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## Not of Woman Born: How Ectogenesis Will Change the Way We View Viability, Birth, and the Status of the Unborn

Eric Steiger

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NOT OF WOMAN BORN<sup>1</sup>: HOW ECTOGENESIS WILL CHANGE  
THE WAY WE VIEW VIABILITY, BIRTH, AND THE STATUS OF  
THE UNBORN

ERIC STEIGER<sup>+</sup>

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I. INTRODUCTION

Over seventy-five years ago, Aldous Huxley envisioned a future in which the creation of human individuals is not left to chance and sweaty biology, but is a feat of engineering individuals to established specifications.<sup>2</sup> Huxley described a process

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<sup>1</sup> WILLIAM SHAKESPEARE, *MACBETH* act 5, sc. 8. Macbeth describes the prophecy by which he cannot be killed by any man "of woman born." Macduff thwarts the prophecy, exclaiming that he was "from his mother's womb, untimely ripp'd," i.e., born by Caesarian section, the earliest precursor to the concept of ectogenesis.

<sup>+</sup>Cleveland-Marshall College of Law, '10. There are several people without whom this paper would not have happened: David Stein, for last minute brilliance. Kathryn Kramer, without whom this would be a disorganized rant on a paper napkin. Ben Chojnacki & the rest of the 2009-2010 Journal Editorial Board. And always, my parents, Stuart & Mindi Steiger.

<sup>2</sup>ALDOUS HUXLEY, *BRAVE NEW WORLD* 1 (Harper Perennial Modern Classics 2006) (1932), available at <http://www.huxley.net/bnw/> (last visited Oct. 12, 2008).

by which human ova are fertilized *in-vitro*, then “budded” through an imaginary technique into multiple copies, and finally grown into identical twins in incubators, entirely absent of a mother’s womb.<sup>3</sup> While many of Huxley’s predictions about the future have come to pass, such as helicopters, the assembly line, and indeed, *in-vitro* fertilization, the prospect of ectogenesis, of gestating a child completely outside of its mother’s uterus, is still within the realm of science fiction.<sup>4</sup> However, that may not be the case for much longer.

Scientists predict that safe, reliable, and complete ectogenesis will be available within the next thirty years, and perhaps within as little as ten or five.<sup>5</sup> Researchers have already achieved great strides towards this goal, developing a microfluidic chip that mimics the biological process of fertilization, making *in-vitro* fertilization more successful,<sup>6</sup> and successfully keeping fetal goats alive for weeks using an artificial placenta.<sup>7</sup> While it is unquestionably a matter of years before the technology exists to gestate complete human beings ectogenetically, the legal questions surrounding such a process are complex enough to require consideration sooner, rather than later.

One of the most interesting legal questions presented by the advent of ectogenesis is that of “personhood.” Under the United States Constitution, citizens are defined by having been “born or naturalized in the United States and subject to the jurisdiction thereof.”<sup>8</sup> A child of ectogenesis, having never been carried in a uterus, would never be born in the traditional sense.<sup>9</sup> Huxley’s term “decanting” seems more appropriate.<sup>10</sup> While statutory modification should never be undertaken lightly, it appears that simple (by federal standards) legislation could close this particular loophole when the time comes to recognize fully mature ectogenetic infants as having been “born.”

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<sup>3</sup> *Id.*

<sup>4</sup> For a partial list of examples of ectogenesis in science fiction, see [http://en.wikipedia.org/wiki/Artificial\\_uterus](http://en.wikipedia.org/wiki/Artificial_uterus) (last visited Feb. 13, 2009). While many examples also include parthenogenesis (female reproduction without male fertilization), cloning (reproduction of an individual genetically identical to the parent), genetic engineering (modifying the genetic structure of an organism), and other possible future developments in reproductive science, this note will be limited to the topic of gestating otherwise-normal human fetuses outside the natural womb.

<sup>5</sup> Jeremy Laurance, *The Future of Fertility*, THE INDEPENDENT (London), July 17, 2008.

<sup>6</sup> *New Medical Findings Reported by University of Tokyo Researchers*, LIFE SCIENCE WEEKLY, Sep. 11, 2007, available at 2007 WLNR 17436188.

<sup>7</sup> Sakata, Hisano, *et. al.*, *A new artificial placenta with a centrifugal pump*, 46 THORACIC AND CARDIOVASCULAR SURGEON 1023 (1998). See also Sacha Zimmerman, *Technology’s Threat to Abortion Rights*, S.F. CHRON., Aug. 24, 2003 at D3; Scott Gelfand, *Are We Ready for an Artificial Womb?*, TULSA WORLD, Feb. 3, 2002.

<sup>8</sup> U.S. CONST. amend. XIV, § 1.

<sup>9</sup> “Birth: The complete extrusion of a newborn baby from the mother’s body.” BLACK’S LAW DICTIONARY (8<sup>th</sup> ed. 2004).

<sup>10</sup> HUXLEY, *supra* note 2, at 5.

However, far more nuanced questions are raised by a fetus's status prior to decanting.<sup>11</sup> The United States Supreme Court has expressly declined to consider fetuses as people, denying them protection under the Fourteenth Amendment.<sup>12</sup> Traditionally, a fetus's protection, especially that of one not developed enough to be viable outside the womb, has been inextricably entwined with that of its mother.<sup>13</sup> In recent years, however, fetuses, and even embryos, have been granted certain independent protections, such as restrictions on abortions, and in some cases going so far as to be statutorily defined as people between *in-vitro* fertilization and implantation.<sup>14</sup>

Functional ectogenesis will require a reexamination of the status of developing embryos and fetuses in several important ways: medically, ethically, socially, and legally.<sup>15</sup> Paramount to this consideration is the development of a fetus into "personhood," such that it gains protections under the law.<sup>16</sup> Under the current law,

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<sup>11</sup> Under current scientific nomenclature, a fetus is the appropriate term for an immature human at any stage of development between eight weeks from fertilization and birth. While the development of an embryo into a fetus is a continuous process taking place over the first eight weeks of gestation, for the purposes of the law and this paper it is necessary to distinguish between the two concepts. While an "embryo" technically refers only to a zygote between two and eight weeks of development, the term has been extended to include any fertilized egg prior to the fetal stage, including those frozen and awaiting implantation. For the sake of simplicity and consistency, this Article will refer to all pre-fetal entities as embryos.

<sup>12</sup> *Roe v. Wade*, 410 U.S. 113, 158 (1973).

<sup>13</sup> *See Keeler v. Super. Ct.*, 2 Cal. 3d 619 (1970) (holding that a fetus was not a "human being" as contemplated by the California statute defining murder at the time, despite a 96% chance of viability outside the womb).

<sup>14</sup> *See LA. REV. STAT. ANN.* § 9:121-133 (2008) (defining *in-vitro* fertilized human embryos as "juridical persons," and restricting their use solely to preparation for implantation *in-utero*). To date, Louisiana is the only state that has extended juridical personhood to embryos, and it is largely unclear what effect this categorization may have on the abortion debate or on future ectogenetic developments. For a complete description of the statute and its development, *see* Jeanne Louise Carriere, *From Status to Person in Book 1, Title 1 of the Civil Code*, 73 TUL. L. REV. 1263, 1263-86 (1999).

<sup>15</sup> The legal, social, ethical, and philosophical questions brought on by ectogenetic technology far outstrip the ability of any one article to adequately address them. In 1923, the technology of ectogenesis was lauded as one of the most important biological discoveries mankind could make, alongside the domestications of animals, plants, and yeasts and the (at the time) future development of bactericides. J.B.S. HALDANE, *DAEDALUS REVISITED* 23-50 (Krishna R. Dronamraju ed., Oxford University Press 1994) (1923). The social implications alone surrounding the possibility of eliminating pregnancy are staggeringly far-reaching and complex, and numerous works have attempted to address them in myriad ways. The legal questions encompass areas of biomedical ethics, parental rights, genetic engineering and DNA rights, and privacy, to name but a few. In spite of the breadth of subjects upon which ectogenesis potentially has an impact, this paper will be limited to the still-massive questions of how ectogenesis affects the point at which a fetus becomes a person for the purposes of legal protection and what status it has before then.

<sup>16</sup> *See, generally* Jessica Berg, *Of Elephants and Embryos: A Proposed Framework for Legal Personhood*, 59 HASTINGS L.J. 369 (2007) [hereinafter Berg, *Elephants and Embryos*]. Berg explores the qualifications and ramifications of legal personhood for several different

a fetus is considered a person once it becomes viable outside the womb, subject to certain exceptions.<sup>17</sup> However, the fundamental point of ectogenesis is that it renders a fetus “viable,” albeit with technological assistance, from the moment of fertilization.<sup>18</sup> As such, the legal definition of viability will need to be adapted to conform with ectogenetic technology.<sup>19</sup> Ironically, the only sensible way to define viability without dismantling the current rights to abortion is by returning to the bright-line standard of development established in *Roe v. Wade*.<sup>20</sup> While the rigid trimester system of *Roe* has been overturned,<sup>21</sup> Congress must, with the help of the medical profession, establish a point during fetal development at which the fetus is considered “viable,” and thus protected by the Fourteenth Amendment.

Furthermore, while a pre-viable fetus *in utero* is not considered a person, it does carry protection, both in the form of fetal protection statutes and by virtue of the protection granted to the mother.<sup>22</sup> In order to maintain equality between a pre-viable ectogenetic fetus and one carried in the womb, legal protections must be

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types of entities, including embryos, fetuses, animals, and artificial intelligences. Berg argues that natural personhood designations are extremely limited, and juridical personhood options should be explored as a function of a being’s interest in having legal protection. *Id.* at 406. One of the points Berg argues most relevant here is the introduction of degrees of personhood. “[N]ot all juridical persons will necessarily have the same legal rights. The rationale for restricting juridical persons’ rights based on the justification for granting them arises from the impact on existing persons’ rights.” *Id.* at 380. Establishing degrees of personhood to a fetus over the course of its development is consistent with modern decisions regarding abortion. *See Gonzales v. Carhart*, 550 U.S. 124 (2007), upholding a restriction on certain abortions of pre-viable fetuses.

<sup>17</sup> *Planned Parenthood of Southeastern Pa. v. Casey*, 505 U.S. 833, 870 (1992), reaffirming viability as the threshold point for abortion, before which the State’s interests in preserving fetal life do not justify a prohibition on abortion. *But see Carhart*, 550 U.S. at 171, upholding the Federal Partial Birth Abortion Ban, 18 U.S.C. § 1531(a) (2000), despite the lack of distinction in the statute between previability & postviability. *Carhart* “blurs the line, firmly drawn in *Casey*, between previability and postviability abortions.” *Id.* at 171. *Carhart* stretches the definition of viable by noting that “a fetus is a living organism while within the womb, whether or not it is viable outside the womb.” *Id.* at 186. “Instead of drawing the line at viability, the Court refers to Congress’ purpose to differentiate “abortion and infanticide” based not on whether a fetus can survive outside the womb, but on where a fetus is anatomically located when a particular medical procedure is performed.” *Id.*

<sup>18</sup> Hyun Jee Son, *Artificial Wombs, Frozen Embryos, and Abortion: Reconciling Viability’s Doctrinal Ambiguity*, 14 UCLA WOMEN’S L.J. 213 (2005). Son uses ectogenesis to explore the vulnerabilities in the viability standard arising from the ambiguity of the term “viable.” *Id.* at 215.

<sup>19</sup> *Id.*

<sup>20</sup> 410 U.S. 113 (1973).

<sup>21</sup> *Casey*, 505 U.S. 833.

<sup>22</sup> *See OHIO REV. CODE ANN. §§ 2903.01-2903.08* (2008) (extending Ohio homicide laws to include “causing the unlawful termination of another’s pregnancy”). Fetal homicide is specifically defined as to include the entire period between fertilization and birth, and to exclude lawful abortions and accident on the part of the pregnant woman herself. OHIO REV. CODE ANN. § 2903.09 (2008).

established to safeguard a developing ectogenetic baby.<sup>23</sup> These protections must accurately derive from existing fetal development law, and account for both the state's interest in protecting nascent life, and the parents' interests in maintaining control over their potential offspring.<sup>24</sup> In establishing these protections, it becomes necessary to determine exactly what legal status a pre-viable developing fetus actually has: while the *Roe* Court has ruled that it cannot be a person,<sup>25</sup> courts and legislatures have granted and upheld rights and protections for a developing fetus far beyond those normally extended to personal property.<sup>26</sup> If a fetus *in utero* is "quasi-property," somewhere between a person and a chattel, it is important to know exactly what rights and protections are to be applied to it, and why, so that similar rights and protections can be applied to a fetus developing ectogenetically.<sup>27</sup>

This note will provide an overview of the concept of ectogenesis, the current state of the science and law involved, and some broad predictions about the need for change in the law to accommodate scientific developments in the near future. Part II will explore the origins of ectogenesis in literature and examine the current state of the debate, as well as the current state of medical progress towards a working artificial womb. It will also examine some of the reasons for and against ectogenetic development. Part III will examine the current law regarding fetal status and legal personhood before birth. Part IV will apply the law as it is currently situated to a future in which ectogenesis is commonplace, and examine the problems that arise as a result. Part V will propose changes in the law to accommodate for such a future. Part VI will address potential problems that may occur as a result of those changes, and suggest possible solutions to those problems.

## II. HISTORICAL AND MEDICAL BACKGROUND

Ectogenesis is the complete development of a mammalian fetus in an artificial uterus.<sup>28</sup> This process is thought to still be decades away from fruition, but breakthroughs in medical and neonatal technology are bringing it closer to a reality.<sup>29</sup> Reproductive therapy is one of the most lucrative forms of medical practice, and

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<sup>23</sup> Berg, *Elephants and Embryos*, *supra* note 16 at 398.

In utero fetuses have the ancillary protections of their mother's legal personhood. But ex utero fetuses would not have these protections. While parental property interests would function and may provide a basis for decision making and control, we may well need the additional identification of the developing ex utero fetus as a separate legal actor. As artificial womb technology advances, this question should receive more thought and analysis.

*Id.*

<sup>24</sup> *Id.*

<sup>25</sup> *Roe*, 410 U.S. at 158.

<sup>26</sup> §§ 2903.01-2903.08.

<sup>27</sup> Jessica Berg, *Owning Persons: the Application of Property Theory to Embryos and Fetuses*, 40 Wake FOREST L. REV. 159 (2005) [hereinafter Berg, *Owning Persons*].

<sup>28</sup> HALDANE, *supra* note 15.

<sup>29</sup> *Scientists Could Let a 100yo Give Birth*, SUNDAY TERRITORIAN (Australia), Oct. 12, 2008, at 44.

technology enabling more consistent and convenient reproduction is constantly being refined.<sup>30</sup>

The earliest known proposal for an ectogenetic process comes from the 16<sup>th</sup> century occultist Paracelsus.<sup>31</sup> Paracelsus's formula involved creating a "homunculus" by sealing semen in the womb of a horse and allowing it to "putrefy for forty days" on a diet of human blood.<sup>32</sup> The process's success rate has never been documented, but seems dubious.

The modern ectogenesis debate began during the 1920s in the arena of pulp science fiction magazines.<sup>33</sup> The editors of magazines such as *Amazing Stories* often published the latest research of the time, and specifically tied their fiction into the current trends.<sup>34</sup> The beginnings and early advances in the sciences of genetics and tissue culture spawned the earliest debates on reproductive technology, including cloning, genetic engineering, and ectogenesis.<sup>35</sup> The term "ectogenesis" first appears in J.B.S. Haldane's "Daedalus, or Science and the Future."<sup>36</sup> Haldane proposes

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<sup>30</sup> See Anna Mulrine, *Making Babies*, U.S. NEWS AND WORLD REPORT, Sept. 19, 2004, available at [http://health.usnews.com/usnews/health/articles/040927/27babies\\_2.htm](http://health.usnews.com/usnews/health/articles/040927/27babies_2.htm) (last visited Feb. 15, 2009). In 2004, over one billion dollars was spent on IVF (In Vitro Fertilization) therapy. *Id.* Reproductive therapy has been in the news again lately as a result of the octuplets born to Nadya Suleman on January 26, 2008. Scott LaFee, *Octopulet Case Sparks Calls for Fertility-Industry Curbs*, SAN DIEGO UNION-TRIBUNE, Feb. 12, 2009, available at: <http://www3.signonsandiego.com/stories/2009/feb/12/1n12births233821-octuplet-case-sparks-calls-fertil/> (last visited Feb. 15, 2009). Suleman's are the second set of octuplets born in the United States, both through IVF therapy. *Id.* With six prior children, also through IVF, and currently living on government assistance, Suleman has become a symbol of the need for regulation and oversight of fertility therapy in the United States. *Id.*

<sup>31</sup> Scott Gelfand, *Introduction, in* ECTOGENESIS: ARTIFICIAL WOMB TECHNOLOGY AND THE FUTURE OF HUMAN REPRODUCTION 1, 3 (Scott Gelfand & John R. Shook eds., Rodopi 2006) [hereinafter GELFAND & SHOOK, ECTOGENESIS].

<sup>32</sup> AUROLEUS PHILLIPUS THEOPHRASTUS BOMBASTUS VON HOHENHEIM, AKA PARACELSUS, *Concerning the Nature of Things, in* THE HERMETIC AND ALCHEMICAL WRITINGS OF PARACELSUS, VOL. 1, 124 (Arthur E. Waite ed., University Books 1967).

<sup>33</sup> See generally SUSAN MERRILL SQUIER, *BABIES IN BOTTLES* (Rutgers Univ. Press 1994) (providing a detailed history of ectogenesis in twentieth-century fiction).

<sup>34</sup> *Id.*

<sup>35</sup> *Id.*

<sup>36</sup> Scott LaFee, *Will Artificial Wombs Mean the End of Pregnancy?*, SAN DIEGO UNION-TRIBUNE, Feb. 25, 2004, available at <http://www.signonsandiego.com/news/science/20040225-9999-mz1c25womb.html> (last visited Feb. 15, 2009). The concept of ectogenesis has been given different names over the course of the near-century since it was introduced. These include artificial uteruses, synthetic wombs, and uterine replicators. For the purpose of this Article, I will refer primarily to "ectogenetic fetuses" and "fetuses developing ectogenetically," as opposed to fetuses developing naturally, or *in utero*. Any reference to other terms is a result of their use in source text. Additionally, Haldane's original use of "ectogenesis" predates the common usage of "genetics," leading to possible confusion of the terms "ectogenetic" and "genetic." Despite similar terminology, ectogenesis has no relationship to genetics, and a fetus's status as "ectogenetic" has no bearing on its genes or genetics as commonly defined.

eliminating pregnancy as a means of improving the human race eugenically through regulating reproduction.<sup>37</sup> “Daedalus” is presented as a historical account of biological progress throughout the twentieth and twenty-first centuries, tracing the biological innovations that lead to ectogenesis as standard practice.<sup>38</sup> “As we know, ectogenesis is now universal, and in this country less than 30 per cent of children are now born of women.”<sup>39</sup> While Haldane’s prediction of the end result of experiments in ectogenesis has not yet come to pass, many of his statements regarding yet-to-occur milestones along the way have been eerily accurate.<sup>40</sup>

One of Haldane’s predictions that did immediately occur was the vocal outcry in response to his proposal.<sup>41</sup> Over the following six years, five essays were published in direct response to “Daedalus,” questioning Haldane’s proposals and the consequences of his predicted developments.<sup>42</sup> The most famous product of those early ectogenesis debates is Aldous Huxley’s *Brave New World*.<sup>43</sup> Juxtaposing the automation and mass-production principles of Henry Ford’s assembly line with his predictions for advances in biotechnology, Huxley presents a world in which people are grown to order, in batches of ninety-six, to fulfill specific roles.<sup>44</sup> Specially tailored to fit the work assigned to them, Huxley’s humans are a chilling set of inhuman components engineered to fit a niche.<sup>45</sup> This dehumanizing picture of

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<sup>37</sup> HALDANE, *supra* note 15.

<sup>38</sup> *Id.* at 56.

<sup>39</sup> *Id.* at 65.

<sup>40</sup> SQUIER, *supra* note 33, at 71.

Haldane’s fictional narrative is grounded in a fact . . . Although the other episodes in this developmental narrative are fictional extrapolations from the state of scientific knowledge in 1923, they anticipate real developments in reproductive technology leading up to and including the development of in vitro fertilization. . . Haldane’s story of the development of in vitro gestation parallels the actual story of the development of in vitro fertilization, as told in Dr. Robert Edwards’s autobiographical account. Both narratives move from successes in animal embryology to advances in human embryology.

*Id.*

<sup>41</sup> HALDANE, *supra* note 15, at 49. “The biological invention . . . tends to begin as a perversion and end as a ritual supported by unquestioned beliefs and prejudices.” *Id.* By describing a biological innovation as a “perversion,” then showing its commonplace acceptance, Haldane predicts a separation between sexuality and reproduction in modern society which did not yet exist. SQUIER, *supra* note 33, at 70.

<sup>42</sup> SQUIER, *supra* note 33, at 66. These essays established many of the issues still being discussed over eighty years later regarding ectogenesis. The first, “Lysistrata, or Woman’s Future and Future Woman,” by Anthony Ludovici, predicts that artificial reproductive techniques will “defeminize” women and remove gender roles from society. *Id.* at 75. In “Hymen, or the Future of Marriage,” Norman Haire predicts that ectogenesis will enable a select few, specially screened, individuals to provide fertilized embryos for the entire human race, thus ensuring a superior species through eugenics. *Id.* at 77.

<sup>43</sup> *See generally* HUXLEY, *supra* note 2.

<sup>44</sup> HUXLEY, *supra* note 2, at 1, 2.

<sup>45</sup> *See generally* HUXLEY, *id.*

ectogenesis warned a generation of the dangers of biotechnology, tabling the debate for over forty years.<sup>46</sup>

Modern biotechnology is increasingly close to enabling extrauterine gestation.<sup>47</sup> On July 25, 1978, Louise Brown was born the first child of in-vitro fertilization (IVF), a process by which an egg is fertilized outside of the mother's uterus and then implanted.<sup>48</sup> On June 15, 1993, the United States Patent Office granted a patent for a placental chamber – artificial uterus.<sup>49</sup> The proposed device is a “[l]ife support system for a premature baby in which the baby remains attached to its placenta through its umbilical cord,” and could support a fetus after as little as ten weeks of *in utero* gestation.<sup>50</sup> In 1997, scientists kept fetal goats alive for the equivalent of one trimester in extrauterine incubators.<sup>51</sup> In Australia, wobbegong sharks are undergoing experimental in-vitro gestation as part of a conservation effort for nurse sharks.<sup>52</sup> Some experts place human trials of an artificial uterus as close as five years away.<sup>53</sup>

For a process to qualify as complete ectogenesis, it must enable development of a fetus from fertilization to maturity, independent of the mother.<sup>54</sup> However, partial ectogenesis, as an advancement of neonatal care, could enable an extremely premature fetus to grow to maturity independently of the mother.<sup>55</sup> Current advances enable doctors to regularly deliver and develop children at twenty-four weeks of

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<sup>46</sup> SQUIER, *supra* note 33.

<sup>47</sup> LaFee, *supra* note 36.

<sup>48</sup> Fergus Walsh, *30<sup>th</sup> Birthday for First IVF Baby*, BBC NEWS, July 14, 2008, available at <http://news.bbc.co.uk/2/hi/health/7505635.stm> (last visited Feb. 15, 2009).

<sup>49</sup> U.S. Patent No. 5,218,958 (filed Feb. 21, 1991).

<sup>50</sup> 958 Patent, at [1]. Such a device would not enable complete ectogenesis because it would still require that the embryo spend the first ten weeks of development *in utero*. However, such a drastic decrease in the amount of time the embryo or fetus spends in a natural womb would still raise the same questions regarding viability and birth as a completely ectogenetic process. See Son, *supra* note 18, at 215.

<sup>51</sup> Sakata et. al., *supra* note 7.

<sup>52</sup> Ben Cubby, *New Womb to Nurse Species to Life*, SYDNEY MORNING HERALD, Sep. 16, 2008, at 5, available at <http://www.smh.com.au/news/conservation/new-womb-to-nurse-species-to-life/2008/09/15/1221330747960.html> (last visited Aug. 25, 2009). Wobbegong sharks, which are not endangered, are being used to test the artificial womb technology for its eventual use on nurse sharks, which are endangered, and whose young often eat each other in the womb. *Id.* Unlike most fish, sharks hatch their eggs inside their bodies, where they grow until they are large enough to survive outside the womb. *Id.*

<sup>53</sup> Nora Underwood, *The Science of Motherhood*, TORONTO STAR, May 10, 2008, at ID02 available at <http://www.parentcentral.ca/parent/newsfeatures/article/423939> (last visited Aug 25, 2009).

<sup>54</sup> HALDANE, *supra* note 15.

<sup>55</sup> Lafee, *supra* note 36. See also ‘958 Patent, *supra* note 49.

gestation, and infants with as little as twenty weeks of development have been delivered with no long-term side effects.<sup>56</sup>

Because ectogenesis is still a purely theoretical development, certain assumptions must be made regarding the future technology for the purposes of this Article. In order to maintain a straightforward analysis, this paper will assume an ectogenetic method in which an egg is fertilized through IVF (in-vitro fertilization) and then placed into an artificial uterus for the entirety of its gestational period. At the end of its development, the fetus is removed from the artificial uterus as a healthy infant, completely indistinguishable from a child gestated *in utero*. A natural uterus is not required or involved during any point in this development.<sup>57</sup>

Before delving into how the law should treat ectogenetic technology, the reasons for and against its use should be examined. Some of the proposed reasons for undergoing ectogenesis include: allowing people (individuals or couples) who could not otherwise have a child without a surrogate to do so, eliminating the death of the fetus caused by abortion, and equalizing the reproductive labor between mother and father.<sup>58</sup> Ectogenesis is most appealing as an alternative to surrogacy, without many of the potential problems involved in a surrogate pregnancy.<sup>59</sup> Additionally, ectogenetic technology may allow for a fetus to be extracted from a pregnant mother without killing it, enabling abortion without termination.<sup>60</sup> Ectogenesis has also been suggested as the key to sexual equality; because childcare responsibility has always been biologically linked to women, true equality will only occur once both sexes have an identical role in reproduction.<sup>61</sup>

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<sup>56</sup> “Most-Premature Baby Allowed Home,” *BBC News*, Feb. 21, 2007, available at <http://news.bbc.co.uk/2/hi/americas/6384621.stm> (last visited Feb. 15, 2009).

<sup>57</sup> LaFee, *supra* note 36. The absence of a natural uterus during any point of gestation is intended here for simplicity’s sake, and is by no means guaranteed. Ectogenetic processes could enable a pregnant mother to have the fetus removed from her uterus at a specific point during pregnancy and placed into an artificial uterus to undergo the remainder of its development. Many theorists and writers have raised the question of whether such a fetal extraction technique could, and should, be used in place of abortion, and whether a pregnant mother would have a right to an abortion if such a technique were available instead. This particular question is beyond the scope of this Note, which will limit itself to fetuses created and developed entirely ectogenetically. See generally Gelfand, *supra* note 31.

<sup>58</sup> Peter Singer and Deane Wells, *Ectogenesis*, in Gelfand & Shook, ECTOGENESIS, *supra* note 31, at 18. Singer and Wells also suggest that ectogenesis, combined with genetic modification or cloning techniques, could be used to create custom-grown organs for transplantation. It is notable that this suggestion was made in 1985, long before stem cell research or animal cloning technology.

<sup>59</sup> *Id.* at 11. Such problems include poor health practices on the part of the surrogate mother, such as alcohol, tobacco, or drug consumption, lack of access to medical records, or a surrogate’s unwillingness to relinquish the child after birth. See *In re Baby M*, 537 A.2d 1227 (N.J. 1988).

<sup>60</sup> Singer and Wells, *supra* note 58, at 12.

<sup>61</sup> *Id.* See also SHULAMITH FIRESTONE, THE DIALECTIC OF SEX: THE CASE FOR FEMINIST REVOLUTION (William Morrow and Co., 1970).

Arguments against ectogenesis include the question of effects on mother or child, or both.<sup>62</sup> Because children have always developed *in utero*, it is impossible to predict what effects removal from the uterus may have on a fetus.<sup>63</sup> The same could be said of the effect on the mother; a possible bond formed during pregnancy might be eliminated.<sup>64</sup> Finally, fears of embryo abuse, such as the potential for growing an embryo solely to harvest stem cells or organs from it, lead to a strong objection to any form of ectogenesis.<sup>65</sup>

### III. CURRENT LAW

Under the current law, the status of the unborn is largely undetermined.<sup>66</sup> In *Roe v. Wade*,<sup>67</sup> the Supreme Court established that the unborn are not persons *per se*, but that at some point during gestation, their interests become 'compelling' such that they are entitled to legal protection.<sup>68</sup> This point was originally held to be the end of the second trimester, but was clarified in *Planned Parenthood v. Casey*<sup>69</sup> to be 'viability', the point "at which there is a realistic possibility of maintaining and nourishing a life outside the womb."<sup>70</sup> At that point, "the independent existence of the second life can in reason and all fairness be the object of state protection that now overrides the rights of the woman."<sup>71</sup> Pursuant to that doctrine, a fetus is not entitled to protection until it is developed enough to survive outside the womb, albeit with aid.<sup>72</sup> This viability standard has been semi-successfully attacked recently in *Gonzalez v. Carhart*,<sup>73</sup> but not overturned.<sup>74</sup> However, while pre-viable fetuses are

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<sup>62</sup> Singer and Wells, *supra* note 58, at 16.

<sup>63</sup> *Id.*

Suppose that we develop the technical ability to keep an embryo alive and growing outside its mother's womb. How could there be any guarantee that the subsequent child would develop normally? Might there not be some thing, whether chemical or emotional, that is transmitted from the mother to her child during pregnancy and that we are unable to detect? Without this element, mightn't the child be permanently disadvantaged, physically or mentally?

*Id.*

<sup>64</sup> *Id.* See also Nancy Breeze, *Who is Going to Rock the Petri Dish*, in *TEST-TUBE WOMEN: WHAT FUTURE FOR MOTHERHOOD?* (Ruth Arditti, et al. eds., 1984).

<sup>65</sup> Singer and Wells, *supra* note 58, at 18.

<sup>66</sup> Berg, *Owning Persons*, *supra* note 27, at 159.

<sup>67</sup> *Roe*, 410 U.S. at 113.

<sup>68</sup> *Id.* at 163.

<sup>69</sup> *Casey*, 505 U.S. 833.

<sup>70</sup> *Id.* at 870.

<sup>71</sup> *Id.*

<sup>72</sup> *Id.* at 860 (acknowledging that medical advances might move the line at which a developing child is considered "viable").

<sup>73</sup> *Carhart*, 550 U.S. at 156 (holding that a ban on late-term, "partial-birth" abortions is Constitutional and does not overly threaten a woman's right to an abortion, despite not distinguishing between pre- & post-viability abortions).

not considered people, they have been extended certain protections normally reserved for people, such as fetal homicide statutes.<sup>75</sup> Courts have held defendants liable for injury to a pre-viable fetus, as long as it is eventually born alive.<sup>76</sup>

The status of embryos is even less clear.<sup>77</sup> In 1983, after the death of Mario and Elsa Rios, the probate court was forced to determine whether the two frozen embryos left by the couple were property to be inherited, or persons capable of inheriting the couple's fortune.<sup>78</sup> In 1986, Louisiana enacted a statute making embryos juridical persons and requiring them to be implanted.<sup>79</sup> However, several states' high courts have held that embryos are not persons, and that their progenitors' rights in them are based in property or contract law.<sup>80</sup>

In *Davis v. Davis*,<sup>81</sup> the Tennessee Supreme Court held that embryos are neither persons nor property, but "occupy an interim category that entitles them to special respect because of their potential for human life."<sup>82</sup> Additionally, the *Davis* Court recognized that "the right of procreational autonomy is composed of two rights of equal significance -- the right to procreate and the right to avoid procreation."<sup>83</sup> The negative right of procreation was determined to outweigh the affirmative one if another avenue exists for the child-seeking party to reproduce.<sup>84</sup> The New Jersey Supreme Court also recognized the negative right of procreation nine years later in *J.B. v. M.B.*<sup>85</sup>

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<sup>74</sup> *Id.*

<sup>75</sup> OHIO REV. CODE ANN. §§ 2903.01-2903.08 (2008).

<sup>76</sup> *Torigian v. Watertown News Co.*, 225 N.E.2d 926 (Mass. 1967); *Kalafut v. Gruver*, 389 S.E.2d 681 (Va. 1990).

<sup>77</sup> Berg, *Owning Persons*, *supra* note 27, at 160.

<sup>78</sup> George P. Smith II, *Australia's Frozen 'Orphan' Embryos: A Medical, Legal, and Ethical Dilemma*, 24 J. FAM. L. 27 (1985).

<sup>79</sup> LA. REV. STAT. ANN. 9:121-133 (2000).

<sup>80</sup> *See Kass v. Kass*, 696 N.E. 2d 174 (N.Y. 1988), *Litowitz v. Litowitz*, 48 P.3d 261 (Wash. 2002).

<sup>81</sup> 842 S.W.2d 588 (Tenn. 1992).

<sup>82</sup> *Id.* at 597. In *Davis*, an infertile couple had eggs extracted from the wife and fertilized with the husband's sperm *in vitro*. *Id.* at 591. After a failed implantation of one of the pre-embryos, the remainder were frozen. Following the couple's divorce, the ex-wife initially wanted the pre-embryos implanted in her, but later asked that they be donated to childless couples. *Id.* at 592. However, the ex-husband requested an injunction against the pre-embryos use, and eventually asked that they be destroyed. He wished to prevent himself from becoming a genetic parent in a situation where he was not able to ensure the safety, security, and stability of the offspring in a two-parent household, and the Tennessee Supreme Court sided with him. *Id.* at 590.

<sup>83</sup> *Id.* at 601.

<sup>84</sup> *Id.* at 604.

<sup>85</sup> 783 A.2d 707 (N.J. 2001). In *J.B.*, a couple divorced after having already had one daughter via IVF. *Id.* at 710. The husband, M.B., wished to donate the remaining frozen embryos to childless couples. *Id.* at 710-11. The wife, J.B., wished to have them destroyed. *Id.* at 711. The court, in ordering the embryos destroyed, recognized the absence of a contract

In short, a fertilized embryo may be, but is not necessarily, considered a person before it is implanted in a womb. Once it enters the womb, it may have some legal protection, but it is definitely not considered a "person."<sup>86</sup> When the fetus develops enough to have a "realistic possibility of maintaining and nourishing a life outside the womb," it is considered viable, and the State regains an interest in protecting it.<sup>87</sup> Finally, when the infant is born, it is recognized as a person and gains all of the legal protections entitled to a person and a citizen of the United States.<sup>88</sup>

#### IV. PROBLEMS WHEN ECTOGENESIS IS APPLIED TO THE CURRENT LAW

The conflicts between modern abortion law, the legal status of fetuses and embryos, and developing technology will give rise to uncountable disputes regarding control over and interest in developing ectogenetic fetuses. These questions include:

- 1) whether either parent could choose to have an ectogenetic fetus terminated, and whether they would need the consent of the other parent, or the state, to do so.

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for disposition between the two, as well as M.B.'s ability to father children at a later date. Citing *Davis v. Davis*, the court held that:

M.B.'s right to procreate is not lost if he is denied an opportunity to use or donate the preembryos. M.B. is already a father and is able to become a father to additional children, whether through natural procreation or further in vitro fertilization. In contrast, J.B.'s right not to procreate may be lost through attempted use or through donation of the preembryos. Implantation, if successful, would result in the birth of her biological child and could have life-long emotional and psychological repercussions . . . Her fundamental right not to procreate is irrevocably extinguished if a surrogate mother bears J.B.'s child. We will not force J.B. to become a biological parent against her will.

*Id.* at 717.

<sup>86</sup> *Roe*, 410 U.S. at 158 .

<sup>87</sup> *Casey*, 505 U.S. 833, 870.

<sup>88</sup> U.S. CONST. amend. XIV, § 1. While the status of embryos has been largely left unexamined in the United States, that is not necessarily the case elsewhere. "In 1982, spurred by the birth four years earlier of the first 'test-tube' baby, the British government established the Warnock Committee of Inquiry into Human Fertilisation and Embryology." SQUIER, *supra* note 33, at 63. The Warnock Committee ran a broad investigation into the future of reproductive technology, and in 1984, issued their recommendations to the government. *Id.* After six years of debate, Parliament passed the Human Fertilisation and Embryology Bill, whose chief provision was to limit experimentation on human embryos to fourteen days from fertilization. *Id.* While the provisions of the Bill may come from numerous sources, the Warnock Committee makes their feelings on ectogenesis clear:

We appreciate why the possibility of such a technique arouses so much anxiety. There are however two points to make about this. First, such developments are well into the future, certainly beyond the time horizon within which this Inquiry feels it can predict. Secondly, our recommendation is that the growing of a human embryo *in vitro* beyond fourteen days should be a criminal offense.

*Id.* at 64, quoting MARY WARNOCK, A QUESTION OF LIFE: THE WARNOCK REPORT ON HUMAN FERTILISATION AND EMBRYOLOGY, 71-72 (Basil Blackwell ed., Oxford Press) 1985. Ironically, the Report specifically disclaims predictive ability while advising the outlawing of a procedure it only predicts will exist. SQUIER, *supra* note 33, at 63.

- 2) whether a child developed ectogenetically is considered “born,” and if so, when that birth takes place.
- 3) whether a child developing ectogenetically is considered “viable,” under *Roe*, and if so, when it becomes so.

*A. Termination Rights Over an Ectogenetic Fetus.*

If a couple were to undergo IVF and begin developing a baby ectogenetically, only to divorce later, there is a question as to whether either party could choose to have the fetus terminated, and whether it could be done against the express wishes of the other.<sup>89</sup> Under current abortion law, a fetus can be terminated until the point that it becomes “viable outside the womb.”<sup>90</sup> However, since ectogenesis causes the entirety of fetal development to take place outside the womb, there is never any point during development at which the ectogenetic fetus could be terminated.<sup>91</sup> The current law vests the right to terminate a fetus entirely in the pregnant woman, whose choice is only weighed against the state’s interests, not those of any other individual.<sup>92</sup> Conversely, the *Davis* Court recognized that a negative reproductive right (the right not to be a genetic parent) exists.<sup>93</sup> This right can supersede an affirmative right, and is not limited to the mother.<sup>94</sup> This right creates a strong foundation for the case that either parent should be allowed to terminate the ectogenetic fetus’ development, regardless of the other’s consent.<sup>95</sup>

Furthermore, much of the rationale for abortion comes from the mother’s right to privacy and control of her own body.<sup>96</sup> If the fetus is independent of the mother’s body, thereby removing the privacy factor from consideration of termination, the “State’s interests in protecting health and potential life” could outweigh the negative reproductive rights of either parents, or both.<sup>97</sup> In other words, the State could be justified in forcing a parent to bring an ectogenetic fetus to term, while a fetus *in*

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<sup>89</sup> See Christina L. Misner, *What if Mary Sue Wanted an Abortion Instead? The Effect of Davis v. Davis on Abortion Rights*, 3 AM. U.J. GENDER & L. 265 (1995). Misner contrasts the central holding in *Davis*, freedom from unwanted reproduction, with the trends in abortion law restricting freedom to terminate, and advocates that abortion law should be based on the same negative right of genetic parentage as *Davis*. Misner argues that “[t]here is something just a touch spooky here. As women’s reproductive rights are contracting, men’s rights seem to be expanding.” *Id.* at 285. *But see J.B.*, 783 A.2d at 716 (recognizing a woman’s negative right of genetic parentage regarding frozen embryos).

<sup>90</sup> *Roe*, 410 U.S. at 163.

<sup>91</sup> Berg, *Elephants and Embryos*, *supra* note 16, at 397.

<sup>92</sup> *Roe*, 410 U.S. at 154.

<sup>93</sup> *Davis*, 842 S.W. 2d at 588. *See also J.B.*, 783 A.2d at 717 (recognizing that a woman’s right not to be a genetic parent warranted the destruction of her frozen embryos over the father’s objections when he was capable of fathering future children).

<sup>94</sup> *Davis*, 842 S.W.2d at 604.

<sup>95</sup> Misner, *supra* note 89, at 299.

<sup>96</sup> *Roe*, 410 U.S. at 155.

<sup>97</sup> *Id.* at 156.

*utero* at the same stage of development would still be subject to an abortion.<sup>98</sup> No court has ever weighed State interests in fetal health and life against negative reproductive interests, rather than privacy in one's own body, and such a balancing test might very well end by finding that the State interests dominate, thereby necessitating the fetus be brought to term.<sup>99</sup> If this were to be the case, it would be necessary to determine who pays for the fetus' development and is responsible for the child.

### B. Birth and the Ectogenetic Fetus

Next, ectogenesis will force a re-evaluation of the question of when a fetus becomes a person.<sup>100</sup> The word "birth" is defined as "[t]he complete extrusion of a newborn baby from the mother's body."<sup>101</sup> Unfortunately, this definition falls short in two very important ways:

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<sup>98</sup> *Id.*

<sup>99</sup> Misner, *supra* note 89, at 296-97.

<sup>100</sup> Berg, *Elephants and Embryos*, *supra* note 16, at 393.

<sup>101</sup> Black's Law Dictionary, *supra* note 9.

In a few jurisdictions, the state of the law may be changing. In South Carolina, for example, a child does not have to be born alive to be a victim of murder; a woman can be convicted of fetal murder if her baby is stillborn because of the mother's prenatal drug abuse.

*Id.* This brings up the interesting question of who is responsible for a developing ectogenetic fetus. Even before a fetus is viable, the state maintains an interest in protecting the life of the future child. *Roe*, 410 U.S. at 162. This interest is reflected in fetal homicide statutes and other laws designed to protect fetuses *in utero* from injury and death. *See* OHIO REV. CODE. ANN. §§ 2903.01-2903.08 (2008). Ensuring that a fetus developing ectogenetically is protected similarly should not be a very difficult task, but does present certain unique challenges that have not yet been addressed. One such issue lies in the assignment of responsibility to caretakers of the ectogenetic fetus. Traditionally, responsibility for a fetus *in utero* has been split between the pregnant mother, her neonatal physician, and outside factors (such as a tortfeasor to the fetus). *See* Roland F. Chase, Annotation, *Liability for Prenatal Injuries*, 40 A.L.R.3d 1222 (2008). However, ectogenesis will force a reevaluation of that responsibility, as the pregnant mother is no longer the sole and total conduit between the fetus and the outside world. As a result, more, if not all, of the responsibility for the fetus's care and well-being will fall on the attending physician and ectogenetic facility.

Under the current law, pregnant mothers have been held criminally liable for danger and damage to their fetus during pregnancy, primarily as a result of drug use. *See e.g.*, BLACK'S LAW DICTIONARY, *supra* note 9; *see also* James G. Hodge, Jr., Annotation, *Prosecution of mother for prenatal substance abuse based on endangerment of or delivery of controlled substance to child*, 70 A.L.R.5th 461 (2008). Because an ectogenetic fetus is not linked through an umbilical cord to an individual the same way a fetus *in utero* is, it does not face the same danger of drug damage from its host. However, it still may be subject to harm as a result of negligent or criminal conduct on the part of the caretaking facility, and lawmakers must recognize the responsibility such a facility takes when it agrees to shoulder the burden of care for an ectogenetic fetus. Federal and state regulation will need to be enacted to ensure that ectogenetic care facilities take adequate precaution in caring for their charges, while at the same time recognizing that the technology will be experimental for a long time, with all of the unavoidable risks inherent in medical experimentation. *See generally* Joyce M. Raskin and

- 1) The definition does not establish a level of development at which a baby is distinguished from a fetus, and the definition of fetus is unhelpful in that regard.<sup>102</sup>
- 2) The definition only encompasses a baby that has been extruded from its mother.<sup>103</sup>

If a baby is only distinguished from a fetus by its removal from the mother's body, then any point at which a developing fetus is removed from the mother and placed into an artificial uterus could be considered as having constituted "birth."<sup>104</sup> In this case, a fetus developing ectogenetically would be far more protected than one developing *in utero*, because it would be considered a fully-fledged, natural-born person from the moment of its removal.<sup>105</sup> On the other hand, ectogenesis presents the possibility of developing a baby without having ever been inside the mother's body.<sup>106</sup> The current definition of birth would exclude such a child from having ever been born.<sup>107</sup>

In this case, children developed ectogenetically would face several problems asserting themselves fully under the United States Constitution. First, an argument could be made that no child of ectogenesis can be considered "natural-born," thus removing them from qualification for President of the United States.<sup>108</sup> However, all disputes over the term "natural-born" have arisen from whether it applies to someone born to American citizens abroad, and not due to process of birth itself.<sup>109</sup> Second, and more importantly, the Constitution only recognizes persons "born or naturalized in the United States" as citizens.<sup>110</sup> If a child of ectogenesis is considered born when it is removed from its mother, citizenship would be conferred on a still-developing fetus and thereby conflict with *Roe*.<sup>111</sup> Therefore, there must be a point in fetal development, regardless of the medium, at which the child is considered legally born in order to qualify as a citizen.<sup>112</sup>

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Nadav A. Mazor, *The Artificial Womb and Human Subject Research*, in Gelfand & Shook, ECTOGENESIS, *supra* note 31, at 160-181.

<sup>102</sup> "A developing but unborn mammal, especially in the latter stages of development." BLACK'S LAW DICTIONARY (8<sup>th</sup> ed. 2004).

<sup>103</sup> BLACK'S LAW DICTIONARY, *supra* note 9.

<sup>104</sup> *Id.*

<sup>105</sup> See Berg, *Elephants and Embryos*, *supra* note 16, at 398.

<sup>106</sup> See LaFee, *supra* note 36.

<sup>107</sup> BLACK'S LAW DICTIONARY, *supra* note 9.

<sup>108</sup> U.S. CONST. art. II, § 1, cl. 5. "No Person except a natural born Citizen, or a Citizen of the United States at the time of the Adoption of this Constitution, shall be eligible to the Office of President." *Id.*

<sup>109</sup> Carl Hulse, *McCain's Canal Zone Birth Prompts Queries About Whether That Rules Him Out*, N.Y. TIMES, Feb. 28, 2008, available at <http://www.nytimes.com/2008/02/28/us/politics/28mccain.html>.

<sup>110</sup> U.S. CONST. amend. XIV, § 1.

<sup>111</sup> *Roe*, 410 U.S. at 158.

<sup>112</sup> U.S. CONST. amend. XIV, § 1.

### C. Viability and Ectogenesis

One of the most pressing issues is to reconcile the legal protections available to a developing fetus regardless of the location in which it is developing. It would be unfair to use two sets of rules for two fetuses at the exact same stage of development, simply because of the environment in which they are developing, without a sound legal reason for the difference. Under the current law, a fetus developing *in utero* is not a person according to *Roe*,<sup>113</sup> while an equally-developed ectogenetic fetus would either have been expelled from the womb, and hence born under the common definition, or never implanted, and thus possibly be a “juridical person” under statutory definition.<sup>114</sup> It is far more consistent to draw a line in the developmental process of a fetus at which it is a person, regardless of the method of development, and entitled to all the rights and privileges thereof.<sup>115</sup> The *Casey* Court attempted to draw such a line when they established “viability” as the point at which the State’s interest in preserving fetal life justifies banning an abortion.<sup>116</sup> However, the definition used by the Court for “viable” failed to address whether technological aid constituted viability, although they did recognize that viability could be reached earlier through neonatal technological progress.<sup>117</sup>

## V. WAYS TO ADAPT THE LAW TO ACCOMMODATE ECTOGENETIC TECHNOLOGY

### A. Property Theory as Applies to Developing Fetuses

The most important change necessary to reconciling ectogenetic advances with the current law is the application of property theory to embryos and fetuses.<sup>118</sup> Ectogenetic technology will allow for an unprecedented disconnect between a mother and her developing fetus, which must be recognized by firmly establishing the legal status of fetuses.<sup>119</sup> The Supreme Court has already recognized certain personal rights in a pre-viable fetus, precluding the option of recognizing a developing fetus purely as property.<sup>120</sup> However, the central holding of *Roe* still maintains that fetuses are not persons until they are born.<sup>121</sup>

<sup>113</sup> *Roe*, 410 U.S. at 158.

<sup>114</sup> LA. REV. STAT. ANN. §9:121-133 (2009).

<sup>115</sup> Son, *supra* note 18, at 231.

<sup>116</sup> *Casey*, 505 U.S. 833, 860. Note that viability is not the only imaginable threshold for determining whether abortion is allowable. Under French law, “virtually any pregnant woman can get a legal abortion during the first ten weeks of pregnancy. All abortions must be preceded by a discussion between the woman and a counselor.” LAURENCE TRIBE, ABORTION: THE CLASH OF THE ABSOLUTES 73 (1992). This fixed ten week standard is independent of the level of fetal development, and is instead meant to give the pregnant mother adequate time to consider her condition and make an informed decision. Son, *supra* note 18 at 223.

<sup>117</sup> *Casey*, 505 U.S. at 870.

<sup>118</sup> Berg, *Owning Persons*, *supra* note 27.

<sup>119</sup> Son, *supra* note 18 (advocating the use of the *Davis* doctrine of the negative right to genetic parenthood in the Supreme Court’s consideration of the viability standard).

<sup>120</sup> See *Carhart*, 550 U.S. at 124.

<sup>121</sup> *Roe*, 410 U.S. at 158.

Recognizing a fetus as property, regardless of its form of development, would allow the courts to use an existing and long-standing body of law to settle disputes and allocate rights over both ectogenetic and *in utero* fetuses.<sup>122</sup> This recognition would enable parents to create binding contracts with adopting parents and custodial physicians, as well as providing for disposition in the case of death or divorce.<sup>123</sup> Additionally, if ectogenetic technology were to allow a developing fetus to be removed from an injured or dying mother, treatment of the fetus as property would ease a court's determination of its disposition.<sup>124</sup>

Labor theory of property (the doctrine that one has a natural right to ownership over one's own creations) also makes room for the special relationship between a fetus *in utero* and the pregnant mother.<sup>125</sup> The labor and investment a pregnant mother makes in her child could be considered such a personal aspect of the creation of the child that it justifies maintaining the complete control over termination rights established in *Roe*, even in the face of competing property rights.<sup>126</sup> The likely and logical decision, therefore, is that while all developing fetuses should be considered property, the unique strains and concerns placed on a woman during pregnancy create an interest in a naturally-developing fetus that supersedes both parents' property interests, and both the affirmative and negative procreative rights of the father.<sup>127</sup> This interest is strong enough to justify complete control by the mother, including the right to unilaterally terminate, over a fetus developing naturally, up until the point at which the fetus is considered legally viable.<sup>128</sup>

#### B. Parents' Reproductive Rights

The next question raised by ectogenesis is whether, if a fetus is developing ectogenetically, the father has the same interests and is entitled to the same control over it as the mother.<sup>129</sup> The current view of abortion law is that a pregnant woman has both an affirmative and negative right to childbirth, neither of which can be

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<sup>122</sup> Berg, *Owning Persons*, *supra* note 27.

<sup>123</sup> *Id.*

<sup>124</sup> *Id.*

<sup>125</sup> *Id.*

<sup>126</sup> Son, *supra* note 18.

<sup>127</sup> Misner, *supra* note 89.

Davis fits nicely into the abortion context as a long-lost recognition of a woman's right not to procreate, upholding the proper level of heightened respect for women's rights to bodily privacy. The court in Davis was able to draw an equal framework of procreational rights simply because the other right implicated by abortion decisions - the right to control one's own body - was not at stake. The object of debate was in a neutral petri dish. That is why the man's interest in Davis was given equal treatment. Otherwise, "a woman's stronger, competing interest in controlling her body" should overshadow procreational autonomy. Davis simply strengthens the importance of the right not to procreate.

*Id.* at 297.

<sup>128</sup> Casey, 505 U.S. at 833.

<sup>129</sup> Davis, 842 S.W. 2d at 588.

legally curtailed by anybody, including the father.<sup>130</sup> “If the right of privacy means anything, it is the right of the *individual*, married or single, to be free from unwarranted governmental intrusion into matters so fundamentally affecting a person as the decision whether to bear or beget a child.”<sup>131</sup> However, the majority of the justification and rationale for this right stems from a woman’s right to control over her own body by preventing or aborting pregnancy.<sup>132</sup> If a fetus is growing ectogenetically, independent of its mother’s body, then control over it must stem from her interest in it as a progenitor, which is equal to that of the father.<sup>133</sup>

The *Davis* Court established that a person’s right to not be a genetic parent outweighs another person’s right to be one if another course of action is available.<sup>134</sup> If the principle also applies to an ectogenetically developing fetus, then both parents have the same reproductive interests in the fetus and either one could choose to unilaterally terminate it.<sup>135</sup> Ultimately, this would protect a naturally-developing fetus far more than an ectogenetically developing one.<sup>136</sup> Under the current law, the right to terminate a fetus *in utero* lies entirely with the pregnant mother, whereas under the *Davis* negative reproductive right an ectogenetic fetus would be subject to termination from either parent without the consent of the other.<sup>137</sup>

On the other hand, treating an ectogenetically developing fetus as property would be interpreted as requiring both parents’ consent before the fetus is terminated.<sup>138</sup> Under property theory, if both parents have equal interests in the fetus, one parent could relinquish his or her rights to it (such as in the case of divorce) by intent or

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<sup>130</sup> Eisenstadt v. Baird, 405 U.S. 438, 453 (1972).

<sup>131</sup> *Id.* (emphasis in original).

<sup>132</sup> Casey, 505 U.S. at 852

The mother who carries a child to full term is subject to anxieties, to physical constraints, to pain that only she must bear. That these sacrifices have from the beginning of the human race been endured by woman with a pride that ennobles her in the eyes of others and gives to the infant a bond of love cannot alone be grounds for the State to insist she make the sacrifice. Her suffering is too intimate and personal for the State to insist, without more, upon its own vision of the woman’s role, however dominant that vision has been in the course of our history and our culture. The destiny of the woman must be shaped to a large extent on her own conception of her spiritual imperatives and her place in society.

*Id.*

<sup>133</sup> See Misner, *supra* note 89.

[B]oth *Davis* and the abortion cases implicate the right to privacy as embodied in the right to procreational autonomy, which is unrelated to whether the egg is growing in the woman’s body, or preserved in a petri dish. Potential life is potential life; the decision to become a parent resides with both parents, or at least with the mother contemplating abortion.

*Id.* at 298.

<sup>134</sup> *Davis*, 842 S.W. 2d at 601; see also Son, *supra* note 18.

<sup>135</sup> See Son, *supra* note 18.

<sup>136</sup> *Id.*

<sup>137</sup> Casey, 505 U.S. at 852; *Davis* 842 S.W.2d at 600.

<sup>138</sup> Berg, *Owning Persons*, *supra* note 27.

constructive abandonment, but not actively seek to destroy it without the other party's consent.<sup>139</sup> This requirement of mutual consent would protect an ectogenetically-developing fetus far more than a naturally-developing one, which under *Roe* can be terminated unilaterally by the mother.<sup>140</sup> This solution would preserve the pregnant mother's rights to terminate a fetus growing *in utero*, while requiring both parents' consent to terminate an ectogenetic fetus.

### C. "Birth" and "Viability"

The next question is whether an ectogenetic fetus can be considered born, and if so, when that birth takes place. For the purposes of the Constitution, a person must be born to be a citizen.<sup>141</sup> If an embryo is created *in vitro*, then grown ectogenetically into an infant, a strong argument could be made that, having never been fully "extru[ded] from the mother's body," it was never born.<sup>142</sup> In order to avoid this interpretation, states should statutorily recognize all fetuses that have reached legal viability as having been born, regardless of the method of their development. Making "born" synonymous with "viable" will, in addition to protecting ectogenetic fetuses, eliminate the current gray area in reproductive rights between viability and birth, in which a fetus is protected by compelling state interests but is not yet a person.<sup>143</sup>

Therefore, states must establish a point in fetal development at which the fetus is considered legally viable.<sup>144</sup> Under *Casey*, viability was recognized at approximately

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<sup>139</sup> *Id.*

<sup>140</sup> *Roe*, 410 U.S. at 113.

<sup>141</sup> U.S. CONST. amend. XIV., § 1. Note that being "born" and being "viable" are two different criteria, although they appear similar. "Birth" takes place when the fetus is "complete[ly] extrude[ed]. . . from the mother's body." BLACK'S LAW DICTIONARY, *supra* note 9. At that point, it becomes a fully-fledged person and is entitled to the rights of one. *Roe*, 410 U.S. at 158. On the other hand, a fetus is entitled to state protection once it attains viability, the point at which it is "capab[le] of meaningful life outside the mother's womb." *Casey*, 505 U.S. at 930. One of the key elements of adapting the law to ectogenesis will be to establish that the developmental point at which a fetus is "viable" and "born" should be the same, and eliminate the legal gray area that currently exists while a fetus is viable but not yet born. See Patricia A. King, *The Juridical Status of the Fetus: A Proposal for Legal Protection of the Unborn*, 77 MICH. L. REV. 1647, 1648, 1687 (1976) (arguing that viability should merit personhood, and that unborn viable fetuses merit all legal protections afforded to human beings).

<sup>142</sup> BLACK'S LAW DICTIONARY, *supra* note 9.

<sup>143</sup> *Roe*, 410 U.S. at 158. *But see* *Carhart*, 550 U.S. at 158 (stating that "the abortion methods [the Partial Birth Abortion Ban] proscribed had a 'disturbing similarity to the killing of a newborn infant,' and thus it was concerned with 'draw[ing] a bright line that clearly distinguishes abortion and infanticide'." (Internal citations omitted)). *Carhart* held for the first time that the state's legitimate interest in protecting the life of a fetus extends to the method of abortion, regardless of whether the fetus is viable or not at the time. This indicates a period during fetal development at which a pre-viable fetus is not entitled to protection from termination but is entitled to protection regarding the method of termination. *Id.* at 160.

<sup>144</sup> *Son*, *supra* note 18, at 215-16.

twenty-three to twenty-four weeks of development.<sup>145</sup> However, Justice O'Connor underscored that recognition:

The soundness or unsoundness of that constitutional judgment in no sense turns on whether viability occurs at approximately 28 weeks, as was usual at the time of *Roe*, at 23 to 24 weeks, as it sometimes does today, or at some moment even slightly earlier in pregnancy, as it may if fetal respiratory capacity can somehow be enhanced in the future.<sup>146</sup>

Justice O'Connor's statement undermines an earlier assumption that "the threshold of fetal viability is, and will remain, no different from what it was at the time *Roe* was decided."<sup>147</sup> Ectogenesis will contradict that assumption by having a fetus that was created independently of the mother's uterus.<sup>148</sup>

There are three possible interpretations of viability that could be applied to an ectogenetic fetus, each with its own benefits and drawbacks. The first is that, because an ectogenetic fetus exists independently of the mother from the moment of fertilization, it is viable throughout its entire development.<sup>149</sup> This is a textualist interpretation of viability, because it adheres most closely to the holdings of both *Roe* and *Casey* in that a fetus is only a person once it is capable of meaningful life outside the womb.<sup>150</sup> While the definition of "meaningful" might be bandied around, there is no question that ectogenesis would render a fetus capable of life outside the womb, independent of its mother.<sup>151</sup> Recognizing this reality, the Court would have no choice but to recognize the ectogenetic fetus as an independent entity from the moment of fertilization.

Under a second interpretation, the "naturalist approach," a fetus is considered viable outside the womb only when it can survive without ectogenetic assistance.<sup>152</sup> This supports the underlying assumption of the Supreme Court in the *Roe* decision, that ectogenesis would not be a consideration in the near future and that a mostly-developed fetus is close enough to being an infant as to warrant state protection.<sup>153</sup>

The final interpretation of viability, the "advanced development approach," views a fetus, both ectogenetic and *in utero*, as viable once it reaches a certain point in pre-

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<sup>145</sup> *Casey*, 505 U.S. at 860.

<sup>146</sup> *Id.*

<sup>147</sup> *Webster v. Reprod. Health Servs.*, 492 U.S. 490, 554 n.9 (1989).

<sup>148</sup> *Son*, *supra* note 18, at 215.

<sup>149</sup> *TRIBE*, *supra* note 116, at 220-21.

<sup>150</sup> *Casey*, 505 U.S. at 860.

<sup>151</sup> Gelfand, *supra* note 31. See also Tamara L. Davis, Comment, *Protecting the Cryopreserved Embryo*, 57 *TENN. L. REV.* 507, 514 (1990) (suggesting that because cryopreserved embryos can be thawed and implanted, they are "viable" under the definition set forth in *Roe* and therefore should not be subject to destruction).

<sup>152</sup> *Son*, *supra* note 18, at 222. *Son* refers to this interpretation as the "naturalist approach" because it requires a baby to survive naturally in order to warrant legal protection.

<sup>153</sup> *Id.*

natal development.<sup>154</sup> This interpretation is the only definition of viability that gives equal standing to both *in vitro* and *in utero* development, recognizing that ectogenesis will render the terms “born,” “viable,” and even “abortion” functionally obsolete. Using the definition above will allow parents<sup>155</sup> to abort a developing ectogenetic fetus before it reaches the viability threshold, but still protect viable fetuses in accordance with the principles set forth in *Roe* and *Casey*. The proper threshold of viability should be viewed in terms of advanced fetal development.<sup>156</sup> Currently, most physicians consider “viability” right now to be at approximately twenty-two weeks of development, but children have been born after as little as twenty weeks of gestation without long-term defects.<sup>157</sup> Congressional hearings from expert witnesses in the fields of neonatal care and obstetrics are the fairest and most likely method of determining exactly where such a line should be drawn, and it is almost certain that both sides of the abortion debate will be present to make their opinions known.

## VI. PROBLEMS ARISING FROM ADAPTING THE LAW TO ACCOMMODATE ECTOGENESIS

### A. People or Property

There are numerous and understandable objections to classifying developing fetuses as property. First, deeming a human being at any stage of development as “property” could be an uncomfortable reminder of slavery in the United States. While no one plans on enslaving a developing fetus, the comparison is not entirely without merit. The original precedent in which a person could also be property, *Dred Scott v. Sandford*,<sup>158</sup> was overruled by the Thirteenth and Fourteenth Amendments, prohibiting involuntary servitude and extending citizenship to all persons born in the United States.<sup>159</sup> However, neither one explicitly prevents a human being from being considered property before birth.<sup>160</sup>

Additionally, courts’ reticence in recognizing surrogacy agreements indicates a strong objection to any form of property-based outlook on human beings.<sup>161</sup> While the relevant surrogacy cases have dealt exclusively with infants, rather than fetuses, some courts may consider the distinction trivial. Furthermore, the different treatment

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<sup>154</sup> *Id.* at 224-26.

<sup>155</sup> The traditional view of abortion places the choice primarily in the hands of the pregnant mother. However, the advent of ectogenesis, by eliminating pregnancy, could be seen to equalize the interests of both parents of the child in question, giving them equal weight in a decision to end the development of an ectogenetic child. Jennifer S. Bard, *Immaculate Gestation? How Will Ectogenesis Change Current Paradigms of Social Relationships and Values?*, in Gelfand & Shook, *ECTOGENESIS*, *supra* note 31, 151-53.

<sup>156</sup> Son, *supra* note 18, at 225.

<sup>157</sup> BBC News, *Supra* note 56.

<sup>158</sup> *Dred Scott v. Sandford*, 60 U.S. 393 (1856).

<sup>159</sup> U.S. CONST. amend. XIII, § 1 (prohibiting slavery), U.S. CONST. amend. XIV, § 1 (defining citizenship).

<sup>160</sup> Berg, *Owning Persons*, *supra* note 27.

<sup>161</sup> *In re Baby M*, 537 A.2d 1227 (N.J. 1988)

of surrogacy agreements from state to state leaves the question of interest in, and ownership of, an ectogenetic fetus uncertain.<sup>162</sup>

Also, surrogacy cases provide a glimpse at the question of to whom an ectogenetic fetus may belong. Surrogacy cases have recognized a birth mother's parental interest in a child of different genetic parents,<sup>163</sup> in spite of a contractual waiver. While an ectogenetic fetus lacks a birth mother by definition, this recognition establishes the questionable validity of an interest in the child by someone other than the genetic parents. In states where a surrogacy contract is held to be valid, a set of genetic parents could contractually transfer their parental interest to adoptive parents.<sup>164</sup> However, in states where surrogacy contracts are considered void or voidable, a pair of genetic parents with no intent on raising a child could be forced into doing so by an adoptive parent who reneges on their contract, knowing that it might not be enforceable.

However, the more likely problem with extending surrogacy contract invalidity to ectogenetic adoption arises when genetic parents arrange to have their fetus grown ectogenetically on behalf of a contracted adopter, but ultimately change their mind and decide to raise the child themselves. This situation is where a property analysis can be helpful, even if not used exclusively, by weighing the traditional forms of property interests in the fetus, such as labor and investment, "title" (in this case, in the form of an adoption contract), and even "utility" (in the sense that one set of parents may provide a healthier upbringing, increasing the chances of the child becoming a productive member of society).

#### *B. Changing the Definitions of Birth and Viability*

Reconciling birth with viability will require changing the law to recognize post-viable fetuses as full persons, even while they are still in a natural or artificial womb.<sup>165</sup> This may impact a mother's medical options during late pregnancy, because the child will have the same rights and interests as the mother, whereas the present balance is between the mother's interests and the future infant, not the current fetus.<sup>166</sup> However, as many states already consider viable fetuses full persons for the purpose of civil and criminal liability, a change in the law regarding them is unlikely to effect significant change.<sup>167</sup> On the other hand, tying the legal definition

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<sup>162</sup> *Id.* But see *Johnson v. Calvert*, 851 P.2d 776 (Cal. 1993) (holding surrogacy contracts valid when the egg and sperm are donated by an individual other than the surrogate mother).

<sup>163</sup> *Baby M*, 537 A.2d at 1253.

<sup>164</sup> One additional question to consider is the idea of ectogenetic children whose adoptive parents are not parents at all but a state or corporate entity. By eliminating pregnancy and childbirth, ectogenesis renders the concept of parenthood much more arbitrary. If a surrogacy contract is valid between individuals, it stands to reason one would be equally valid between contracting genetic parents and a corporation. See, generally, Robert A. Heinlein, *FRIDAY* (Del Rey 1983) (hypothesizing a corporate-owned "artificial person" genetically engineered, ectogenetically grown, and raised by a company).

<sup>165</sup> Berg, *Elephants and Embryos*, *supra* note 16 at 401.

<sup>166</sup> *Id.*

<sup>167</sup> See Hodge, *supra* note 101. See also Berg, *Elephants and Embryos*, *supra* note 16, 399-400.

of birth into that of viability will require that the issue of viability be thoroughly settled.

Questions arise from each of the above definitions of viability, each of which must be addressed before determining what protections are available to an ectogenetic fetus before it attains that status. The most difficult problems arise under the textualist approach, wherein a fetus is considered viable, and hence protected from termination, once it is capable of life independent of the mother.<sup>168</sup> Because ectogenesis allows independence from the mother at any time during fetal development, including fertilization, the textualist approach forces all ectogenetic embryos and fetuses to be protected by state interests from termination.<sup>169</sup> This outcome would most likely please the “Right to Life” movement because it would eliminate the primary objection of the anti-abortion stance: the death of the fetus.<sup>170</sup> However, it would also have the most far-reaching ramifications on society and the law.<sup>171</sup> If an ectogenetic fetus is a person, the question arises why a fetus *in utero* is not one, as well.<sup>172</sup> A court could also find that ectogenetic fetuses are a protected class under the Equal Protection Clause.<sup>173</sup> A key element to determining if a group is a suspect class, entitled to protection from discrimination, is whether its status stems from circumstances beyond their control.<sup>174</sup> To a fetus, whose existence is dependent entirely on a mother or an artificial ectogenetic device, all circumstances would be beyond its control. A court could therefore decide that equal protection does apply to fetuses, and that ectogenetic and *in utero* fetuses must have the same set of protections applied. Therefore, all fetuses have a right to protection from termination.<sup>175</sup> Establishing fetal rights from fertilization would be a complete reversal of *Roe* by establishing fetuses as persons, and could go so far as to require women to accept ectogenetic gestation in lieu of an abortion.<sup>176</sup> Such a ruling would require the government to create, maintain, and regulate a system to maintain nearly

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<sup>168</sup> *Roe*, 410 U.S. at 163.

<sup>169</sup> *Son*, *supra* note 18, at 225-26.

<sup>170</sup> Leslie Cannold, *Women, Ectogenesis, and Ethical Theory*, in Gelfand & Shook, *ECTOGENESIS*, *supra* note 31, at 47,49.

<sup>171</sup> *Id.* Note that this is one of several different lines of reasoning throughout this Note that results in a severe curtailment or outright overturning of the abortion rights established in *Roe*. A determined Court, using ectogenetic technology as a vehicle, would have several different avenues for distinguishing *Roe* or rendering it obsolete. These methods include: a re-evaluation of the mother’s rights as an equal progenitor to the father; a re-interpretation of the State’s interest in developing life once it is possible to preserve it outside the womb; a re-examination of the mother’s right to privacy in her own body once the fetus is independent of her; and a textualist interpretation of “viability” that encompasses all fetuses that are, or could be, developing ectogenetically. *See, generally id*; *see also* *Son*, *supra* note 18.

<sup>172</sup> *Roe*, 410 U.S. at 162.

<sup>173</sup> U.S. CONST. amend. XIV, § 1.

<sup>174</sup> *Plyler v. Doe*, 457 U.S. 202, 216 n. 14 (1982)

<sup>175</sup> *Son*, *supra* note 18, at 231. *Son* offers a hypothetical embryonic extraction legislation to illustrate the necessity for advanced development as the necessary threshold for viability.

<sup>176</sup> *Id.* at 230.

a million unwanted fetuses per year, not to mention finding caretakers for those children once they reach birth maturity.<sup>177</sup>

The naturalist approach, in which a fetus is only viable once it reaches the point at which it can survive without ectogenetic technology, is too vague to be truly applicable.<sup>178</sup> This approach maintains the spirit of *Roe* by allowing a parent to terminate a fetus before it can survive unassisted.<sup>179</sup> However, both *Roe* and *Casey* account for the possibility that technology can push back the date of viability for a fetus.<sup>180</sup> Furthermore, as ectogenetic research is primarily a refinement of existing neonatal respiratory and incubation technology, attempting to distinguish between ectogenetic technology and assistance for premature infants would be difficult and futile.<sup>181</sup>

Finally, while the advanced development approach is the standard that best preserves the delicate balance established in *Roe*, establishing viability based on a specific point in fetal development is not without its problems. First, the moment during gestation at which a fetus is considered “advanced” is difficult to pinpoint, and will require significant amounts of input from the medical community.<sup>182</sup> Based

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<sup>177</sup> In 2003, the most recent year from which statistics are available, United States clinics reported 850,000 abortions. Strauss *et al.*, *Abortion Surveillance --- United States, 2003*, available at <http://www.cdc.gov/mmwr/preview/mmwrhtml/ss5511a1.htm> (last visited Dec. 8, 2008).

<sup>178</sup> Son, *supra* note 18 at 222.

Furthermore, the naturalist approach effectively erases viability’s functional use as demarcation for when the state’s interests overrides the mother’s. If fetal independence must occur without the aid of respiratory and incubation technology, then the naturalist approach effectively prohibits the state’s interest in protecting life. Rarely would a fetus be able to survive on its own until near completion of the nine-month gestational period.

*Id.* at 223. Under a strictly naturalist approach, even a premature baby delivered naturally could be considered non-viable, and not entitled to protection, if it is incapable of surviving without technological assistance. *Id.* at 222.

<sup>179</sup> *Id.*

<sup>180</sup> *Roe*, 410 U.S. at 161 (offering artificial womb technology as an argument against “conception” being the point at which life begins); *see also Casey*, 505 U.S. at 860; Tribe, *supra* note 116, at 220.

<sup>181</sup> Underwood, *supra* note 53.

<sup>182</sup> Berg, *Elephants and Embryos*, *supra* note 16. Berg offers several points at which a fetus is developed enough to be considered a person, including: sentience (conscious awareness) at twenty-two to twenty-four weeks, that being the point at which a fetus is capable of feeling pain, and therefore has an interest in avoiding it; complete development of all internal and external organs at thirty-two weeks, that being the point at which the fetus is biologically equivalent to an infant; and birth. *Id.* at 393-98. Berg recommends sentience as the point at which a fetus should be considered a person because it is the point at which a fetus legitimately has its own interests that may conflict with the mother’s and be protected by the state. *Id.* at 399-400.

on current medical knowledge, “advanced development” is likely to have occurred between twenty and twenty-eight weeks after fertilization.<sup>183</sup>

Second, and more importantly, the Supreme Court has already specifically overturned a specific point in development (the trimester system, established in *Roe*<sup>184</sup>) in favor of the broader “viability” test.<sup>185</sup> Returning to the rigid developmental timeline established in *Roe* could be considered an erosion of abortion rights, especially after the recent upholding of the Partial-Birth Abortion Ban, which outlawed certain pre-viability abortions.<sup>186</sup>

Even with the obstacles inherent in the advanced development interpretation of viability, it is the only one that allows for a reasonable compromise between state interests in ensuring that a developing fetus is born, and those of prospective parents who do not wish to become actual parents.<sup>187</sup> Despite almost-certain objections from both sides of the abortion debate to such a compromise solution (pro-abortion activists opposing the return to a “bright-line” standard as opposed to “viability,” and anti-abortion activists opposing the right to voluntarily terminate an ectogenetically developing fetus), it is still the best way to maintain the rights and protections established in *Roe* and *Casey*. This solution also recognizes and protects the negative reproductive rights espoused in *Davis* by preventing people from being forced into becoming unwilling genetic parents.<sup>188</sup>

### C. Equal Treatment for Equal Levels of Development

Once an ectogenetic fetus is determined to be viable, and thus constitutionally protected from termination, the law must still grapple with the inconsistencies between treatment of pre-viable ectogenetic fetuses and pre-viable fetuses *in utero*. The treatment of a pre-viable ectogenetic fetus as property, as described in the last section, must be reconciled with the legal limbo in which a pre-viable fetus *in utero* currently stands.<sup>189</sup> Specifically, courts will need to determine whether the property law which would apply to ectogenetic fetuses and require both parents’ consent before terminating the fetus, would apply to those growing *in utero* as well. If it does, then an *in utero* fetus would be considered as much the property of the father as of the mother, requiring his consent before termination. This would undercut the unilateral right of a mother to have an abortion established in *Roe*.<sup>190</sup>

Alternatively, a court could determine that the privacy and negative reproductive rights of a mother established in *Roe* for a fetus *in utero* apply to those growing ectogenetically. Because a mother acting unilaterally can terminate a fetus growing

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<sup>183</sup> Son, *supra* note 18, at 233. Additionally, this timeline “encapsulates an amount of time deemed sufficient for a woman to have made a thoughtful decision whether or not to abort.” *Id.*

<sup>184</sup> *Roe*, 410 U.S. at 163.

<sup>185</sup> *Casey*, 505 U.S. at 870.

<sup>186</sup> 18 U.S.C. § 1531 (2003) (upheld in *Carhart*, 550 U.S. at 124).

<sup>187</sup> *See* Son, *supra* note 18.

<sup>188</sup> *Id.*

<sup>189</sup> Berg, *Elephants and Embryos*, *supra* note 16 at fn 100.

<sup>190</sup> *Roe*, 410 U.S. at 165.

in her uterus, she should have that same right towards a fetus growing ectogenetically. The court would then have to examine the protection of the ectogenetic fetus compared to the rights of the mother under a very different balancing test than courts have used up until now to evaluate abortion rights. Previously, courts have weighed the State's interest in protecting nascent life against the mother's interest in the privacy of her own body.<sup>191</sup> In a debate over an ectogenetic fetus, the mother's right to terminate would have to stem not from her control over her body, but from her right against being an unwilling progenitor.<sup>192</sup>

This question strikes at one of the central issues of the abortion-rights debate, one which has been almost, but not entirely, purely academic until now: whether the right to an abortion comes from a woman's right not to be pregnant, or her right not to be a mother.<sup>193</sup> While no court has addressed this issue as it pertains to the abortion debate, the *Davis* holding supports a person's right not to be an unwilling genetic parent.<sup>194</sup> However, *Davis* only extends to embryos, over whose life no state has attempted to assert an interest in court.<sup>195</sup> In order to truly determine the value of the negative reproductive right, it must be weighed not against a co-parent's affirmative right, but against the state's interest in nascent life. If the negative reproductive right is recognized and found to outweigh the State's interests in protecting nascent health, then a mother's unilateral abortion rights expand to include an ectogenetic fetus.<sup>196</sup>

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<sup>191</sup> *Id.*

<sup>192</sup> Son, *supra* note 18.

<sup>193</sup> The Severance theory of abortion rights contends that abortion is moral because a woman's right to control over her own body overrides a fetus's right to life. The analogy is made to a concert violinist whose life support system is plugged into the woman.

I have argued that you are not morally required to spend nine months in bed, sustaining the life of the violinist; but to say this is by no means to say that if, when you unplug yourself, there is a miracle and he survives, you then have a right to turn around and slit his throat.

J. J. Thomson, *A Defence of Abortion* in APPLIED ETHICS 37 (Peter Singer ed., 1987). Under this theory, ectogenesis undermines a woman's right to an abortion by removing the conflict between the woman's control over her body and the fetus's right to life.

<sup>194</sup> *Davis*, 842 S.W. 2d at 604. This holding could be seen to extend a mother's right to an abortion over the father's objections into a parent's (of either gender) right not to reproduce over the other parent's objections. This conflicts squarely with the Severance theory of abortion (see Thomson, *supra* note 121). See also Misner, *supra* note 89.

<sup>195</sup> *Roe* acknowledges a legitimate state interest in "the potentiality of life" before viability. 410 U.S. at 162. The implication is that this interest grows alongside the fetus, and no state has attempted in court to assert this interest at the embryonic stage. However, Louisiana has done so by statute, which has not yet been contested. See LA. REV. STAT. ANN. §9:121-133.

<sup>196</sup> Son, *supra* note 18. This would create a bizarre result in which, in order to maintain equality with a fetus *in utero*, the mother of an ectogenetic fetus has the sole right to terminate it. For an ectogenetic fetus, the mother's contribution of an egg is not significantly greater than the father's contribution of sperm, giving rise to a legitimate question as to why a mother not carrying the fetus should have any greater control over its fate than the father. See Bard, *supra* note 155.

However, if the court decides that the State's interests in protecting prenatal life outweigh the negative parental right, it would necessitate that an ectogenetic fetus could not be terminated. This creates another situation in which a system would have to be established for caring for unwanted ectogenetic fetuses, requiring the State to either force the parents to maintain them and see to the eventual infant's care, or to take responsibility for the fetuses itself. Alternatively, the State could create criteria under which an ectogenetic fetus is subject to termination, such as the onset of visible defects during development.<sup>197</sup> If such a requirement were to be instituted, it would raise the legitimate question of why ectogenetic fetuses need a reason for termination, thus entitling them to heightened protection, while fetuses *in utero* are not. Unless a reason for such protection could be found, this would once again create a scenario in which *Roe* is fully overturned in favor of the State's interest in protecting prenatal life.

## VII. CONCLUSION

There are no easy answers to the questions that will be raised by the advent of ectogenesis, but that does not mean they should not be asked before technology makes it necessary to answer them. Advancements in neonatal technology are occurring at an alarming rate, and it is only a matter of years before Huxley's vision of people without pregnancy becomes a real possibility.<sup>198</sup> If we wait until ectogenetic technology is upon us before delving into its legal ramifications, we run the risk of a court or legislature making a snap decision that affects the reproductive rights of millions.

The first necessary step is to establish a firm legal categorization of embryos and fetuses, based on their stage of development.<sup>199</sup> Embryos and pre-viable fetuses must be acknowledged as property, even if some protections not normally granted to property are extended to them.<sup>200</sup> Fetuses that have reached viability must be recognized as full persons and citizens, protected by the state.<sup>201</sup> Eliminating this ambiguity will maintain a level of equality between fetuses developing ectogenetically and those *in utero*, without providing special treatment for one group or the other.

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<sup>197</sup> The question then arises as to what standards are to be used to determine whether an ectogenetic fetus should be subject to termination, and who chooses.

[O]ne view of the right to abortion is that it is legally and ethically permissible not to bring a severely handicapped infant into the world. The "rights" of women to make the decision to abort a handicapped baby are rolled into her general right to have an abortion for any reason. But what if the infant was not in her body . . . Could the state be allowed to make decisions on what lives are worth living? Could an individual doctor . . . Where would the selection stop? At Down's syndrome, at deafness, at shortness? And what if the parents disagreed with [a] committee's decision?

Bard, *supra* note 155, at 154.

<sup>198</sup> Underwood, *supra* note 53.

<sup>199</sup> Son, *supra* note 18.

<sup>200</sup> Berg, *Owning Persons*, *supra* note 27.

<sup>201</sup> Berg, *Elephants and Embryos*, *supra* note 16.

This categorization will solidify the rights of parents regarding a pre-viable ectogenetic fetus. Recognizing such a fetus as property enables parents to share and maintain control equally over the ectogenetic fetus for the purposes of termination, transferability, and disposition.<sup>202</sup> While this recognition establishes significant differences between each parent's rights when dealing with an ectogenetic fetus as opposed to one *in utero*, these differences can be justified by the unique relationship between a pregnant mother and the fetus growing inside of her. This relationship substantiates the pregnant mother's sole right of termination found in *Roe* and *Casey*, while denying such unilateral authority in the case of an ectogenetic fetus, where her rights as a progenitor are on the same footing as those of the father.<sup>203</sup>

The next necessary step is to remove the legal distinctions between viability and birth by recognizing any post-viable fetus as a person and having been born for legal purposes. This will eliminate the gray area currently occupied by a viable unborn fetus, in which the government has a recognized interest in protecting it but it is not yet recognized as a person. Acknowledging viable fetuses, regardless of their medium, as being people will keep the law consistent without causing any major changes in its application.<sup>204</sup>

In order to recognize viable fetuses, however, it is necessary to clarify what it means to be ectogenetically viable.<sup>205</sup> At least three possible interpretations of viability could be established, each with its own advantages and drawbacks. A "textualist" interpretation adheres most closely to the definition set forth in *Roe*, under which a fetus is viable when it is capable of independence from its mother, regardless of its stage of development.<sup>206</sup> Ectogenesis creates significant problems with this interpretation because it would render the fetus viable throughout its entire developmental cycle, making it a person from the moment of fertilization and unlawful to terminate at any stage. A "naturalist" interpretation would recognize a fetus as viable once it is capable of life independent of both its mother and ectogenetic assistance.<sup>207</sup> However, the vague nature of "ectogenetic assistance" as different from modern neonatal care is a largely semantic distinction, and would be difficult to clarify.<sup>208</sup> Finally, an "advanced development" interpretation of viability recognizes a fetus as being viable once it has reached an advanced stage of growth, regardless of the environment in which it is growing.<sup>209</sup> While several different points of growth could be recognized as "advanced," the most reasonable benchmark to use would be sentience, at approximately twenty-two weeks of gestation.<sup>210</sup> Sentience would be the earliest point at which a fetus could feel pain or discomfort,

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<sup>202</sup> Berg, *Owning Persons*, *supra* note 27.

<sup>203</sup> See Davis, 842 S.W. 2d 588 at 604.

<sup>204</sup> Berg, *Elephants and Embryos*, *supra* note 16.

<sup>205</sup> Son, *supra* note 18, at 231.

<sup>206</sup> Roe, 410 U.S. at 163.

<sup>207</sup> Son, *supra* note 18, at 222.

<sup>208</sup> *Id.* at 223.

<sup>209</sup> *Id.* at 225.

<sup>210</sup> Berg, *Elephants and Embryos*, *supra* note 16, at 393.

and thus have a legitimate interest in avoiding them.<sup>211</sup> Recognizing advanced development and viability at sentience preserves the right to terminate established in *Roe*, and extends that right to the parents of an ectogenetic fetus.

None of these suggested changes to the law should be undertaken lightly, as each carries foreseeable problems. Careless understanding of the differences between ectogenetic fetuses and those *in utero*, or an overly broad definition of viability, could be used as justification for completely overturning the balance of rights between parent and fetus established in *Roe*.<sup>212</sup> However, change to the way we make babies as a result of scientific breakthrough is inevitable, and the law must adapt to it.

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<sup>211</sup> *Id.* at 399.

<sup>212</sup> Cannold, *supra* note 170.