling and reanimation in the nation’s public health scheme, given concerns about perpetuities should fairness allow the assets of those elites to be ‘frozen’ indefinitely pending the reappearance of those individuals? What about tax law and succession law, with resources arguably being inappropriately allocated indefinitely to storage and reanimation? Would one fairness mechanism be institution of a cryo-death duty to offset the impact of cryonics as a disruptive time machine, ensuring that ‘you can’t take it with you’ – or suspend it with you – when you go?¹⁰² In a legal environment where some people have supposedly abolished death we do not necessarily need to abolish redistribution through the tax system and through rules regarding perpetuities.¹⁰³

⁹⁹ Romain, op cit, 198.

¹⁰⁰ Romain, op cit, 196. See also W Scott Badger, ‘An Exploratory Survey Examining the Familiarity with and Attitudes toward Cryonic Preservation’ (1998) 3 *Journal of Evolution and Technology* np.

¹⁰¹ Richard Huxtable, ‘Cryonics in the Courtroom: Which Interests? Whose Interests?’ (2018) 26(3) *Medical Law Review* 476, 493.

¹⁰² Bruce Baer Arnold, ‘Can’t Take It With You? Recent Literature on Death, Property and Taxes’ (2010) 9 *Canberra Law Review* 156.

¹⁰³ Recourse might be had to *Cadell v Palmer* (1883) 6 ER 956; 1 Cl & Fin 372 and the Australian perpetuities enactments, such as *Perpetuities and Accumulations Act 1968* (Vic); *Perpetuities Act 1984* (NSW) and *Perpetuities and Accumulations Act 1985* (ACT).

C When things go wrong

What if things go wrong? We have already seen disputes regarding disposition of bodies.¹⁰⁴ What happens if the facility becomes bankrupt or ceases to operate? Should the body be thawed out and buried or cremated, or transferred to another facility? And at whose expense? What if there is no alternate facility, an inconvenient practicality in a world where there have only been a handful of service providers and where a superficial scan of the literature reveals problems with under-funded public/private cemeteries and decaying mausoleums?¹⁰⁵ Could we rely on commercial entities coming to the rescue of ailing not-for-profit service providers?¹⁰⁶

What happens if the body is damaged while frozen or during a far-distant attempt at reanimation? What is the 'loss suffered by the frozen body': loss of a chance or loss of life? Given that Australian law does not recognise suspension, any damage would be to property, albeit property that at best would be held on trust (as distinct from owned by the deceased person).

How long should a frozen body be stored, and who has the responsibility to decide to thaw or destroy the body without reanimating it? Is it a financial decision of the facility once ingoing payment made by the patient is depleted? One media item about a mooted Australian service thus states 'Stasis Systems Australia will charge potential customers \$80,000 to be cryonically stored, paid for through their life insurance policy',¹⁰⁷ with insurers overseas reportedly offering a storage payment through life insurance policies.¹⁰⁸ What if the funds, whether up front or through a trust, are insufficient? Is it the decision to end suspension to be made by the next of kin or an impartial ethical ombudsman? Should there be a time period, for example if medical advances have not achieved reanimation within 100 or 200 years?

More poignantly, what happens where there are disputes about the disposition of the person, including requests for cryoethanasia?¹⁰⁹ Disagreements about the location

IV CONCLUSION

The *Book of Common Prayer*, shaping perceptions for several centuries, referred to 'sure and certain hope of the resurrection to eternal life'. The contention in the preceding paragraphs is that cryonics does not offer certainty. It is a matter of faith rather than credible science and the hopes of the faithful, however heartfelt, are very unlikely to be fulfilled in the immediate future. As a consequence, should aspirations to immortality or extraordinary longevity be expressly restricted through law, with for example the Australian legislatures emulating the restriction found in British Columbia?

¹⁰⁴ Elizabeth Price Foley, *The Law of Life and Death* (Harvard University Press, 2011) 44 and 46.

¹⁰⁵ See for example Stefan Petrow, 'God's Neglected Acres: Cemeteries in Australia 1803-1992' (1993) 2 *Public History Review* 144; and Queensland Law Reform Commission, *A Review of the Law in Relation to the Final Disposal of a Dead Body* (Report No 69, 2011)

¹⁰⁶ David Sanders Stodolsky, 'The growth and decline of cryonics' (2016) 2(1) *Cogent Social Sciences* 1, 3.

¹⁰⁷ Benjamin Shuhyta, 'First cryonics lab in southern hemisphere proposed for southern New South Wales' *ABC Riverina* (ABC) 8 March 2016.

¹⁰⁸ Rupert Jones, 'Cryonics: the people hoping to give death a cold shoulder: Insurance policies will now pay to preserve your dead body with the aim of reviving it in the future' *The Guardian* (London, 20 September 2013)

¹⁰⁹ Richard Huxtable, 'Cryonics in the Courtroom: Which Interests? Whose Interests?' (2018) 26(3) *Medical Law Review* 476; Alex Benn, 'Re JS (A Child) (Disposal of Body: Prospective Orders) [2016] EWHC 2859 (Fam): High Court of Justice (Family Division)' (2017) 6(2) *Oxford Journal of Law and Religion* 413; and Heather Conway, 'Frozen Corpses and Feuding Parents: Re JS (Disposal of Body)' (2018) 81(1) *The Modern Law Review* 132.

One response is that cryonics is a subject for academic discourse but not a problem necessitating statutory reform. Huxtable thus comments

At the time of writing, there are only 352 cryons worldwide: ALCOR preserves 148 cryons, while the Cryonics Institute has 145, KrioRus has 51, Oregon Cryonics has 5, and Trans Times has 3. Even if the members of these organizations – who we might presume will later become cryons – are accounted for, we are still talking about only a few thousand cryons worldwide in the near future.¹¹⁰

Contrary to the view of two authors, it is not wreaking havoc with estate planning or indeed with any other planning and is unlikely to do so in future.¹¹¹ We are not seeing such a disruption of the overall legal system or of the nature of personhood that requires major change to law at the national or state/territory level. Cryonics provokes thought about law's accommodation of contingency and its ability to encompass new misbehaviour within old bottles such as fraud.

In considering notions of vulnerability and possessive individualism this article has suggested that individuals should be free to devote their time, social capital, skills and financial resources to pursuits such as cryonics that may be perceived by their peers as quixotic but result in no harm to other individuals. Acerbically, if 'informed' consumers wish to take on risk by spending money on very cold stainless steel coffins for themselves and their loved ones that is not something requiring state intervention. A reader of Fineman might construe all humans as vulnerable but recognise that vulnerability is not synonymous with disability. In thinking about cryonics the inevitability of death is a matter of motivation rather than vulnerability unless the consumer of a cryonics service lacks capacity or there has been deception on the part of the cryonics service provider that renders each contract invalid and requires systemic intervention by an agency such as the Australian Competition & Consumer Commission.¹¹²

A deeper response is that intervention through specific legislation, such as uniform anti-cryonics enactments, is unnecessary because the range of common and statute law noted above will be adequate in addressing egregious exploitation of vulnerability, our shared finitude and consequent fear of death, through restrictions regarding misrepresentation and requirements for the operation of premises that deal with cadavers. In Australia the value of a specific cryonics statute, on the model of the British Columbia enactment, is to signal to the community at large that there is very little likelihood of the promises of cryonics coming to fruition. That signal should be an encouragement for people to look beyond an investment based on fear of death and instead embrace a culture in which the wealth needed for 'freeze wait reanimate', a slogan among some cryonics exponents, should be devoted to research for cures in the here and now and for support of people who are disadvantaged beyond our shared mortality. A life lived well, with and for other people, offers a more just model than the promise of death indefinitely deferred.

¹¹⁰ Huxtable, *op cit*, 492.

¹¹¹ Katerina Peiros and Christine Smyth, 'Cryonics wreaking havoc with estate planning' (2017) 52(2) *Taxation in Australia* 96.

¹¹² *Australian Competition & Consumer Commission v Danoz Direct Pty Ltd* [2003] FCA 881; *Australian Competition & Consumer Commission v Giraffe World Australia Pty Ltd (No 2)* [1999] FCA 1161; and *ACCC v Purple Harmony Plates Pty Limited* [2001] FCA 1062.