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Biotechnology at the Margins of Personhood:

An Evolving Legal Paradigm

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Abstract for Thesis (in English)

The last few years have seen scientific advancements that were thought to be possible only in the realm of science fiction. From nuclear transfer to exogenous pregnancies, implantable brain chips to transgenic engineering, cyborg to chimera, we may be taking the next step in our own evolution. As barriers between the species begin to blur and blend, should humans retain special elevated status? How will these affect notions of "personhood"? Possible implications range from affecting the abortion debate, to end−of−life decision making, to animal rights. If traditional notions of personhood prevail, are we running the risk of denying essential basic liberties to sentient beings? If modern expanded notions of personhood prevail, do we run the risk of somehow being "degraded" and losing our "human dignity"? Legal notions of personhood have lagged far behind the philosophical and ethical discourse, yet some courts and legislatures have seen fit to extend the definition by creating legal fictions to recognize such entities as corporations and ships as "persons." The law has been notoriously slow in keeping up with ethical issues and technological advances; legislatures are loath to deal with controversy and courts must often wait until litigation arises out of a crisis. The next several decades will test the flexibility of the law in response to evolving advancements.

In this thesis, I analyze and review the literature of classical ethical, religious and legal definitions of personhood. I explore which significant developments in biotechnology may affect evolving legal and ethical notions of personhood; I also outline a rubric for considering the definition and scope of the human identity as "person" from different research perspectives, including legal, philosophical, ethical and technological. Finally, I examine whether or not there is a recurrent theme, a common thread, commensurability, some unifying underlying principle, in philosophical and theological perspectives and in the decisions made by courts, legislatures, and governmental agencies. In my quest for commensurability, I argue that a balancing approach is warranted, resulting in an expanded, evolving notion of personhood.

Sommaire Pour la Thèse (en Français)

Les toutes dernières années ont été le témoin de progrès scientifiques qui jusqu'alorsrelevaient du domaine de la science fiction . Du transfert nucléaire aux grossesses exogènes, des puces implantées dans le cerveau à l'ingénierie transgénique, du cyborg à la chimère, nous sommes peut−être au seuil de la prochaine étape dans notre propre évolution. Alors que les frontières entre les espèces commencent à se confondre, l'être humain devrait−il retenir son statut spécial au sommet de la pyramide ?Comment ces changements affecteront−ils la notion de « personne » ? Les implications possibles s'étendent du débat sur l'avortement à la décision de mettre fin à la vie, aux droits des animaux. Si les notions traditionnelles de personne prévalent, est−ce que nous courons le risque de nier les libertés essentielles fondamentales aux êtres sensibles? Si les nouvelles notions élargies de personne prévalent, courons−nous le risque de nous dégrader d'une manière ou d'une autre et de perdre notre dignité humaine ? Les définitions juridiques de personnalité traînent loin en arrière du discours philosophique et éthique, pourtant certains tribunaux ont jugé valable d'étendre cette définition en créant des entités juridiques fictives pour assimiler juridiquement des sociétés commerciales et bateaux à des "personnes". La loi est sérieusement en retard par rapport aux questions d'éthique et au progrès technologique; les corps législatifs sont réticents à aborder les sujets controversés et les tribunaux dovent attendre jusqu'à ce qu'un litige naisse d'une crise. Les prochaines décennies constitueront un test de la flexibilité de la loi pour répondre au progrès scientifique.

J'analyse et passe en revue la littérature qui traite des définitions classiques de la personne éthique, religieuse et juridique. J'explore les développements significatifs de la biotechnologie susceptibles d' affecter une notions de personne éthique et juridique en constante évolution; j' esquisse également un cadre pour considérer la définition et l'étendue de l'identité humaine comme "personne" , à partir de diverses perspectives de recherche , y compris sur le plan juridique, philosophique, éthique et technologique. Finalement, j'examine s'il existe un thème commun et récurrent, un fil conducteur, un principe d'unification fondamental dans les perspectives philosophique et théologique et dans les décisions prises par les tribunaux, les corps législatifs, et les agences gouvernementales. Dans ma quête d'éléments communs, j'argumente qu'une approche équilibrée est justifiée, et qu'elle résulte en une notion élargie et évolutive de la personne.

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Introduction:

Advances in biotechnology, specifically, transgenics and artificial intelligence, have led us to a place where no one has gone before: Chimeras[2], cyborgs, artificial life forms, new species, and variations or combinations of all of the above. As barriers between the species begin to blur and blend, should *Homo sapiens* retain special elevated status? Currently, human beings cannot be patented, but the definition "human being" has yet to be defined by the courts or the legislature. Arguments as to what constitutes "personhood" [3] are being closely scrutinized and debated in the fields of religion, ethics, psychology, and law. If traditional notions of personhood prevail, are we running the risk of denying essential basic liberties to sentient beings? If modern expanded notions of personhood prevail, do we run the risk of somehow being "degraded" and losing our "human dignity?" Is there a recurrent theme, a common thread, commensurability, some unifying underlying principle, in the decisions made by courts, legislatures, and governmental agencies? In this paper, I explore traditional and modern notions of personhood, and in my quest for commensurability, I argue that an expanded legal notion of personhood will be warranted for certain new life forms, both transgenic and artificial intelligence.

Part I – A Brief Description of the Biotechnology at Issue

A. Genetic Engineering, Transgenics and the Creation of New Life Forms

1. Genetic Engineering and Transgenics

In Greek mythology, the chimera was part lion, part goat, part dragon, which was slain by the hero Bellerephon. In modern day biology, a chimera is a genetically engineered creature created from the DNA of different species. What once was fiction has now become fact; through the process known as DNA recombinant research, scientists are able to splice genes together from different species that would never be able to mate under normal, non−laboratory circumstances. A review of some of the last few years announcements illustrate the amplitude of the advances:

November 6, 1997 – Boston, Massachusetts − Genzyme Transgenics announces that it has created transgenic mice that can produce human prolactin, a protein which may enhance the body's immune defenses against disease, in their milk. Other therapeutic proteins in the milk of transgenic mice, rabbits, goats and cows, focus on treating autoimmune disorders, such rheumatoid arthritis and lupus, and cancer. [4]

July 22, 1999 – London, England – A British biopharmaceutical company announces that for the first time they have successfully inserted human genes into a pair of lambs, Cupid and Diana, who entered the world implanted with a human gene that gives them the ability to produce human serum albumin, a protein that is essential to the treatment of burn victims and is often used in surgeries. [5]

August 16, 2000 – Blacksburg, Virginia – William Drohan, senior director of plasma development at the American Red Cross, announces that the work of Virginia Tech dairy scientist R. Michael Akers "holds tremendous promise for the large−scale production of life−saving human therapeutic drugs in quantities far greater than could ever be produced through fractionation of human blood."[6]

January 4, 2002 – undisclosed location in Missouri − Scientists at the University of Missouri announce a possible breakthrough in xenotransplantation; they have created genetically engineered pigs whose organs lack a gene that triggers rejection by the human immune system.[7]

For all the hype about potential benefits, the potential abuses are equally frightening. The International Olympic Committee has concerns that athletes will soon employ genetic engineering to run faster, jump higher, and throw further.[8] Lawyer George Annas suggests that we need to set up an international criminal tribunal that will ban genetic engineering and xenotransplantation, as well as other forms of possible alterations of humans for fear of endangering the species or creation of a slave race.[9] The headlines and fears of potential abuses raise the question of just how many genes does one need to be considered "human," a question that is discussed in a later section of this paper.

In April 1998, biologist Stuart Newman and biotech critic Jeremy Rifkin applied for a patent for a "humanzee," part human and part chimpanzee, in a calculated move designed to re−ignite debate about the morality of patenting life forms and engineering human beings.[10] The U.S. Patent and Trademark Office (hereinafter, PTO) denied the patent, acknowledging that, although it has permitted the extensive patenting of biotech−engineered life forms and human DNA, 13th Amendment of the U.S. Constitution forbids the ownership of humans, and they considered this application to be too close to the patenting of human beings.[11] Since the United States Supreme Court, Congress or Patent Office have never defined what a human being is, the debate still continues about whether or not the PTO as an executive arm of the United

States government has the power to define “human being.”

2. Other Biotech Advances

Transgenics and genetic engineering are not the only ways that humans have started to re−create or redefine themselves; the Bush administration’s limitations on use of federal funding for new embryonic stem cell line research has re−ignited the debate about whether or not an undifferentiated embryo is a “person.” [12] Other efforts to change the boundaries include a White House proposal to provide Medicaid health coverage for fetuses and the Unborn Victims of Violence Act, a bill making it a federal crime to harm a fetus during an attack on a woman (terming a fetus a “person” from the moment of conception, skipping right over the embryo stage).[13] While this is a debate that is not going to be resolved directly, there are technological developments that will likely change the focus of the debate. These developments include 1) advancing techniques of the neo−natal intensive care unit, where the threshold of extra−uterine viability has been possibly pushed back to 20 weeks (or five months) gestation[14], 2) the theoretical possibility of male pregnancy[15], and perhaps most importantly, 3) the artificial womb.[16] While these developments may not directly answer the debate of the moral status of the fetus or embryo, they will remove the maternal−fetal conflict inherent in the present discussions and disentangle the issue from the rights of a woman over her own body.[17]

In an effort to bypass the moral dilemma presented by the use of human embryos, scientists have sought alternate ways to rebuild the body. As of this time, there appears to be only two ways to replace injured or diseased body parts: either “re−growing” them (as with stem cells); or mechanically (as in extensions or prosthetics). Some possible alternatives to the controversial embryonic stem cells include:

· Adult stems cells –Rare, hard to isolate and purify, hard to grow in culture, these may not exist for all tissues. Additionally, they are *multipotent* as opposed to *pluripotent*, which means that they can form only a limited number of tissues; pluripotent cells can form an unlimited number of tissues.[18]

· Umbilical cord blood and placentas are rich in multipotent and some pluripotent stem cells, but as of this time, there is no centralized mechanism for harvesting these.[19]

· Skin and scalp cells may be rich in multipotent stem cells[20]

· Development of drugs that activate the body's stem cells to let the body repair itself.[21]

· Parthenogenesis − from the Greek word for "virgin birth." Eggs that can be turned into embryos without being fertilized by sperm, from which stem cells can be extracted. Such embryos ("parthenotes") could never mature, so destruction of them to make stem cells may not raise the same moral issues as destruction of embryos.[22]

· Cellular reprogramming, also called *de−differentiation* aims at getting specialized body cells to revert to a primordial state, like stem cells, so they can be turned into various types of tissues.[23]

· Transdifferentiation aims to turn a cell back to its primordial state in order to turn that primordial cell into another type of cell.[24]

What is the significance of embryonic stem cell research and its alternatives with regard to evolving notions of personhood? Aside from the issue of whether or not the embryo is a person, the moral peril is **not** in the replacement or transplantation of injured or disease body parts, but in the use of this technology for enhancement, patentably, commercial profit and the creation of a market for body parts.[25] In 1984, a leukemia patient, John Moore, had his spleen removed in the course of treatment; unbeknownst to him, his spleen cells had a unique quality.[26] When his physicians realized this, they used his cells to develop a commercially valuable cell line, without Moore’s knowledge or consent. Moore filed suit on the grounds of lack of informed consent and on a claim of conversion; the California Supreme Court held that Moore did not

retain any property or ownership interest in cells after they left his body.[27] Taking this ruling to its extreme, what if instead of Moore's spleen cells, it had been his brain cells? Or a large portion of his organs? Or an entire body transplant?[28]

The notion of property rights in application to one's body presents some remarkable paradoxes.[29] In the dualistic metaphysic approach, duality of mind and body, the body is treated simply as a material object,[30] and the real "self" or person lies in the abstract or in the continuity of self−consciousness or personal identity.[31] Lori Andrews subscribes to this approach arguing that definitions of personhood rarely focus on the possession of body parts, but rather on sentience or cognitive traits.[32] If persons are purely abstract rational agents, there is no necessary connection between persons and property.[33] Under this approach, theoretically, a cell line derived from Einstein's brain cells[34] or cell lines from the cloned embryos other celebrities, could be patented cloned and sold, without the donor having a property interest or cause of action for theft of one's identity, genetic, personal, or otherwise.[35] The Canadian Biotechnology Advisory Committee (CBAC), in its interim report to the Government of Canada[36] recognizes that there is danger of "commodification of life" in allowing patenting of higher life forms.[37]

On the other hand, a popular Western point of view is that our personhood is tied to our physical bodies;[38] the "embodiment" approach treats the person as a unique individual who is inseparably unified in mind, body, and spirit.[39] Margaret Jane Radin points out, "Objects are closely bound up with personhood because they are part of the way we constitute ourselves as continuing personal entities in the world." [40] Radin proposes a continuum approach for dealing with the property in relation to personhood, proposing that the more "fungible" an item, the less tied to personhood, and the more "personal" an item is, the more it is tied to personhood.[41] Under this approach, arguably, items such as Einstein's brain cells or cell lines from celebrities would be inseparable from the persons and subject to more protection under the law.

My own experience with individuals facing end−of−life decision−making suggests that they feel once their mind (i.e. their consciousness) is gone, so in essence is their "self." I have had friends, family, and other loved ones explain, "If my mind is gone, let my body and spirit go." Is the brain a nexus of the mind, or perhaps, an expressive conduit? What will happen when we can keep the mind (and brain) going through regeneration or other methods, such as the whole body transplant?[42] Emerging "neuro−remediation" techniques may soon lead to psychological continuity and change the very definition of death.[43] In November of 2001, researchers reported reliable ways to coax human embryonic stem cells into becoming brain cells. Reported in the *Journal of Nature Biotechnology*, the researchers said they coaxed the stem cells into becoming the three types of brain cells – astrocytes, oligodendrocytes and mature neurons.[44] In one experiment the researchers transplanted about half a million cells into the brains of newborn mice and saw them integrating throughout the brain and propagating. The results show promise for future development of repairs to brain and nerve injuries, even for those who may have been considered "permanently unconscious." [45] Certainly, for individuals like Jeffrey Galli, a young man with a severe spinal cord injury, who describes himself as a "brain on a stick"[46], this research represents an important step towards reconnecting with an important part of his "self," his body.

Regardless of whether one takes the dualistic metaphysic view or embodiment view of personhood, the advancing technology will change the nature of the debate. The impact of stem cell research, by holding out promise for repair of injured brain and nerve cells, as well as other body parts, is forcing us to re−examine and re−evaluate who and what we are; so do the advances in the integration of man and computer. Artificial limbs, retinas, cochlear implants, and other prostheses are redefining who and what we are.

B. Cyborgs, Artificial Intelligence and Transhumanism

1. Cyborgs − The Merger Of Biological And Nonbiological Systems

The notion of cyborgs is no longer science fiction; the latest developments in cybernetics, the integration of living tissue and technology, the melding of man and machine is now taking place, as chronicled below with an overview of the latest developments in this field. The distinction between “alive” vs. “not alive” or “animate” vs. “inanimate” is one that is becoming increasingly difficult to determine. Does something have to be conscious to be alive? And what is consciousness?

January−February 1999 −− Ellen M. McGee and Gerald Q. Maguire present one of the first ethical analyses of implantable brain chips[47] and cyborgs. As intelligence or sensory "amplifiers," the implantable chips will generate at least four benefits: l) increasing the range of senses, enabling, for example, seeing infrared light, ultraviolet light and chemical spectra; 2) enhancing memory; 3) enabling "cyberthink" — invisible communication with others when making decisions; and 4) facilitating access to information where and when it is needed.[48] They predict that these enhancements will produce major improvements in quality of life or in job performance.[49] They also predict these devices will be in regular use by the military within 10 years, and adopted by information workers within 15 years, and available for general use in 20 to 30 years.[50]

April 17, 2001 – Chicago, Illinois − Physiologist Sandro Mussa−Ivaldi of Northwestern University's Rehabilitation Institute of Chicago announces that they have combined a mechanical device with living tissue, developing a robot that is controlled by an immature lamprey eel brain.[51],[52]. Instead of attempting to emulate a biological nervous system, the technology goes one step beyond, tapping into the nervous system of a live creature.[53] This new work opens up the long−term possibilities of learning more about how brains work so electronic microprocessors can be developed to help human patients compensate for damage from strokes and other types of nerve trauma.

Kevin Warwick, a cyberneticist at Reading University, believes that it may even one day be possible to have your brain transferred to a robot when your body dies. It would be extremely difficult, "but mapping the entire brain to a robot can't be ruled out,” he says.[54] More realistic, he says, is connecting electronic devices such as mobile phones directly into our brains. The concept of “mind−uploading” is one that was proposed in 1988[55] and continues in a variety of venues[56].

Summer, 2001 − Linda Griffith, associate professor of bioengineering and chemical engineering at the Massachusetts Institute of Technology of Chips, announces the merger of human cells and silicon in a “liver chip,”[57] in the hopes of alleviating the suffering that is caused by lab animals and humans in Phase I clinical trials. The Boston Globe quoted Griffith as saying “We hope to someday build the human body on a chip.” [58] and took note that in laboratories across the country, the lines between what is alive and what is a machine are being blurred by innovations such as toxin−tracking bacteria mounted on chips and a robotic arm directed by monkey brain waves.[59]

A few months later, scientists at the Max Planck Institute for Biochemistry announce that they have linked brain cells and silicon chips electronically creating a part−mechanical, part−living electronic circuit.[60] The hope is to develop artificial retinas or prosthetic limbs that are extensions of the human nervous system; to combine the mechanical abilities of electronic circuits with the extraordinary complexity and intelligence of the human brain.[61]

November 2001 – Austin, Texas − Researchers are developing nanocrystals, or quantum dots, that can connect with individual neurons. This will allow for new bioelectronic devices, from brain implants, therapies and prosthetics to neural computers.[62] Technology at the nanoscale (i.e. at or around a billionth of a meter − about 1/80,000 of the diameter of a human hair, or 10 times the diameter of a hydrogen atom) is providing the keys to biological questions, such as the functioning of the immune system, and is leading to the developments of infinitely modifiable connectivity. [63] This technology is paving the way to the brain−machine interface.

MIT’s Technology Review named the brain−machine interface as one of the technologies that will change the world.[64] In a series of animal and human experiments dating back to 1990, neuroscientists and a team of researchers affiliated with Emory University in Atlanta created a basic but completely functional alternative

interface using electrodes surgically implanted in the brain. In 1996, they convinced the FDA to allow two human tests. Author John Hockenberry, a paraplegic himself in search of alternative remedy to his situation, tells the story of Johnny Ray, a 63−year−old from Carrollton, Georgia, who suffered a brain−stem stroke in 1997, resulting in what is called "locked−in syndrome," characterized by complete paralysis of voluntary muscles in all parts of the body (except for those that control eye movement.)[65] Individuals with locked−in syndrome are conscious and have cognitive function, but are unable to speak or move. The disorder leaves the patient completely mute and paralyzed. Communication may be possible with blinking eye movements. The team implanted a subcranial cortical implant, physically melded with brain tissue. Within the next year, Ray was able to control a computer cursor with his thoughts, and also actually started to regain facial movements and expressions.[66] The implant triggered the motor neurons of his brain to activate and to create new neural pathways to parts of the brain that were, prior to the stroke, underutilized or unused.[67] Similar results have been achieved in more than one study.[68]

And so the question arises again: How much living tissue is needed to make such a cyborg "alive" or "conscious?" And does it make a difference if animal tissue or human tissue is used? And if you modify, alter or enhance the brain, when does it become a different entity? If animal tissue is used, it could conceivably lead to cybernetic organism that may be equally intelligent to, or even possess superior intelligence than the average human. Such a creation might be incredibly rational and even articulate, but without emotion. Is the ability to feel pain and pleasure an essential part of being alive and a "person?" Would an intelligent, sentient creation be property or a person? Could he/she/it be patented? Patents on animal and other life forms are allowed in the United States[69] and likely soon in Canada.[70] European and Asian patent legislation includes prohibitions on inventions whose commercialization would "offend society's fundamental and shared moral standards,"[71] and could arguably exclude certain higher life forms.

The next challenge of defining personhood will be exploring notions of "cyberhood"[72] or alternatively, "cyborghood." If the *Moore* case, cited *supra*, is taken to its furthest reach, the current judicial approach suggests that it would make no difference if animal or human tissue is used. The *Moore* ruling ushers in other problematic questions: Does it matter how much tissue is used? Could a portion of an individual's brain be used to create an intelligent part−live, part−machine cyborg and that individual or his estate be left with no property interest or claim in the matter?[73]

2. Artificial Intelligence and Transhumanism

What is Artificial Intelligence? Before defining *artificial* intelligence, it might be prudent to first define what is meant by *intelligence*. Stan Franklin, the author of *Artificial Minds*, admitted that he and a group of colleagues attempted to tackle the definition of intelligence, and after two years of wrangling, gave up.[74] Webster's Dictionary defines it as "*1 a* (1) **:** the ability to learn or understand or to deal with new or trying situations: reason ; *also* **:** the skilled use of reason (2) **:** the ability to apply knowledge to manipulate one's environment or to think abstractly as measured by objective criteria (as tests)."[75] Webster's also defines artificial intelligence as "the capability of a machine to imitate intelligent human behavior."[76] The American Association of Artificial Intelligence (hereinafter AAAI) defines it as the simulation of human intelligence processes by machines, especially computer systems. These processes include learning (the acquisition of information and rules for using the information), reasoning (using the rules to reach approximate or definite conclusions), and self−correction.[77]

Stan Franklin defines artificial life "as the study of man−made systems that behave in ways characteristic of natural living systems."[78]

But can it be argued that artificial intelligence can be self−aware and, therefore, have rights? Ray Kurzweil, author of *The Age of Spiritual Machines* (1999), argues there is no sharp distinction between human and machine intelligence; that by becoming increasingly "cyborgized" by the use of permanent and removable implants that we are swiftly removing any meaningful difference between man and machine.[79] He

speculates that eventually we will be able to achieve immortality by "downloading" our minds into secure spiritual machines.[80] Kurzweil refers often to "The Singularity," a phrase borrowed from the astrophysics of black holes. As used by Kurzweil, it refers to the idea that accelerating technology will lead to superhuman machine intelligence that will soon exceed human intelligence, probably by the year 2030. The foundation of this idea grew from what is now known as "Moore's law." In 1965 Gordon Moore, co−founder of Intel, half jokingly predicted that computer processing power would double every 18 months. This prediction has turned out to be an underestimate. Roboticist Dr. Hans Moravec, author of *Robot: Mere Machine to Transcendent Mind* (1998), estimates that the computing power of the human brain is about 10^{14} operations per second, and its storage capacity about 10^{14} bytes.[81] At the present rate of exponential growth, Kurzweil, Moravec, and others are predicting that the machines will exceed these numbers by 2030 and, at that time, these machines will exceed human intelligence.[82] Kurzweil has also estimated that by 2030 a $1,000 PC will equal one human mind, and by 2060 it will equal the mental capacity of all humans. By 2099, assuming our population is 10 billion, one penny will buy computing power with one billion times the mental capacity of all humans, making it accessible to every man, woman, child, and any other life form that might want it. [83]

But does computing power equal intelligence? What yardstick does one use to measure intelligence? One standard that has been widely used is called the "Turing Test," an adaptation of an "imitation game" suggested in 1950 by mathematician Alan Turing. In the original version of the imitation game, an interviewer talks to a man and woman through a teletype and has to decide which is which. Turing suggested that a machine take the place of the man or woman and it would be up to the interviewer to decide if he or she were communicating with man or machine. Any machine that could successfully deceive the interviewer into thinking he/she was talking to another human is deemed to be intelligent. But the drawbacks of such a test are numerous. First, such a test could conceivably reflect the programmer's skills, rather than the computer's. Secondly, such a test is inherently anthropocentric; there are conceivably measures of intelligence that are not measured in humans, such as telepathic ability. Additionally, aside from math and language skills, some argue that there are different types of intelligence such as emotional intelligence, musical intelligence, and spatial intelligence.[84] Despite creators of college entrance exams proclaiming otherwise, intelligence is multifaceted. Author and futurist, Jerome C. Glenn, proposes a "spherical approach" to intelligence, education, and other values and virtues, which may be a more useful way of approaching measures of learning.[85]

Thomas M. Georges, author of *Smarter Than Us?: Intelligent Machines and Human Values* (2001), proposes that instead of rigorously defining intelligence, that it should be treated as a compilation of characteristics that is best measured by degree. Those characteristics include:

1) The ability to store and retrieve knowledge;

2) Learning from experience and adapting to novel situations;

3) Discriminating between what is important and what is irrelevant to the situation at hand;

4) Recognizing patterns, similarities, and differences in complex environments;

5) Creating new ideas by combining old ideas in new ways;

6) Planning and managing strategies for solving complex problems;

7) Setting and pursuing goals;

8) Recognizing one's own intelligence and place in the world.[86]

Although Georges' acknowledges that this compilation is limited because it is anthropocentric, by recognizing that intelligence is a matter of degree, he moves away from the black−and−white or "either−or" thinking of a being as either intelligent or not. Georges leaves the door open for the possibility that the list will be open−ended, but his last characteristic of "recognizing its own intelligence and its place in the world"[87] highlights the limitations of a hierarchical worldview, as opposed to a wholistic or interdependent worldview, discussed *infra*, later.

From intelligence, artificial or not, Moravec sees the next step of human "techno−evolution" as opening up the possibility of liberating mere humans from the crippling limitations of their biology. He sees these super AI machines as our progeny, "mind children" built in our image and likeness; ourselves in a more dynamic, almost invincible, form. He argues that like biological children of previous generations, they will embody humanity's best hope for a long−term future; and that behooves us to give them every advantage.[88] He envisions a sort of *Robo sapiens*, a new, post−biological, transhumanist species that will spread across the stars and galaxies, creating a vast interstellar culture.[89]

The Declaration of the World Transhumanism Association, a pro−technology group, outlines a philosophy of balanced deliberation: that the benefits of advancing technologies must be weighed against the potential harm such technologies could inflict on all living beings on this Earth; that short−term gains need to be considered against long−term consequences; that open forums and debate are the best way to implement rational decisions; and that, the well−being of sentient creatures (whether in artificial intellects, humans, non−human animals, possible extraterrestrial species, or some combination thereof) comes first.[90] Although this declaration does not make any reference to religious or spiritual beliefs, its overall philosophy encompasses many principles of modern secular humanism, and also some of the classic principles of moral philosophy.[91]

Part II. Theological Perspectives of personhood

A. The Judeo−Christian View

Genesis 1:26−31:

26 Then God said, "Let Us make man in Our image, according to Our likeness; let them have dominion over the fish of the sea, over the birds of the air, and over the cattle, over all the earth and over every creeping thing that creeps on the earth."

The above biblical quotation has been widely used to justify humanity's dominance over the other species on this planet; because we (humans) are created in God's own image,[92] we are deemed to be superior and unique. Because we were given dominion over "…every living thing," this has been interpreted to mean that man is supreme on this earth and should subdue the other creatures.[93] This metaphor for a divinely inspired universal hierarchy ranking all forms of higher and lower life has been referred to as the Great Chain of Being.[94] This idea, originally introduced by Aristotle,[95] is a fusion of Greek philosophy and Christian theology, with "man" occupying a unique slot in this chain, and having dominion over lower life forms. This Great Chain of Being has been depicted with God at the very top of the Chain; Angels, a level below; Man at the center level below Angels; Animals, a level below Man; and Plants at the very bottom.[96] I use the term "man" instead of "human" because neither Aristotle nor the Catholic Church (hereinafter "the Church") recognized the equivalent moral status of humans; Aristotle believed that women, children and slaves were inferior, and that they lacked immortal souls[97]; and the Church's treatment of women[98] and lower life forms[99] was less than compassionate. McGill scholar Edward Keyserlingk explains that there is general agreement between the Protestant and Catholic analyses of the sanctity of life principle, which are both rooted in the same Judeo−Christian traditions.[100] A basic tenet of the Judeo−Christian belief system is that Man is special because he alone is made in the image of God,[101] and "above all creatures, he is the object of God's love and attention; the other creatures…were given for man's use."[102] It is from this view that only human life is held sacred, that the focus of Judeo−Christian morality is the protection and care of human beings, and that other creatures may be used to suit humanity's purposes;[103] and the foundation for the "sanctity of life" doctrine.[104]

This hierarchical view is sympathetic with the prevailing view during the Middle Ages that the Earth was the center of God's Universe and everything revolved around it and mankind.[105] The Church was so protective of this belief, when Galileo attempted to promote Copernicus' observation about the Earth revolving around the Sun and not being the center of God's Universe, the Church subjected him to the Inquisition, forced him to recant, and imprisoned him for nine years.[106] Only recently, in 1992, did the Vatican admit its error, found Galileo "not guilty" of heresy,[107] though being very careful not to acknowledge that this may change humankind's status in God's hierarchy.

How is this notion of humans holding a uniquely God−given place in the hierarchy reconciled with the scientific evidence of evolution of the species? In 1950, Pope Pius XII declared that evolution and the Catholic faith do not conflict with one another, provided that one believes in "ensoulment," the idea that God inserted a soul into human beings at some point during evolution.[108] According to the church, although it may be difficult to ascertain some precise historical dividing line in the history of evolutionary development, humans are not just more complex forms of animals; it is humans who uniquely hold the capacity for

immortal souls and transcendence, and therefore, entitled to be treated with dignity and sanctity.[109]

However, Keyserlingk cited *supra*, note 100, questions whether or not the “sanctity of life” doctrine, is a useful concept in determining personhood especially since he quotes theologian/philosopher Daniel Callahan as admitting “the principle is vague in its wording, erratically affirmed in practice, and open to innumerable differences in interpretation.”[110] Keyserlingk also clarifies that this idea has not been adopted as an absolute mandate for the preservation of every human life.[111] While consensus is unlikely,[112] it is this very flexibility to interpretation that yields hope for commensurability with the world’s other religions, and hope for a workable dialogue.[113]

While the special status of man is reflected in the writings of Paul Ramsey,[114] Leon Kass,[115] and Richard McCormick,[116] these authors write in terms of responsibilities and duties of persons as God’s moral agents, as opposed to rights and moral status derived from man’s dominance or special position in the hierarchy. This recognition of duties and man’s value above all else on this earth is consistent with traditional Kantian notions of personhood, as outlined below.

A small but significant Judeo−Christian minority view has understood "dominion" as a stewardship for which humans will be held responsible[117]; that is, that humans are to treat their brother and sister animals as one of God’s creations worthy of respect.[118] Historically, the minority view has been expressed in by St. Francis of Assisi, Sir Thomas More, and Albert Schweitzer, among others.[119]

B. Neo−Christian and Other Major World Religions’ Views

One could derive a theological basis for respect for all living things from a number of religious traditions, such as the Jainist/Buddhist/Hindu doctrine of *ahimsa.* Mohandas Gandhi said in "In bidding farewell to the reader, ask him to join me in praying to the God of Truth that He may grant me the boon of ahimsa in mind, word and deed"[120] Ahimsa is a vow of non−injury to any living thing − especially to animals. The vow of ahimsa was the first of the five vows that Jainists would take.[121] The first major vow taken by Brahman ascetics and by Buddhist, Jain, and Hindu religious monks alike is that life should not be destroyed, whether in mind, in words, or in deeds.[122] Ahimsa is also directly linked to the doctrines of reincarnation and karma. Depending on how good or bad one's karma was, he or she would be reincarnated into a certain thing. If one had caused a great deal of injury to animals and other living things, he or she would most likely have bad karma and be reincarnated into an insect or some lower life form. Therefore, there is a strong desire in these Eastern belief systems to treat all living things with reverence, increase one’s karma and raise one’s chance of a higher reincarnation.

But is this view commensurable with Western views? A glimpse into a Western view of ahimsa is found within the philosophy of Dr. Albert Schweitzer. Dr. Schweitzer, during his work in Africa, came to appreciate the animals and all of nature's beauty. While traveling up the Ogowe River to N'Gomo, Schweitzer recalls the first time his idea for the Reverence for Life came to him:

"Late on the third day, at the very moment when, at sunset, we were

making our way through a herd of hippopotami, there flashed upon

my mind, unforeseen, and unsought, the phrase, 'Reverence for Life.'

The iron door had yielded: the path in the thicket had become visible.

Now I had found my way to the ideas in which world−and−life−affirmations

and ethics are contained side by side! …To the man who is truly ethical,

all life is sacred including that which from the human point of view

seems lower in the scale." *[123]*

That "all life is sacred" sounds like the aforementioned "sanctity of life" philosophy, but it is far more encompassing. This approach has the potential to bridge the gap between Eastern and Western worldviews. Professor Keyserlingk acknowledges that although the principles maybe vague and indeterminate, they are not any more so than the principles of justice and benevolence and that engaging in debate and discussion can lead to basic agreements that life is precious, should be respected and protected, and treated with consideration.[124] Professor H. Patrick Glenn[125] of McGill University argues, in order to achieve real commensurability, Western society and the rest of the world must go beyond merely tolerating change; that, in a step towards world understanding, peace and a common language for ethical principles, we must seek to understand and respect different cultural, religious, and legal perspectives on such issues as respect for life, notions of personhood and the attendant rights and duties. After a review of traditional and current philosophical perspectives, I will return to this theme of commensurability.

Part III – Philosophical Perspectives of Personhood

A. Traditional Secular Views

1. Kantian, Rights−based Approach

James Rachels succinctly presents philosopher Immanuel Kant's approach towards persons:

Kant thought that human beings occupy a special place in creation. Of course he was not alone in thinking this. It is an old idea: From ancient times, humans have considered themselves to be essentially different from all other creatures −−− not just different, but better. In fact, humans have traditionally thought themselves to be quite fabulous. Kant certainly did. On his view, human beings have "an intrinsic worth, i.e. dignity," which makes them valuable "above all price." [126]

Man's intrinsic worth or dignity, Kant believed, derives from man's ability to be autonomous, a rational agent, capable of making his own decisions, setting his own goals. Kant had essentially cultivated notions previously set forth by Aristotle and Plato. Aristotle and Plato, had also exalted the "rational man," and had written that the women, children, and slaves had limited reasoning capability and therefore were not worthy of the moral respect.[127]

Kant's emphasis on the rational, autonomous being and silence on the moral status of children, the irrational, or the severely physically or mentally challenged, suggests that he did not consider them worthy of human dignity or moral status. Certainly Kant did not think animals were worthy of any moral status or respect, as author Rachels illustrates:

[O]ther animals, by contrast, have value only insofar as they serve human purposes. In his Lectures on Ethics (1779), Kant said: "But so far as animals are concerned, we have no direct duties. Animals…are there merely as means to an end. That end is man." We can, therefore, use animals in any way we please. We do not even have a "direct duty" to refrain from torturing them.[128]

According to Kant, animals may have worth insofar as they can be used as research tools, or for other human purposes, but have no worth in and of themselves. They stand outside the realm of rights and responsibilities that define our moral order. The fact that Kant wrote this during a time when Negro slaves, married women, and children, were not recognized as persons, but rather as property, suggests his views were not terribly different from Aristotle and Plato[129] and that he did not consider them worthy of moral status, either. [130]

The most troubling aspect of this rights−based theory of personhood is that, carried to an extreme, it would not recognize that the irrational, comatose, pre−verbal, severely physically or mentally challenged are necessarily entitled to duty−based rights. An individual who is incapable of making rational choices would not be protected by a doctrine of personhood centered on self−determination. This result conflicts with moral intuitions: our society protects those without rational thought, such as a newborn infant, the comatose, the severely physically or mentally disabled, and has enacted animal anti−cruelty laws and "humane" laws. Sometimes the matter of protection is left to charitable organizations; sometimes laws are enacted to give government the power to act or intervene, but only when the particular issue has reached a public critical mass. In Western society, the law does currently offer protection to children and incompetents under the doctrines of *parens patriae*, substituted judgment, or best interests, but that has certainly not always been the case;[131] only in the beginning of the last century did the courts start creating these protections.[132] The

major flaw with the Kantian approach fails to acknowledge moral status or respect for vulnerable populations, for those who cannot speak for themselves. The Kantian approach suggests that human dignity is applicable only to those who can exercise rational, autonomous choices.[133]

2. The Utilitarian Approach

Classic utilitarian theory, originally proposed by David Hume (1711− 1776), was developed more fully by Jeremy Bentham (1711− 1776) and John Stuart Mill (1806−1873). Utilitarian theory seeks to maximize societal utility. Philosopher James Rachels explains:

"The primary rule of morality can, then, be stated quite simply. It is to act so as to bring about this state of affairs, insofar as that is possible:

This being, according to the utilitarian opinion, the end of human action, is necessarily also the standard of morality, which may be accordingly be defined, as the rules and precepts for human conduct, by the observance of which an existence such as has been described might be, to the greatest extent possible, secured to all mankind, and not to them only but, so far as the nature of things admits, to the whole of sentient creation….

In deciding what to do, we should, therefore, ask what course of conduct would promote the greatest amount of happiness for all those who will be affected. Morality requires that we do what is best from that point of view."[134]

Classic utilitarian theory carefully considers the treatment of nonhumans and argues for moral concern and regard. Traditional theological justifications for use and abuse of animals include the reasons that man alone is made in God's image and animals have no souls, but at least there was the recognition that animals felt pain. Secular philosophical justifications include reasons that because animals are not rational, and they cannot speak, they cannot feel pain[135]or at least pain that is not worthy of notice; this is not ancient history; authors Rachels and Wise gives examples of this logic as recently as the 90's.[136] This extreme lack of concern is distressing, if not downright unnerving. In one of his writings, Jeremy Bentham seems to anticipate the future world of biotechnology and transgenics; he argues that whether an individual is human or nonhuman is just as irrelevant as his or her race:

The day may come when the rest of the animal creation may acquire those rights which never could have been withholden from them but by the hand of tyranny. The French have already discovered that the blackness of the skin is no reason why a human being should be abandoned with redress to the caprice of tormentor. It may one day come to be recognized that the number of legs, the villosity of the skin, or the termination of the os sacrum are reasons equally insufficient for abandoning a sensitive to the same fate. What else is it that should trace the insuperable lien? Is it the faculty of reason, or perhaps the faculty of discourse? But a full−grown horse or dog is beyond comparison a more rational, as well as a more conversable animal than an infant of a day or week or even a month, old. But suppose they were otherwise, what would it avail? The question is ***not****, Can they* ***reason?*** *nor Can they* ***talk****? but, Can they* ***suffer****?[137]*

So, the argument goes, humans and nonhumans are equally entitled to moral concern. But neither classic nor modern utilitarian theory argues that moral concern equals moral respect or that moral concern requires the ***equal treatment*** of human and non−humans. What does matter is that suffering counts equally, be it human or nonhuman.

In terms of humans, animals, and transgenic creatures, pleasure or suffering is most often readily observable and measured in terms of the physical experience. For example a terminally ill patient can be said to suffer unremitting pain, which is why we administer morphine and other pain relievers. But can suffering be exclusively in the mental realm and if so, how is it measured? At least one psychiatrist and author, M. Scott Peck, M.D., recognizes that there may be such a thing as unremitting psychological pain,[138] although he admits that it is unclear if it could be characterized as existential angst or a chemical imbalance. If suffering and pleasure can be experienced outside the physical realm, then might an artificial intelligence be capable of experiencing pleasure or pain in a non−physical way? In the futuristic films *A.I.* and *Millennium Man*, the main characters – robots endowed with artificial intelligence – are portrayed as experiencing an existential angst and the question of whether or not we have created a "moral patient" is presented. As the technology progresses, the question of what constitutes pain and suffering needs to be explored from not only a physical basis, but from a psychological, sociological, and spiritual basis.

B. Modern secular views

1. The Rights−based Modern Kantian and Libertarian

Philosopher H. Tristam Engelhardt, based currently at Rice University in Texas, sees personhood in the following terms:

> It is because members of *Homo sapiens* are usually self conscious, rational, and possess a moral sense that being a human is so significant – or at least in general secular moral terms…As angels, not to mention science−fictional speculation regarding the rational, self−conscious entities on other planets, indicate that not all persons need be humans. What distinguishes persons is their capacity to be self−conscious, rational, and concerned with worthiness of blame and praise…Fetuses, infants, the profoundly retarded and the hopelessly comatose provide examples of human nonpersons…Adult higher mammals enjoy their lives, pursue their pleasures, and avoid suffering in elaborate and complex ways…But since they are not persons, they cannot require that they be respected. … We owe to persons both respect and beneficent regard. To animals, we owe only beneficent regard."[139]

As a libertarian, Engelhardt feels strongly that laws for protection of animals are inappropriate and are an infringement upon our liberty rights to property. While in an ideal world, everyone would have beneficent regard for animals, to dismiss legal protection as unnecessary is to ignore history and humanity's behavior to the less fortunate. His stance might likely change with the creation of transgenic humanoids who are rational and have a moral stance, but any creation would have to overcome the burden of first being considered property, as slaves and women were once considered.[140]

Yet, this modern Kantian notion of personhood is perfectly suited for artificial intelligence. Computers can possess reasoning skills and be made to appear autonomous.[141] The computer programs reason and respond in nearly human terms. Expert systems exist that can take input, apply it to current knowledge, ask more questions if the input is not enough, make a decision and explain their reasoning. They can also learn new rules and learn from their mistakes.[142] Physicist and professor Neil Gershenfeld, author of *When Things*

Start to Think, even proposes a Bill of Things Rights:

Things have a right to:

· *Have an identity*

· *Access other objects*

· *Detect the nature of their environment[143]*

Gershenfeld specifically rejects the notion of quantum consciousness, as discussed in Part IV, and holds fast to his argument that consciousness can be replicated, and that machines are more likely to achieve consciousness than animals, although he never contemplates the possibility of cyborgized animal.

2. Modern Utilitarianism – Act vs. Rule

Peter Singer is a utilitarian who maintains that the right act is that which maximizes the best total consequences for everyone who is affected, either positively or adversely, by the action. Modern utilitarianism is seen as two types: act−utilitarianism and rule−utilitarianism. Act−utilitarianism is the view that the rightness or wrongness of an action is to be judged by the consequences, good or bad, of the action itself. Rule−utilitarianism is the view that the rightness or wrongness of an action is to be judged by the goodness and badness of the consequences of a rule that everyone should perform the action in like circumstances.[144] For example, an act−utilitarian when faced with a situation in which one option is to tell a lie, will judge whether, on balance, the consequences of lying in that particular case weigh in favor of the lie. A rule−utilitarian, on the other hand, might not be concerned about the consequences of lying in the particular situation, but would look to the consequences if everyone were to lie in the same or similar circumstances.

Singer, however, claims to subscribe to a modified form of act−utilitarianism, known as "preference" or "interest" utilitarianism, which provides that what is intrinsically valuable, is what "furthers the interests of those affected."[145] This departs from classical utilitarianism in that more is considered than present pleasures and pains: future−related desires must be calculated along with present desires in order to achieve optimal utility, which results in a state of "well−being."

In his book, *Animal Liberation*, Singer argues that in assessing the consequences of human actions – including those actions affecting animals – it is necessary to take the interests of animals seriously. Any adverse effects on animal interests must be weighed as part of the consequences of human actions. Failure to do this has resulted in the systematic devaluation of animal interests. Like Jeremy Bentham, Singer claims that speciesism is no more morally defensible than racism, sexism or other forms of discrimination that arbitrarily exclude humans from the scope of moral concern.

Like Jeremy Bentham and John Stuart Mill, Singer's notion of equal consideration does not require that animals receive equal treatment, and it does not preclude the morality of a decision to exploit a human or nonhuman. As long as an animal's interests receive equitable consideration (consideration untainted by the speciesism that discounts animal interests simply because they are the interests of a supposed "inferior"), Singer's equality principle is satisfied.

In a lecture at McGill University in Montreal, March 1, 2001, Singer argued the "sanctity of life" notion is outdated; that court cases, such as those allowing the death penalty, termination of treatment, or sanctioning the killing of one conjoined twin to save the other, evince a lack of "sanctity of life." However, Singer's lecture failed to acknowledge the "sanctity of life" notion is subject to broad interpretation[146], and that many theologians and philosophers do not construe it as an absolute mandate for preservation of life at all

costs.[147] Although he did not put forth an alternative, perhaps the purpose of his lecture was to illustrate what he perceived to be a trend that may lead to a reexamination and redefinition of what society values in life, be it alive, inanimate, digital, or artificial.

3. A New Social Ethic

The strife between Kantianism and Utilitarianism is described as "scientific ideology and a denial of ethics,"[148] by Bernard Rollin, in his book, *The Frankenstein Syndrome: Ethical and Social Issues in the Genetic Engineering of Animals.* He cites surveys that 80 percent of people (in the United States, presumably) believe that animals have rights, though 84 percent also believes that it is permissible to use animals for human benefit,[149] he goes on to propose a new social ethic for animals. This new social ethic includes:

· A belief that proper treatment of animals is a duty (not just a matter of benevolent regard, as previously put forth by Tristam Engelhardt, above);

· That this duty should be legally enforceable (i.e., through statutes and ordinances and the like);

· That mandatory regulation be used to change the nature of industry (agriculture, biotech, etc.) from a culture of property and contracts to of one well−being and concern for the creatures involved;

· That regulations ensure a proper consideration and balancing of human benefit and animal well−being;

· That the "telos" of an animal not be violated (for example, the law in Sweden grants cattle "the right to graze" in perpetuity and abolishes the confinement raising of pigs and chickens in which the animals are not permitted to move naturally);

· That this moral concern extend to all animals, not just favored pets;

· That society demand control of animal suffering despite increased costs and loss of "efficiency."

Unlike the previous utilitarian−based arguments, Rollins bases his arguments on the ***telos*** of an animal, as opposed to the physical pain and suffering of sentient creatures. He explains telos as the animal's inherent nature, physically and psychologically expressed, which determine how they live in their environments.[150] He goes on to explain that animal telos is not the same as human telos, thus the rights they are entitled to are not the same as the rights to which humans are entitled. But he stresses that whether engaging in transgenics, genetic engineering, cybernetic experimentation, that the animal should be free of pain and suffering, and that what ever is being done should not hinder or harm the animal telos. Therefore, chickens and other animals should not be kept in cramped little cages for the purposes of economic efficiency.

As mentioned earlier, pain and pleasure are most often measured in terms of the physical experience; but Rollins brings up the nature of psychological pain, in the form of violating the telos of an animal.[151]

He also argues, that animals should not be considered property, that they should enjoy a status similar to children and incompetents, although he acknowledges that all too often, children are treated as property, too.[152]

4. A Sub−class of Servants

Joseph Fletcher, Episcopalian theologian and bioethicist, argued for a list of fifteen "positive propositions" of personhood. These attributes are:

- minimum intelligence
- self−awareness
- self−control
- a sense of time
- a sense of futurity
- a sense of the past,
- the capability of relating to others
- concern for others
- communication
- control of existence
- curiosity
- change and changeability
- balance of rationality and feeling
- idiosyncrasy
- neocortical functioning.[153]

He also posed four “negative criteria” which are:

- Man is not non− or anti−artificial
- Man is not essentially parental
- Man is not essentially sexual
- Man is not a “bundle of rights”[154]

This extensive list suggests that most individuals, at one time or another are not persons.[155] Fletcher’s comments that a severely retarded Down’s syndrome child was not a person and his proposal that chimeras and cyborgs be created to do man’s distasteful or dangerous work,[156] led to severe criticism from his peers and the public. These beings, Joseph Fletcher called “parahumans” who he hoped would “be fashioned to do dangerous and demeaning jobs.” In other words, Fletcher advocated the creation of a slave race of mostly – humans designed by us and for our use. Although his views have been branded as “consequentialist,” which is usually viewed as a form of utilitarianism, his arguments in the *Ethics of Genetic Control* bear little resemblance to traditional or modern utilitarian theories as set forth above. First, Fletcher’s arguments do not address the issue of suffering, physical or mental, which is the basis of both traditional and modern utilitarian philosophy. Secondly, the excessive stress on rationality and intelligence is arbitrary and degrading to those who are mentally retarded and senile.[157] Keyserlingk notes that Fletcher’s proposal list consequently casually excludes so many from qualifying as persons, that it is inconsistent with any interpretation of respect or sanctity of life.[158]

However, Fletcher’s list of traits may be useful if personhood were a continuum, rather than as a definitive, fixed state,[159]a model that has been proposed philosophically, but not yet applied in legal theory or practice.

5. The Paradox of Defining Personhood

In his essay on the subject, Daniel Dennett synthesized the proposed criteria for personhood into six themes, or conditions.[160] For any condition to be necessary and sufficient, Dennett required that it distinguish humans from animals and that it be objectively verifiable.

The first Dennett condition requires that persons be rational. The second condition is the presence of states of consciousness. Under the third condition, "whether something counts as a person depends in some way on an attitude taken toward it, a stance adopted with respect to it" (which is inescapably normative). The fourth condition is the ability to reciprocate, to view others as persons. The fifth condition is the ability to communicate. The sixth and final condition is self−awareness, as expressed by second−order volitional behavior.

Yet, Dennett recognizes that if his six conditions were strictly applied, they must fail as a sufficient condition for personhood because no human, only the metaphysical person, could satisfy all of them at all times, not unlike Fletcher's lists of condition cited *supra.* This fault arises because not all humans act rationally at all times, nor are humans always conscious (and thus self−aware). Also, the conditions he sets forth are not objectively verifiable (e.g. – Prove that I am self−aware); all individual humans lapse from personhood at some point, utilizing these stringent benchmarks. Dennett, by setting forth these criteria, has succeeded in creating a paradox, perhaps with the intent of illustrating how elusive a definition is.[161]

Philosopher Derek Parfit, in his book, *Reasons and Persons,[162]* argues for a reductionist view of personal identity. According to a reductionist, persons are nothing over and above the existence of certain mental and/or physical states and their various relations. Given this, Parfit believes that facts about personal identity just consist in more particular facts concerning psychological continuity and/or connectedness, and thus that personal identity can be reduced to this continuity and/or connectedness. As Parfit states it, "on the Reductionist View, each person's existence just involves the existence of a brain and body, the doing of certain deeds, the thinking of certain thoughts, the occurrence of certain experiences, and so on."[163] In other words, he claims that we should not take persons to exist apart from the various physical and psychological events that characterize them. Like the strict Kantian approach, this biologically based approach to personhood, does not recognize that the irrational, comatose, pre−verbal, or severely physically/mentally challenged as persons and leaves little room for recognizing other possibilities of persons.

At the heart of both Parfit's and Dennett's propositions is the notion of *consciousness*; both view consciousness as a thing, a state of being; as either being there or not; persons have consciousness; others don't. If one views consciousness as a process, as opposed to thing, as the father of modern psychology William James[164] suggests, then how one views "thinking" changes radically. In fact, James suggests that the "soul" might be the unifying entity of the physical actions of many individual brain cells, resulting in a state of consciousness.[165]

Author Thomas M. Georges, explains:

A reasonable answer, it seems to me, is that there are *degrees* of consciousness, and that animals (and machines) are conscious to the degree that they possess the requisite reflexive sensory and neurological component… It is difficult for us to grasp the idea of degrees of consciousness – probably because we most often experience what seems to be only one of two states. It seems to most of us that we are either conscious or unconscious, like switching a light off and on…. Yet we have all experience *altered states of consciousness,* such as being intoxicated or tranquilized…So recognizing that we actually experience many shades of consciousness may help us appreciate that it is more like a continuum than an off−or−on state.[166]

In the book *The Teaching of Don Juan: A Yaqui Way of Knowledge,* Carlos Castaneda explains that achieving altered states of consciousness is a time−honored way of understanding, or sharing consciousness not only with the world, but all of it inhabitants.[167] From this perspective, whether or not consciousness is objectively verifiable becomes somewhat irrelevant. When we meet another individual, if that individual acts in all respects as though he or she is conscious, we treat them as if they are. If there is no scientific way to objectively verify an observer's perceptions, then isn't it the subjective reality that counts? Similarly, attempts

to prove the existence of a “soul” or “spirit” will defy any scientific or objective test, but that doesn’t mean it doesn’t exist. The tension between the search for an objective, scientific truth and subjective reality is sometimes referred to *Reductionism* versus *Emergentism*[*168]* or the *Mystic* versus the *Technocrat*.[169] Are Reductionism/Technocracy and Emergentism/Mysticism mutually exclusive? What sort of frame of reference do these viewpoints provide in exploring personhood? Can we reconcile these seemingly opposing viewpoints or find commensurability? At conferences and in literature, scientists, philosophers and others gather to seek commensurability between these approaches, as explored in the next section.

Part IV – At the Intersection of Science and Spirituality

A. Mysticism and Technology

In a call for open dialogue, Jerome Clayton Glenn, author of *Future Mind: Artificial Intelligence* (1989), writes about the merging of the mystical and the technological in the 21st century:

How can mystics and technocrats, so long at odds in their version of the universe, find a common path to the future? The healthy mind of the 21st century will be a merger of the best attitudes of the mystic and the best awarenesses **[*sic*]** of the technocrat. Mystics must give up their insistence on the empirical truth of their metaphysics, and technocrats must stop denying the truth of anything that cannot be proven empirically, for the both the mystical experience and technology transcend religious and cultural differences. And it is the transcendent quality of each that will allow them to merge in the Conscious Technology of the future."[170]

Like Jerry Glenn's proposal of blending mysticism with the technological, philosophers, clergy, physicists, and others are proposing a *different* view of man's position or standing in the arrangement of the earth and universe; that is, different from the traditional Western notion of a special niche (because of our rationality or because we were created in God's image) in the hierarchical top−down Great Chain of Being.[171] Although this trend may appear to be modern, it is in fact a notion that has been with us for a long time.[172] Professor of philosophy and religion Sam Keen puts one view, which is suggestive of a circle or web of interdependence, rather than a hierarchy, forth:

[T]he ecological movement has gone beyond the notion of a sustainable economy and limits of growth to embrace a spiritual commitment to reverence for life. Within the Roman Catholic Church, creation spirituality is capturing the imagination of many. Thomas Berry suggests that we put the Bible on the shelf for twenty years and learn to read the natural world as scripture. There is a growing awareness that the ecological perspective is, in essence, a theological revolution based on **a sense of the sacredness of all life** *[emphasis added]*… Systems theory has emerged as the dominant trend in most disciplines, from psychology to computer science, replacing the old method of piecemeal analysis, in which we broke everything down into its component parts. The tendency in recent thought is to stress synthesis, networks, interaction, process. The old notion that the **whole is the sum of the parts has been replaced by the idea that the parts can only be understood as functions of the dynamics of the whole.** *[emphasis added]* The nineteenth−century vision of lonely billiard−ball atoms accidentally colliding with each other to form the varieties of life has been replaced by a vision of a universe made up of an intricate web of relationships, a net of jewels.[173]

Similarly, but in a more popular than academic genre, journalist and Rabbi Joshua Hammerman declares that the Hebrew Bible alone contains dozens of different images of God, envisioning the Sacred as everything from a male warrior to a mother eagle, and that each of these represents not only a view of divinity, but also a way of looking at the world and ourselves.[174] The growing interest in discussing humankind's status in the earth and universe, reflected in popular bestsellers illustrates that this discourse is reaching beyond academic circles.[175]

In a trend toward converging science and theology (or as Jerry Glenn might say, mysticism), even twentieth century science has made a departure from the mechanistic outlook introduced by Newtonian physics and embodied in the philosophy of Descartes. In *The Dancing Wu Li Masters,*[176] physicist Gary Zukov gives a

variation on continuity of mind, body and soul; for in the macroworld of the galaxies and in the microworld of subatomic particles the Newtonian laws of nature do not apply. Zukov relates them to the mystical experience of the universe as one interconnected whole. In the modern view of the cosmos, Newton's theory of gravitation has been incorporated into Einstein's General Theory of Relativity.

Nobel Laureate Werner Heisenberg sounds more like a philosopher than a physicist when he waxed reverent about the dramatic implications of randomness in the universe and the consequence of human observation on our scientific knowledge, which is more commonly known as Heisenberg's Uncertainty Principle. Heisenberg's Uncertainty Principle, is based on the observation that on the smallest scale, the phenomena are governed by the quantum theory, and that it is impossible, for example, to know both the position and the velocity of a particle precisely at the same time. Paul Davies interprets this principle to suggest (in layman's terms) that mind, body, soul, consciousness, time, matter and space are inter−related and to view humanity as somehow being separate and elevated is an illusion.[177] He concludes: "Through conscious beings the universe has generated self−awareness. This can be no trivial detail, no minor by−product of mindless, purposeless forces. We are truly meant to be here."[178]

In contrast to the traditional hierarchical worldview represented by the Great Chain of Being, these authors present an alternate worldview could be described as a circle of interdependence or web of interconnectivity, showing humans in a very different relationship to the world and universe.

B. Reductionism and Emergentism

The difference between Reductionism and Emergentism could be described as "bottom−up" vs. "top−down" theory, but that characterization itself is a matter of debate. Typically, the religious or spiritual approach has been described as "top−down" in the sense that God or the Creator is at the pinnacle, acting down on the world to impose order and moral principles,[179] very much like the Great Chain of Being delineated earlier. The scientific approach has typically been described at the "bottom−up" theory, starting with the laws of physics at the bottom level, with principles of evolution creating the more complex levels. Arthur Peacock writes that a form of reductionism is intrinsic to all scientific explanation: "The breaking−down of unintelligible, complex wholes into their component units, the determination of the structures of those pieces and what functions they can perform, and then the fitting of them together as best one can, hypothetically at least, in order to see how they function together in a complex whole, are such common ploys in experimental science that most practising scientists would consider it scarcely worth remarking upon."[180] For example, a typical reductionist approach to understanding the human body would entail breaking it down into its smaller components (such as heart, kidneys, and liver), then looking at the purpose and function of those organs and breaking them down to a cellular level, and then breaking the cells down to molecular and atomic level. An Emergentist view might say that the significance of the human body is that it is the vessel of our God−given essence, our soul. The Reductionist scoffs at the Emergentist because for lack of "scientific proof" and the Emergentist regards the Reductionist as myopic. Yet, as Albert Einstein said, "Science without religion is lame, religion without science is blind."[181]

However, an altogether new view of Emergentism has been recently put forth in an attempt to "force an abandonment of both caricatures of explanation as simplistic abstractions."[182] Biological anthropologist Terrance Deacon, described this different view of Emergentism as "not yet a scientific theory, but a metascientific conjecture, born of extensive evidence of systems that exhibit spontaneous, 'bottom−up', self−organizing phenomena and [that are] in response to a degree of 'top−down' influence."[183] In other words, the universe is "bio−friendly;" creativity is intrinsic in the system. Deacon gives as an example, snowflakes. Snowflakes are beautiful, intricate, and incredibly, unique. The usual reductionist analysis fails to explain why each and every snowflake is unique; the usual emergentist analysis conjures up an image of a very busy deity, furiously churning out an infinite variety of crystals; neither approach is very satisfying.

Deacon's emergentism is consistent with a belief that all that actually exists are physical objects controlled by physical laws, but the nature of the universe encourages diversity and infinite variety. In seeking the "middle way"(a phrase borrowed from Buddhism), this revised version of emergence is consistent with the view of a holistic inherently self−creative universe as described in many nonwestern spiritual traditions.[184] This alternative worldview could be described as a pyramid; while still hierarchical, reflecting a more interdependent and interconnected view of man in relation to the earth and universe; this view also suggests that Earth is only one manifestation of creative processes intrinsic in the Universe's design.

In addition Deacon's attempt at commensurability, Arthur Peacocke calls for an open, global theology, characterized by six main features:

· It will seek a convergence of common core beliefs

· It will seek to learn from complementary beliefs in other traditions

· It will be prepared to reinterpret its beliefs in the light of new, well−established factual and moral beliefs

· It will accept the full right of diverse belief systems to exist

· It will encourage a dialogue with conflicting and dissentient views

· And it will try to develop sensitivity to the historical and cultural context of the formulation of its own beliefs, with a preparedness to continue developing new insights in new cultural situations.[185]

Whether or not Peacocke succeeds in convincing the world of a need for a global theology, the challenge has been summoned; it is a chance to "perceive the natural, evolved commonalities of humanity in a new light."[186] As I remarked earlier, this trend towards re−examining humankind's source of origin and position in the earth and universe, is one that is reaching beyond academic circles.[187]

Part V. – The Legal Roots of Personhood

A. The Journey from Property to Persons: A Historical Perspective

The notion of personhood and legal rights that attend the status of personhood have evolved significantly, albeit slowly, over the last few thousand years.[188] Women, children, and slaves have been considered property, rather than persons, starting with Plato and Aristotle.[189] In ancient Greece (approx. 500 B.C.), slaves and women were bought, sold, and traded in the same manner as oxen or other property.[190] Five hundred or so years later, Roman law, which had a tremendous impact on the development of nineteenth century American law,[191] gave the male head of household the right of life and death over his wife, children, and slaves.[192] A "person" in Roman law included every being who had rights, while a "thing" included everything that could be considered as the object of the right of a person; those beings who were believed to lack free will — women, children, slaves, the insane, and nonhuman animals — were classified as property.[193]

From the time of the Romans until the fourteenth or fifteenth century, the law of Europe was a melting pot of Roman law, canon law from the Catholic Church, and chthonic[194] law. Intense debates between theologians and philosophers of the time produced various justifications for property (divine law, res nullius[195], natural law, human law),[196] but the recognition of slaves, women, and children as persons rather than property was not a part of these debates. Even Sir William Blackstone, author of *Commentaries on the Laws of England*, who had considerable influence on the importation and adaptation of English common law in America, relied on a combination of Roman law and the Holy Bible to sanction his observations of property rights.[197]

The focus on the significance of the individual person began to change with the growing influence of Christianity and the Catholic Church.[198] Canonical courts were set up by the Catholic Church to resolve territorial disputes, and one of the first western systems of resolving disputes and enforcing judgments, in a formal manner, was born.[199] Canon law, however, was limited to subjects of the Church, but the system grew to incorporate Roman law, chthonic law, and, eventually, civil law.[200] Ecclesiastical proceedings first were recorded in the fifteenth century in the areas bordering France, Switzerland, and Italy, and ultimately took place in Germany, Spain, the Scandinavian countries, Brazil, and Canada.[201] Laws started to become codified, courts became the interpreters and the enforcers of the law.[202] The Magna Carta, composed in 1215, was inspired and based on a combination of Roman law and Christian influences.[203]

The status of women improved somewhat in this environment; much of the law concerning marriage, especially Anglo−American jurisprudence, is derived from canon law.[204] Canon law decreed marriage to be a status, a contract, and a sacrament whose purpose was to produce children and whose properties were unity and indissolubility.[205]

Despite proclaiming to be “enlightened” about marriage, the Church took its time in formulating a universal prohibition against violence in compelling marriage. And the dowry, which survives today as the trousseau or hope chest, is a vestige of the time when men purchased women by giving something of value to the woman’s father. When the husband married the daughter, she was converted, along with the dowry, into the husband's property.[206] In fact, the treatment of women as property is still happening today in the country of India in the practice of “bride−burning.”[207] Although the practice is illegal, law enforcement officials and courts are often slow to prosecute.

Under the common law of both England and the United States, a married woman enjoyed a legal status only slightly better than that of a slave.[208] In 1767 in the United States, women were bought and sold as slaves as evidenced by the recorded transfer of a wife.[209] At the same time, a man could, in the eyes of the law and the church, legally beat his slaves, and his wife, as they were both his property.[210] The

phrase "rule of thumb" derives from the law that a man could beat his wife with a rod no bigger around than his thumb.[211] Women didn't fare much better in Canada; in l860, the Canadian Supreme Court said the law required the sacrifice of the wife's comfort and convenience to the wishes and authority of the husband; and, in l873 the Court said that the law required the wife to bear some indignities, and even some violence, before the court would sanction her leaving her husband.[212] And prior to 1929, women were not recognized as "persons" to the courts.[213]

The status of women did not start to change significantly until the mid−to−late eighteen hundreds. The emergence of the Woman's Movement was linked, temporally and ideologically, with the drive to end slavery.[214] Under laws of the time, neither slaves nor women could go to school or vote; neither could bring cases in court nor testify against the master; neither could own property or control their own bodies.[215]

The plight of slaves did begin to change in 1772 with the famous English slavery case of *Somerset v. Stewart[216]*. James Somerset, a young black man abducted and forced into slavery, made a bid for freedom in England.[217] His master, Charles Stewart, sought to retain Somerset as his property; Stewart's lawyer argued that slavery could continue in England because no law forbade it.[218] Somerset's lawyer countered, "upon what Principle is it – can a Man become a Dog for another Man[?]"[219]. Chief Justice of the King's Bench, Lord Mansfield proclaimed '*fiat justicia, ruat coelumtet'* ("let justice be done, though the heavens may fall")[220] and held:

The state of slavery is of such a nature that it is incapable of being introduced on any reasons, moral or political, but only by positive law… It is so odious, that nothing can be suffered to support it put positive law. Whatever inconveniences, therefore, may follow from the decision, I cannot say that this case is allowed or approved by the law of England: and therefore, the black must be discharged.[221]

In Canada, in 1793 the Lieutenant−Governor of Upper Canada (today's Ontario), John Graves Simcoe, presented a bill to the government to abolish slavery in Upper Canada and the bill passed unanimously; slavery was abolished in the rest of Canada in 1834.[222]

Changes progressed more slowly in the United States; in 1856, the infamous case of *Dred Scott v. Sanford [223]* came to be heard in front of the United States Supreme Court.

Dred Scott sought relief from the courts against John Sanford, a N.Y. resident, arguing that he was a free citizen. His former master, Dr. Emerson, a U.S. army surgeon took him to Illinois and into the Louisiana Territory (Minnesota). Illinois prohibited slavery in its Constitution, as did the 1820 Missouri Compromise in the northern portion of the Louisiana territory. Scott sought to assert his freedom and that of his family. In a seven− to−two decision, Justice Taney delivered the opinion of the court:

They [Negroes] had for more than a century before been regarded as beings of an inferior order, and altogether unfit to associate with the white race, either in social or political relations; and so far inferior, that they had no rights which the white man was bound to respect; and that the negro might justly and lawfully be reduced to slavery for his benefit. He was bought and sold, and treated as an ordinary article of merchandise and traffic, whenever a profit could be made by it… [the Constitution] then proceeds to say: "We hold these truths to be self−evident: that all men are created equal; that they are endowed by their Creator with certain unalienable rights; that among them is life, liberty, and the pursuit of happiness; that to secure these rights, Governments are instituted, deriving their just powers from the consent of the governed." The general words above quoted would seem to embrace the whole human family, and if they were used in a similar instrument at this day would be so understood. But it is too clear for dispute, that the enslaved African race were not intended to be included, and formed no part of the people who framed and adopted this declaration;[224]

The decision had the effect of placing blacks, even freed black slaves, at the same level legally as domestic animals. The decision helped propel the United States toward the Civil War. After the Civil War, the Supreme Court ruling was rendered impotent by the passage of the Thirteenth and the Fourteenth Amendments to the United States Constitution, in 1865 and 1868 respectively. In these amendments, Congress abolished slavery and involuntary servitude,[225] and expressly granted males liberty, regardless of race or citizenship status, and sought to protect their civil rights.[226] However, Congress did not extend the right to vote to black males until it adopted the Fifteenth Amendment[227] in 1870.

Until the adoption of the Fifteenth Amendment, advocates of the women's rights movement in the United States in the nineteenth century considered black males' legal status to be similar to their own – that of "second−class citizens" – citizens with some civil, but no political rights.[228] In December 1872, Virginia L. Minor challenged Missouri's constitutional restriction of voting rights to males as a violation of the Fourteenth Amendment.[229] Although the Court recognized that although women were United States citizens, under the 14th Amendment, the Privilege or Immunity clause did not encompass voting rights for women.[230] Women's rights advocates compared the Supreme Court's holding in *Minor* to that in *Dred Scott*, *supra*, constitutionalizing women's status as second−class citizens.[231] Just as with *Dred Scott*, the effects of *Minor* ultimately would only be reversed by constitutional amendment. The Nineteenth Amendment finally gave women of the United States the right to vote in 1920.

In Canada, a breakthrough for women came in a decision rendered by the British Privy Council, acting as Canada's highest Court of Appeal, determining that women were “persons” in Canada.[232] Lord Sankey likened the Canadian constitution to a “living tree capable of growth and expansion within its natural limits”[233] in his expanded interpretation of the Canadian constitution. The adoption of Section 15[234] of the Canadian Charter of Rights and Freedom in 1982 has statutorily solidified the equality of women.[235]

Just as the progression of women and slaves from no−rights−as−property to persons−with−full−rights had a turbulent history, the historical legal status of children has been fraught with obstacles, also. Barbara Bennett Woodhouse explains that well into the nineteenth century, a father could enroll his male children in the army and collect the enrollment bounty, betroth his minor female children to persons of his choice, put his children to work as day laborers on farms or factories and collect their wage packets.[236] As recently as 1920, a parent who killed a child in administering punishment could claim a legal excuse for homicide in nine states.[237] A father had the power to decide where and with whom his child would reside, and to transfer his children by testamentary disposition to someone other than their mother.[238]

Those who have supported a child−centered vision of parents' rights encountered opposition from those who viewed such a vision as an attack on the fundamental rights of parents.[239] The resistance to accepting children as persons with rights of their own has been illustrated in historic moments such as the movement to limit child labor; when legislation to protect children from exploitation was proposed, it was greeted by alarmist opposition as an attack on the fundamental rights of parents to control their children.[240]

Political theorists such as Thomas Hobbes and John Locke put forth arguments justifying adult power over children. Hobbes argued that parental power was based on an implicit contract (the infant "agrees" to obey the parent in exchange for the parent's forbearance from allowing the helpless infant to perish).[241] Locke contended that God was the true owner of children; that God created children and gave them into their parents' care; therefore, parental powers were a form of trusteeship of the Creator's property.[242] Even Blackstone accepted without question this conception of parental right as a reflection of parental responsibilities.[243]

Although the status and protection of children has improved, and parents have been given broad authority to speak and act on children's behalf, Woodhouse argues that the ratification of the United Nations Convention on the Rights of the Child[244] is necessary to clarify the status of children; that the convention will ensure that courts worldwide will look at the “best interests” of the child first, rather than parental rights.[245]

Compared to the state of the world thousands of years ago, as in the case of Egyptian and Roman slaves, or even in the Middle Ages, with serfdom and feudalism, or even a few hundred years ago with slavery in North

America, the notion of basic human rights has taken roots and grown strongly, albeit slowly. From the original seed(s), be it from religious or secular, we have grown to embrace the notion of basic human rights (with notable exceptions).

These rights have been recognized in documents such as the Magna Charta, the United States Constitution, the Canadian Charter of Rights and Freedom, the European Convention on Human Rights, the UN Declaration on Human Rights; but even these are subject to interpretation by courts and cultural values, as explored below. It has been asserted that human rights can be accommodated within a variety of cultures if a wider view is taken of the nature of human rights.[246]

B. Definitions from the U.S. and Canadian Supreme Courts

1. Natural and Unnatural Entities

Persons, recognized in the courts through judicial and statutory definition, have come to include a variety of entities and characters, including the "natural" – women, slaves (as exemplified in the previous section), human aliens,[247] illegitimate children,[248] minors, as well as “unnatural,” such as corporations, labor unions,[249] nursing homes, municipalities, and government units.

Currently, “natural” persons are biological beings, limited only to humans, although “human” is not defined.[250] A more proper term for “unnatural” persons as referred to above is “juridical” person.[251] How does a court create a “juridical” person? The United States Supreme Court has employed the “legal fiction” – a construct used to create rights for convenience and to serve the ends of justice. It has been typically used under the guise of a court’s interpretation of statutory language. For example, in the 1886 case of *Santa Clara County v. Southern Pacific Railroad Co.*, 113 U.S. 394, the United States Supreme Court, for the first time, declared that a corporation is protected by the same rights as natural persons for purposes of the Fourteenth Amendment Equal Protection Clause, rather abruptly and without much explanation or analysis.[252] Two years later, in *Pembina Consolidated Silver Mining & Milling Co. v. Pennsylvania*, 125 U.S. 181 (1888), the Court reaffirmed corporate personhood under both the Due Process and Equal Protection clauses of the Fourteenth Amendment, again, without detailed analysis.[253]

Despite its dubious origins, the corporation now undoubtedly qualifies as a “constitutional” person (i.e. a person who is protected by the Constitution of the United States; one who is granted constitutional rights), though not without limitations. For example, a corporation cannot claim Fifth Amendment Due Process rights against self−incrimination. [254]

2. Embryos and Fetuses

American case law has been grappling with the question of fetal and embryonic life for over a hundred years;[255]in 1884, the case of *Dietrich v. Inhabitants of Northampton*,[256] was perhaps one of the earliest. In this case, the Supreme Court of Massachusetts reviewed a lower court decision regarding a fatal injury to a fetus: a woman who was four to five months pregnant fell on a defective road in the town of Northampton; the fall precipitated a miscarriage of the fetus.[257] The fetus lived for about ten to fifteen minutes, and plaintiff brought a claim based on a statement by Lord Coke of England; Coke had conjectured that if a woman is "quick with child,” takes a poison or is beaten, thereby causing the death of the child, then this constitutes a murder.[258] Holmes, however, noted that no court had ever permitted an action to be maintained by an infant who experienced injuries in his mother's uterus and went on to distinguish the Dietrich case, arguing that at the time of the injury, the fetus was *part* of the mother, and therefore the *mother* could recover damages for injuries to the fetus.[259] The fetus, being an appendage, however, had no standing to sue separately.

Kayhan Parsi explains that the metaphor of a person, property or as appendage has been used by the courts to describe the human embryo or fetus.[260] Citing Bonnie Steinbock, Parsi comments that this makes the status of the unborn very unclear:

For example, the legalization of abortion in 1973 was based in part on the unborn's never having been recognized in law as a full legal person. At the same time, fetuses have been considered as persons for the purposes of insurance coverage, wrongful−death suits, and vehicular homicide statutes. The legal status of the unborn thus appears to vary from jurisdiction to jurisdiction, from context to context, according to our purposes.[261]

The minimalist view, illustrating the appendage metaphor, is where the nonviable fetus is little more than a form of the pregnant woman's bodily tissue; it is part of the woman without separate identity or status.[262] This view de−emphasizes the importance of the fetus's separate genetic identity and recognizes no moral status; fetal remains are discarded in the same manner as other by−products of surgery, simply thrown away.[263]

The metaphor of fetus as property gives *quasi−property* rights, giving family members the right to dispose of the fetal tissue, but not the right to sell or profit from it.[264]

The metaphor of fetus as person, applicable to 3rd trimester fetuses, derives not from complex biological or scientific study, but is based on the simple, emotional reaction to the fact that it looks like a baby.[265]

The legal status of early embryonic life started becoming an issue in the 1970s and 1980s, with IVF (In Vitro Fertilization) and frozen embryo cases, where the plaintiff's claim and treatment by the courts implied the *quasi−property* approach.[266] Some philosophers, notably Tristam Engelhardt, have defended the notion of viewing embryonic material and fetuses as property, albeit, "as a special form of very dear property ... [and that] privately produced embryos and fetuses are private property."[267]

A "14−day standard" approving the experimentation of human embryos has been adopted by ethics commissions in several nations, including Australia, Canada, the United Kingdom (the Warnock Report[268]), Denmark, and until reversed recently, the United States.[269] Up to 14 days, a "pre−embryo," is not differentiated from other tissue; at 14 days, a structure called the "primitive streak" appears, which will become the brain and spinal column and which differentiates embryo from placenta.[270] Before 14 days, there is no possibility of pain or sentience and no cells that will definitely become part of an individual.[271] Although this standard has not yet been utilized in setting a legal standard for status by any courts yet, it will likely set a foundation for future deliberation.[272] As Kayhan Parsi has argued, "embryos and fetuses are neither persons in a strict sense, nor are they mere things. Because of their potential personhood, as well as their relational status to persons, they merit a certain moral status…conferred status, in addition to a certain intrinsic status. Embryos and fetuses have an intrinsic status because of their potential personhood, as well as being a part of the continuum of biological human life."[273]

Currently, the United States Supreme Court has chosen to exclude 1st and 2nd term fetuses as "persons" under statutory or constitutional protection,[274] under the case of *Roe v. Wade*, citing viability as the drawing line between appendage and person. The drawing of this line as a way of balancing the maternal/fetal conflict has come under fire in more recent cases;[275] the difficulty with setting the line at viability is that is not biologically fixed in time.[276] The Supreme Court noted in *Planned Parenthood v. Danforth*, that "[W]e recognized in *Roe* that viability was a matter of medical judgment, skill and technical ability, and we preserved the flexibility of the term."[277] As mentioned earlier,[278] advancements in technology are sure to lead to earlier viability status, particularly if the plans for the artificial womb come to fruition.[279] Currently, in Canada, viability plays no role in determining personhood; in the case of *Winnipeg Child and Family Services v. D.F.G.*, the Supreme Court of Canada held:

The law sees birth as the necessary condition of legal personhood. The pregnant woman and her unborn child are one. Finally, to make orders protecting fetuses would radically impinge on the fundamental liberties of the pregnant woman, both as to lifestyle choices and how and as to where she chooses to live and be."[280]

This ruling in Canada leaves an uncomfortable lacuna from a moral standpoint. While it is heralded in women's rights circles as a victory,[281] the Court's denial of any rights to the viable, sentient unborn ignores the ambivalence of what has been called the "troubled middle."[282] If there is anything approaching a consensus on the status of fetuses and abortion, it is that later term (i.e., 2nd and 3rd trimester) abortions are significantly more morally problematic than early abortions.[283]

The balancing of the maternal−fetal interests is presently unavoidable, but will be irrelevant once the technology of artificial or exogenic wombs develops further[284]; the courts and/or legislatures will need to revisit the issue of what constitutes a "person."[285]

As illustrated by the cases cited in Part V, Section B−1, the courts have the power to extend rights and liberties depending on its interpretation of "person." Michael Rivard has suggested such an interpretation that would possibly extend the rights of transgenic humanoid species.[286]

C. Some Proposed Definitions

1. Biological/Genetic Definitions

Could a genetic definition of personhood be helpful in working our way through this maze of ethical and legal issues?

Each human cell has 46 chromosomes. These 46 chromosomes are duplicates (i.e. there are 23 pairs of them). Males have one chromosome pair that is different and it is called XY, in females these matching chromosome pairs are XX (identical chromosomes in the pair). The problem of using a genetically based definition of humans or persons is that even minor variations or genetic alterations on the human genome would cause the exclusion of certain individuals from "personhood."[287] Hypothetically, a gene sequence from an animal could be inserted into a human chromosome for the purposes of enhancement, and there would be no way to verify if that had occurred or not.[288]

In other words, if one were to look at the human genetic code as a jigsaw puzzle, even a slight rearrangement of the pieces can result in an entirely different creature.[289] Ninety seven percent of our genome consists of the genes we share with other species – chimps, fruit flies, even common brewer's yeast.[290] An analogy might be found in a comparison between a dictionary and the Bible – although both are printed word, using the same alphabetic code, the result and impact is extremely different. Because so much of our genetic make up overlaps, and is commonly shared with a great number of species, a genetic definition is of little use.

What of a biological definition that relies on ***species*** definition? A scientist could argue that distinguishing traits between species are manifestations of the genetic material of each species. However, the definition of species is a hotly debated and contentious issue among scientists, producing reams of publications.[291] Darwin argued that "species" are not "real" entities in nature. A summary of some definitions of species grouped as different ***species concepts*** shows the deliberation among scientists:

Typological species concept: A species is a group of individuals expressing an underlying unitary ideal in which the variation seen among the individual's imperfect manifestations of the "type." Its conceptual origins lie with Plato and Aristotle.[292]

Morphological species concept: Morphological similarity (or dissimilarity) is the sole criterion for determining species. Thus, the degree of individual morphological similarity or difference (vs. distinctiveness) is the primary, decisive criterion of species status. In other words, different species are organisms that look different. [293]

Biological species concept: In basic biology, every student is taught that the designation "species" is one level of classification in what has come to be known as the "Linnean Hierarchy" of Taxonomic levels.[294] Other levels of classification include the genus, the family, the order, the class, the phylum, and the kingdom.[295] So what is commonly referred to as *Homo sapiens*, *Homo* is the genus, and *sapiens* designates the species.[296] The family is Hominidae (apes and man), the order of Primates (femurs, monkeys, apes, and man), the class is Mammalia, the phylum is Chordata (or vertebrates), and the kingdom is animal.[297] In principle, individuals from one population could mate with individuals from another population of the same species and crossbreeding between species would not occur.[298]

Evolutionary species concept: A species is a ***lineage*** (an ancestor descendant sequence) of populations or organisms that maintains its identity from other such lineages and which has its own evolutionary tendencies.[299]

Phylogenetic species concept: An irreducible cluster of organisms that is distinct from other such clusters, and within which there is a parental pattern of ancestry and descent. This concept focuses on *biological* traits used to differentiate one lineage of organisms from another and the branching patterns, and where lineages diverge.[300]

Recognition species concept: A species is the most inclusive population of individual biparental organisms that share a common fertilization system. This concept focuses on those biological traits (reproductive traits) involved with the reproductive systems within species: fertilization processes and genetic compatibilities.[301]

Ecological species concept: A species is a lineage (or a closely related set of lineages) that occupies an adaptive zone minimally different from that of any other lineage in its range and which evolves separately from all lineages outside its range.[302]

Nominalist species concept: A species is an arbitrary class or cluster of organisms given a name as a handle.[303]

The huge varieties of definitions reflect changing theory, and the different purposes to which the species are used by individuals. Even if we could agree that the biological species concept would be the accepted definition of species, species grade into one another in time as they evolve one into another. As populations evolve through time, they change enough that any scientist looking at them would decide they are two separate species (the morphological species concept). For example, it is accepted now that orangutans and humans are separate species. But about 15 million years ago, when the ancestor of orangutans and humans was dwelling in East Africa, if one could create a genealogical chart of the populations that descended from that ancestor, we would find that two separate lines have descended from that single species.[304] Each thread would contain multiple species; we could not tell when one species evolved into the next, because all along the way, parents had offspring, and the offspring found compatible mates, and so on. How do we decide where Homo erectus has evolved into *Homo sapiens*?[305] Currently, anthropologists are avoiding the issue by coining new names for "species" in between: Homo heidelbergensis, Homo antecessor, Homo neanderthalensis, for example, but that simply underscores the difficulties in the shades of gradation.[306] There was no event when suddenly all the adults in a particular population had mutant offspring who were the first generation of a new species; the process was so subtle, so gradual, it almost defies these arbitrary groupings. The uncomfortable truth is that species differentiation is not as clear−cut as some would like it to be.

George J. Annas has proposed an international “human species protection treaty,” [307] with the intent of protecting basic human rights. His proposal suggests that we need to set up an international criminal tribunal that will ban “human replication cloning and genetic engineering, but also human/machine cyborgs, xenografts, artificial organs, embryo research, and brain alterations.”[308]

The treaty proposal overlooks several points: aside from the obvious difficulty there would be in reaching a consensus on the definition of human, there is an underlying assumption that tampering ***only*** with the human species presents a risk; the proposal does not anticipate that human genes inserted into another species or artificial intelligence may create a sentient life form that is worthy of moral respect and status. Should the use of every human gene sequence be banned from insertion into another species? Too late for that.[309] How many human genes would it take to make another species have those human characteristics we hold so dear? When does a "non−human" with human genes become human, deserving full human rights? If we hold with the biological species concept definition, you could conceivably have a gene−altered or implantable brain chip enhanced orangutan who has almost every human quality except the ability to interbreed with humans. Should this creature be denied basic rights, such as the right to be free from torture, enslavement, murder, and imprisonment because he or she cannot mate with a human? Annas rightly asks “if human rights and human dignity depend on our human nature, can we change our ‘humanness’ without undermining our dignity and rights?”[310] Nonetheless, in light of the fact that current laws of the United States or Canada do not prohibit patenting and marketing of DNA sequences, cell lines or stem cells of derivative of human origin,[311] the question needs to be rephrased: “Can we preserve human rights and human dignity despite that fact our ‘humanness’ and human nature is changing?”

The Council for Responsible Genetics (CRG) is an international nonprofit organization of scientists, environmentalists, public health advocates, physicians, lawyers and other concerned citizens. The CRG last year drafted its “Genetic Bill of Rights” which asserts that “all people have a right to a world in which living organisms cannot be patented, including human beings, animals, plants, and all of their parts.”[312] If this were to become international law, it would be a major step towards preventing the scenario that Annas so rightly fears of a race of slaves or sub−humans; any incentive to create such creatures would be lost for lack of financial gain. The elimination of patents would also “preclude granting any one scientist or group of scientists dominion over the future of the species.” [313] Unfortunately, given the current “culture of property”[314] and emphasis on economic rights, this seems unlikely to occur. Annas’ treaty proposal is an admirable attempt to create an international tribunal to enforce basic rights and dignity. His draft proposal does not attempt to define the “human species”, either because of difficulty in reaching a consensus or perhaps, because in order for this tribunal, as well as other courts, to prevent the nightmare scenarios that Annas outlines, the definition of “human” needs to be liberal and take into account that man does not exist in a vacuum. As Kayhan Parsi has argued, it is unnecessary for a person to be biologically human; a creature with a very different genetic structure can be classified as a person.[315] As Annas points out, “Science cannot save us from our inhumanity toward each other”[316], but the hope is that the law can.

2. Defining a Self−Aware Species

This issue is explored in depth in a law review comment published in 1992 by Michael Rivard, entitled *Towards a General Theory of Constitutional Personhood: A Theory of Constitutional Personhood for Transgenic Humanoid Species*.[317]

Rivard starts off with a strong analysis and compelling arguments as to why a judicial interpretation should be expansive, as opposed to restrictive, in granting “constitutional” personhood. He falters, however, when he cites Dennett’s criteria [318]and then uses those criteria to justify restriction of liberties to the “mature, average self−aware” species whose mental capacity matched or exceed the mental capacity of humans.[319]

Why Rivard cites Dennett’s propositions, particularly self−awareness, as evidenced by what Dennett terms ‘second−order volition’ as a characteristic that distinguishes human from other animals, is puzzling.

Dennett cites evidence of self−awareness in nonhumans with two illustrations of second−order thinking in animals. In one example, he had a friend whose dog was whining to get into the only chair in which he was allowed to sit, but was occupied by his master at the time. When the master would not get up, the dog went to the door and scratched as though wanting to go out. But when the master rose to open the door, the dog quickly ran back to seize the chair. Dennett sees this act of deception, based upon anticipating the reaction of the master, as not only second−order, but also third−order intentionality. Likewise, when my longtime canine companion stealthily seeks to pull down the tablecloth off the dining room table to cause the food to come crashing down, this reflects second−order thinking. Dennett insists that the actions of the dog are done with intentionality and are sufficient to posit intelligence, not just thinking the thoughts, and reflect just as much a second−order intentional system as any human.[320] Just as Dennett's criteria fail to meet the requirement of being objectively verifiable, Rivard's proposal needs to be reconsidered if it is to be consistent with the criteria he sets forth, including Dennett's yardsticks.

3. Uniform Definition of Persons Act (UDPA)

In a Georgetown Law Journal article entitled *Is There a Person in That Body?: An Argument for the Priority of Persons and the Need for a New Legal Paradigm*,[321]Charles Kester argues for a Uniform Definition of Persons Act (UDPA).

The proposed act reads as follows:

§ 1. An individual whose body sustains the functions necessary for consciousness is a "person" for the purpose of construing any and all statutes. An individual whose body is irreversibly incapable of sustaining the functions necessary for consciousness is not a person.

§ 2. If an individual whose body is irreversibly incapable of sustaining the functions necessary for consciousness at one time was an individual whose body sustained the functions necessary for consciousness, that individual is a dead person.

§ 3. Bodily functions necessary for consciousness shall be defined by accepted medical theories.

§ 4. The presence or absence of bodily functions necessary for consciousness shall be determined in accordance with accepted medical standards.

§ 5. Membership by an individual in a genetic species whose constituents possess bodies that sustain functions necessary for self−consciousness creates a rebuttable presumption that the individual is a person.

§ 6. A biological organism is an individual for purposes of § 1 to 5 if and only if that organism possesses a complete genetic code. All non−biological objects are individuals for purposes of § 1 to 4. [322]

His definition, would eliminate problems with a strictly biological definition, and be more encompassing. But support for this definition needs to be analyzed from moral and ethical viewpoints. Also, this definition fails to acknowledge the view that moral respect and legal status may be granted to nonconscious persons. Also, Kester goes on to state that both animals and the fetus possess minimal consciousness, although not self−consciousness. He makes the distinction that the fetus, however, has the potential to develop self−consciousness, whereas animals do not. He argues that the distinction is neither pedantic nor merely semantic, for consciousness is of "ontic" significance to personal identity.[323] This definition is flawed at a variety of levels: first, he fails to define consciousness and then fails to distinguish that from self−consciousness. Also, he presumes that everyone knows what self−consciousness is, even though it fails the test of being objectively verifiable. Like Rivard, supra, Kester cites Dennett's criteria in support of this view, but fails to come to the logical conclusion from Dennett's observations that animals are capable of self−consciousness, as evidenced by second−order volition. Interestingly enough, this section 6 of Kester's

definition might allow for a human cyborg to be recognized as a person, but Kester deliberately allows for artificial intelligence.[324] If consciousness is of “ontic significance,” how could he prove that AI develops consciousness when he dismisses it out−of−hand for other creatures? In the words of Kayhan Parsi, it is puzzling to me why so little attention should be paid to the interests of sentient animals, who can suffer, and so much concern expressed on behalf of beings, who, we have good reason to believe, cannot experience harm or suffering at all.[325]

4. A Broader Definition vs. Narrower

a.) Rachel Fishman’s Statutory Proposal

Rachel E. Fishman, in a law review article that was a first of its kind,[326] raises the possibility of “biohackers” and refers to science fiction visions of armies of genetically engineered slaves. She argues that to prevent the loss of legal rights of an altered human being who may no longer be found to be a member of the human species, it is imperative that the definition of "human being" be expanded. Is it not better to err on the side of generosity rather than parsimony when depriving a being of his or her legal rights? Is it not preferable that the definition be broad rather than narrow, particularly when it comes to protecting basic liberties? Although defining the qualities that make a creature human is a perennial problem in philosophy and medicine, she argues that it is worth striving for.[327]

To address these potential future problems, Fishman proposes legislation that the term “human being” mean:

(i) any genetically altered animal possessing one or more higher faculties such as:

a) the ability to reason (including, but not limited to, the ability to use facts and argue them, to arrive at conclusions from premises in a logical
manner, to explain observed phenomena and to form beliefs based on facts);

b) the ability to evaluate principles and observations to arrive at reasoned
decisions;

c) the ability to formulate speech and communicate;

d) the ability to develop meaningful personal relationships with other human
beings on the basis of equality;

e) the demonstration of awareness of self as a unique and separate being;

the ability to feel concern for others; or any other higher faculty;

or

(ii) any creature born of the ovum and sperm of parents who are human beings, whether or not the union of ovum and sperm was in utero, and whether or not the
genetic material of the resulting embryo was scientifically altered.[328]

This definition is the only one of the three proposed above in this paper that satisfies our intuitive moral considerations; but some might argue that this definition is overly broad so as to include too many animals. However, this approach is one that is gaining recognition; the Canadian Biotechnology Advisory Committee recognizes:

[W]hereas current laws can make the decision not to patent humans essentially one of practicality if not ethics, the question becomes more difficult when the exclusion of animals of various species is considered. If certain non−human animals are to be excluded, should it be those that are quantifiably similar to humans (for example, a certain percentage of genetic variance from humans), or animals that are qualitatively similar to humans (for example, their ability to think and reason)?" [329]

Also, some might argue that considering other species somehow "denigrates" the human race. But when a broad category of beings exists whose lives are considered expendable, almost anyone can be assigned there, as the history of slavery shows.[330] Once someone has been reclassified as a "lesser" being or less than fully human, they too can be exploited and manipulated with impunity.[331]

b). The United Nations Resolution

In a similar manner, the broader approach to "persons" can be accommodated if a wider view is taken, striving for commonalities rather than distinctions.[332] United Nations Resolution A−RES−37−7, the World Charter for Nature, declares:

a) Every form of life is unique, warranting respect regardless of its worth to man, and, to accord other organisms such recognition, man must be guided by a moral code of action…[333]

The resolution is a plea that life forms, other than those falling within the traditional concepts of human, are worthy of moral status. It also establishes a common scale of value that both human and nonhuman life have intrinsic worth.[334] Some might argue that humans need to learn to live peacefully with other humans before we can learn to live with other intelligent beings, human−or−not.[335] The process need not be exclusive – in fact, I would argue that the processes of learning to live with each other and others are intertwined and inseparable. Perhaps those who fear that granting dignity and rights to other life forms will result in loss of human dignity do so because of the lack of dignity that has historically been afforded to "lesser" beings. If we are no longer at the top of the heap, then can we expect to be treated with respect and dignity?

In a manner akin to Ivan Illich's call for a return to "proportionality"[336] and H. Patrick Glenn's search for commensurability,[337] a balancing approach, in the form of property – personhood continuum is suggested in the next section.

5. A Proposed Approach To Personhood and Property as Points on a Continuum.

Just as legal traditions reflect so much of the normativity of a culture, the ways that the four principles of bioethics (autonomy, beneficence, nonmalificence, and justice) are weighted and considered also reflect many of the norms of a culture. So it is with this in mind, that I propose the property – person continuum, with a balancing approach at each end point of the continuum. If one views the concept of personhood on a legal continuum, at one end of the spectrum, you would have property, such as inanimate objects, land, and those things that cannot suffer at the other end. Towards the center of the spectrum would recognize the notion of *quasi−property*, an idea that was recognized long ago in 1872 by the Rhode Island Supreme Court, [338] with regard to the treatment of dead bodies, as well as used recently in frozen embryo cases.[339] Further along the spectrum, the notion of *quasi−personhood* would provide an opportunity to address what Kayhan Parsi has referred to as the "troubled middle."[340] As one approaches the center of

the continuum you would have basic rights, which would consist of primarily negative liberties, such as the right to be free from torture, the right to be free of restrictive physical confinement or imprisonment, and right to maintain bodily integrity. At the other end of the spectrum, you have the Kantian ideal of the fully autonomous rational individual, with the attending full course of negative and positive rights, such as the right to vote and the right of self−determination as well as the responsibilities that attend those rights.[341] A balancing test is applied; the more apparently rational, autonomous, or communicative an individual is, the more rights he, she, or it has. To a large extent, the development of the case law by the United States Supreme Court could be interpreted to have created such a continuum, balancing test. For example, minor children cannot vote and do not have full legal rights of self−determination, nor do the incompetent; but we do not conduct experiments on them simply because they cannot communicate. Similarly, a corporation has rights to own property, but cannot maintain the Fifth Amendment privilege against self−incrimination. When we create sentient Artificial Intelligence and/or transgenic creatures should we extend to them, at the very least, the same protections as we currently extend to children and incompetents? As "creators," like parents, do we have attendant responsibilities as moral agents? Could this approach be used to deny sentient beings rights? The pros and cons of this balancing approach is perhaps best demonstrated through some illustrative, not−too−far−in−the−future, hypothetical case scenarios:

Case scenario 1: Through genetic manipulation, scientists have created baby chimpanzees with human vocal cords.[342] Although it unclear how extensive the vocabulary of the chimps might be, preliminary reports indicate that some of chimps have a similar capacity for language as young children under the age of five. Some of the scientists herald this as a major breakthrough for clinical trials and other biomedical research; other scientists and animal rights groups argue that experimentation on and restrictive confinement of these chimpanzees is unethical and constitutes the creation of a slave race. One side is saying that these chimpanzees are "property" and the community has no say in their living conditions or treatment, but at the same time, quick to reassure the public that the chimps are being treated "humanely." Animal rights groups, who have been arguing all along that chimpanzees can communicate, say this is just one more reason that chimpanzees and other primates should be granted moral and legal status as "persons."[343] A petition is filed seeking a declaratory judgment. Statutory law in the United States and Canada provides no clear−cut answer.

One of the advantages to applying the property – personhood continuum and a balancing approach would be in the flexibility of the courts in considering the issues. What facts are relevant? Does the fact that these creatures are over 99% genetically identically to humans merit consideration, especially with the addition of vocal cords and language? Does the fact that they have the ability to communicate change things, or is it that up until now we have been unable or unwilling to communicate? What liberty and/or property interests are at stake? Another advantage that courts have is the ability to administer a remedy that is proportionate to the rights and interests of those who lack full autonomy.[344] For example, a court can recognize a minimum negative right[345]or liberty interest to maintain bodily integrity, and thus be free from enslavement or vivisection, without extending any other positive[346]rights or liberties.

On the flip side, the same flexibility can be seen as a possible disadvantage in that this balancing approach could be used to strip existing rights from the weak or disabled and to justify racism, bigotry or other hierarchical bias, as was done in the *Dred Scott* case, discussed *supra*. The adoption and endorsement of statutory language like that proposed by George Annas, Rachel Fishman, and the United Nations is critical in delineating intent and preventing a detrimental outcome. Whatever the decision would be, such a scenario would open a debate on how our society treats sentient beings and would hopefully, help us think "outside the box" of our current laws.

Case scenario 2: A few years ago, Mr. and Mrs. D came into a fertility clinic; Mrs. D had a partial hysterectomy and was unable to carry a child to term, but the couple indicated they would like to have children sometime in the future. The couple has several embryos frozen for future use, to be implanted into either the husband (a male pregnancy) or an artificial womb; both husband and wife agree that in the event of death or divorce, the embryos may be donated to another couple or used for research. Several years later, the artificial womb or male pregnancy technology is perfected, but the couple divorces. Mr. D remarries, goes

into the fertility clinic with his new wife (the new Mrs. D), doesn't inform the clinic about the divorce (and the clinic either doesn't think to ask or perhaps Mr. D even deliberately misleads the clinic) and proceeds to have the clinic implant the embryos into the new artificial womb the clinic installed a few months ago. Two of the embryos take, and within six weeks, are developing nicely; the formation of a brain and spine is readily evident. Of course, about the same time, the former Mrs. D. finds out what her ex−husband has done and hires a lawyer to go into court and have the embryos destroyed.

The application of the property – personhood continuum allows the court to go where no court has gone before: with the issue of viability no longer applicable and the problem of the mother as "reproductive conduit" [347] removed, the court need not be limited to the appendage metaphor. In this scenario, while the application of the continuum allows new notions of personhood and property to emerge, the impact of such decisions may negatively impinge other interests (e.g. – a person's interest not to have his/her genetic material dispersed?) and bring up questions with which we are not yet prepared to deal (e.g.− Does the State have an interest in protecting these developing embryos?).

Case Scenario 3: The Shadow Government has covertly designed a new breed of cyborg[348] −soldiers, for the purposes of law enforcement or "peace−keeping" missions. They are physically more machine than organic tissue, but their intellect is run by a neural interface with brain tissue that has been donated for research. They have the ability to communicate, make rational decisions and have served their purpose. As time goes by, the cyborg−soldiers are no longer needed, or become outdated, and are relegated to cleaning toxic waste, hazardous duties, or repetitious chores. Some of the cyborg−soldiers simply seek freedom; others revolt, and declare that they are superior, and start acting violently, destroying property, possible creating a threat to the community and public at large. The government seeks to destroy them, claiming they are mere property, but some have escaped and seek refuge.

The application of the property–personhood continuum allows the courts to recognize potential rights or liberties, and also to attribute responsibilities that correspond to the recognition of rights and rationality. With the granting of rights to rational autonomous beings, comes the burden of responsibility.[349] Under the current dichotomy, a court cannot hold a piece of property liable; but in applying the property−personhood continuum the court can allocate responsibilities corresponding to the rights. Also, in the same way that parents may be held responsible for the actions of their children,[350] the creators or manufacturers of the cyborg could be held liable; their actions as creators of sentient beings could very well imbue them with duties as moral agents. The right to create potentially sentient beings carries with it the corresponding responsibility to an as yet indeterminate, but definite, degree for the their (the created sentient beings) actions and impact on the human community, the biosphere of the earth and the universe as a whole.

A comment in the April 2001 *Harvard Law Review*,[351] notes that law often serves as a repository for expressions of anxiety about powerful and divisive social issues, as in the case of slavery dividing the country prior to the Civil War. In addition to functioning as a "conceptual bran−tub,"[352] the law can actually shape behavior by creating social norms that people use to measure the morality and worth of their actions. Eric Posner argues that when the law signals a certain set of values, it facilitates behavioral changes, by sending a signal about what behavior is unacceptable (perhaps causing people to engage in those actions less frequently), and acts hermeneutically, shaping and changing the beliefs people hold.[353] The casuistic approach of the property – personhood continuum is not an easy one, but it is an approach that can grow and evolve, and take into account the complexities of new developments in both society and biotechnology.

As to the argument that we somehow "denigrate" humanity by granting moral respect and/or standing to a nonhuman through the legal system, I respond that this is a classic problem with the "hierarchical" perspective. Although the courts are necessarily engaged in the interpretation and application of fundamental notions of status, the current case law in the United States is based primarily on the Judeo−Christian hierarchical paradigm, despite the claim of separation of church and state.[354] The system has yet to recognize that other worldviews and other valid perspectives exist; at some point a claim will arise that the state has violated religious freedom by refusing to acknowledge that the distinction between person and property is not as clear cut as the current economically conservative United States Supreme Court of today

might say.

The other flaw in suggesting that we some "devalue" humanity by granting respect and protection to other creatures is that it suggests that things and people are valuable because we value them, not because they have inherent value. I argue that it is important to recognize fundamental interests, such as the liberty and dignity and worth of each life, ***regardless of its worth to man;*** that rights are based on irrefutable principles of justice, fundamental fairness, and reasonableness.[355]

Much of this argument relies on the age−old debate of cultural relativism versus absolutes: Are things or beings or ideas valuable because we value them or because they are inherently valuable?[356] If they are valuable only because we say they are, then it follows that they must lack value if we don't value them. This cultural relativist approach would suggest that slave trade was morally acceptable because of the time and norms; that the killing doctors of the Nazi concentration camps did nothing wrong; and that the Tuskegee syphilis researchers were justified in their approach because the victims were less than human. If one takes a cultural relativist approach, the entire notion of basic human rights is a fraud and the work of the United Nations is worthless. If things, beings, ideas are valuable, then they must be accorded basic respect and liberties, and the law needs to enforce and recognize those. To paraphrase Kayhan Parsi, the metaphor of stewardship suggests a certain moral regard that does not necessarily invoke the traditional metaphors of person, property or appendage; the metaphor of stewardship suggests that these creatures are within our moral regard; that they should not be treated as mere things, but rather, with the recognition they have certain intrinsic and conferred interests.[357] I believe that the way we treat ourselves is a reflection of the way we treat the universe; what we give out is what we get back; and that the law should express our most noble aspirations.

Part VI. – Summary and Conclusion

As different forms of life are created through transgenics, genetic engineering, and artificial intelligence, the courts and legislatures will be forced to determine where these creations fall on the person – property continuum. Although the current trend in the United States Supreme Court is to emphasize economic and property rights, cultural change eventually leads to legal change. Despite intermittent setbacks, the overall history of the United States Constitution has been one of increasing protection and expansion of individual rights and liberties.

In proposing my property−personhood continuum, an approach that is broader rather than narrower, I am striving for commensurability, a concept that has been put forth eloquently by H. Patrick Glenn, in his book, *Legal Traditions of the World*.[358] Incommensurabilities exist when there is a vacuum of a common scale of values. However, two people who hold incommensurable values can ***create*** common ground when one or both changes their values, empathize, or agree to disagree and work towards a common goal.[359] When this happens it is a joy to behold; witness the shift from acceptance of slavery to the abolishment of it; witness what happened in South Africa with Apartheid. Thankfully, a small but emerging part of humanity seems to realize that finding common ground is the key to our survival on our planet; unfortunately, a good part of humanity has not yet come to grips with that. Unless we humans strive for commensurability, the alternative is war and strife.[360] A recently popular bumper sticker proclaims, “Change is inevitable; Growth is optional.” In the parlance of today’s youth, another way to say this might be: “Change Happens; Deal with It.” Although I may not see this balancing approach, property – personhood continuum, adopted as a legal standard in my lifetime, if the world is to survive, eventually the intersection/interaction of this world’s cultures, philosophies, religions, and laws will force this to occur.

As to the argument that we somehow “denigrate” humanity by granting moral respect and/or standing through the legal system, I respond that this is a matter of perspective. I do not see it as denigrating to have humanity shift from a hierarchical paradigm[361] to a paradigm of humanity as nurturing caregivers, protectors of life and liberty, guardians of the weak and fragile, and stewards of the earth and all its inhabitants. Indeed, that is one of the most ennobling aspects of being a lawyer, an advocate, a counselor−at−law. Although the hierarchical paradigm may still be the most predominant, other paradigms are emerging, such as the circle of interdependence and emergent pyramid. These paradigms are gathering strength from modern philosophers, lawyers, bioethicists, theologians, and the general citizenry, all of whom can and should provide input to prudent changes in the legal system.

Until then, we can expect intense cross−disciplinary debate, and discussion as new intelligent life is created through science and medicine and recognized legally, morally, and ethically.

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[1] Walter Glannon, *Tracing the Soul: Medical Decisions at the Margins of Life*, Christian Bioethics, 2000, Vol. 6, No. 1, at 49−69.

[2] For the purposes of this paper, a chimera is defined as a creature composed of diverse genetic materials. This is discussed in more detail in Part IA.

[3] For the purposes of this paper, I will sometimes use humans and persons interchangeably, because, as discussed later, the law often defines “persons” without any reference to or distinction from “human.”

[4] http://www.transgenics.com/about.html

[5] http://www.wired.com/news/print/0,1294,20874,00.html

[6] http://www.technews.vt.edu/Archives/2000/Aug/00243.html

[7] Weiss, Rick, *Gene Alteration Boosts Pig−Human Transplant Feasibility*, Washington Post, January 3, 2002; Page E05

[8]Longman, Jeri, ***Someday Soon, Athletic Edge May Be From Altered Genes,*** New York Times, ***May 11, 2001 Section A13***

[9] Annas, *infra*, note 307 at 788

[10] Newman, Stuart, *Almost Human – and Patentable, Too!* Genewatch, July 1998, Volume 11, No. 3

[11] But the patenting of cloned embryos (mammal and human) has been approved; see http://www.icta.org/intelprop/temp.htm and http://www.nytimes.com/2002/05/17/science/17CLON.html (both accessed January 28, 2003)

[12] White House press release, Aug. 9, 2001, also available at http://www.whitehouse.gov/news/releases/2001/08/20010809−2.html; see also the Pew Forum on Stem Cell Research at http://pewforum.org/projects/stemcell/.

[13] Connolly, Ceci, Administration Promoting Abstinence Family Planning Efforts Are Being Scaled Back Washington Post, Monday, July 30, 2001, p. A01, also available at http://www.washingtonpost.com/ac2/wp−dyn/A477−2001Jul28?language=printer

[14] Brink, Susan, *The Smallest Preemie*, U.S. News and World *Report.* March 30, 1998,

also available at: http://www.usnews.com/usnews/issue/980330/30pree.htm; however, my understanding and experience at Montreal Children's Hospital is that this extremely rare, and that 23 or 24 weeks is generally the threshold.

[15] Bayne, Karen and Farrar, Steve, *Science ready to let men have babies*, The Sunday Times, Feb. 21,1999, p.3 News; see also Farrar, Steve and Toyne, Sarah, ***Men seek treatment to become pregnant***, The Sunday Times, March 14, 1999, p.7 News

[16] Valz, Duane, *A Review of Children of Choice and New Reproductive Technologies*, by John Robertson, 10 High Tech. L.J. 1, 1995, p. 201, citing Unno, Nobuya et al., *Development of an Artificial Placenta*: *Survival of Isolated Goat Fetuses for Three Weeks With Umbilical Arteriovenous Extracorporeal Membrane Oxygenation*, 17(12) Artificial Organs 996 (1993); see also Conference Agenda at Oklahoma State University, *The End of Natural Motherhood? Artificial Wombs and Designer Babies*, available at http://philosophy.okstate.edu/agenda.html

[17] The legal ramifications of this on the discussion of personhood are discussed later in this paper.

[18] Hall, Stephen, *Adult Stem Cells*, Technology Review, Nov. 2001, at 42−49.

[19] http://www.redcross.org

[20] J. G. Toma et. al., *Isolation of multipotent adult stem cells from the dermis of mammalian skin*, Nature Cell Biology 3, 778−784; Sept. 2001 See also Carolyn Abraham, *McGill team harvests stem cells from skin*, The Globe and Mail, Aug. 13, 2001.

[21] Jonietz, Erika, *Cellular Genomics*, Technology Review, September 2001, p.75

[22] Weiss, Rick, *Parthenotes' Expand the Debate on Stem Cells*, Washington Post December 10, 2001; A11

[23] Wilmut, Ian from a presentation at the Mammalian Cloning: Implications for Science and Society, June 26−27, 1997, Arlington, Virginia

[24] http://www.actionbioscience.org/biotech

[25] Andrews, Lori B., *My Body, My Property*, Hastings Center Report, Vol. 16 (5), 1986, at 28−38.

[26] *Moore v. Regents of University of California*, 793 P.2d 479 (1990), *cert. denied*, 499 U.S. 936 (1991)

[27] *Id.*

[28] Freedman, Benjamin, and Coughlin, Michael D., *Born Again: the ethics of first body transplants*, Speculations in Science and Technology, Vol. 12, No. 2, at 83−95 (1989)

[29] Radin, Margaret Jane, *Property and Personhood*, 34 Stanford L. Rev. 957 (1982)

[30] *Id*. at 962−966; see also Campbell, C.S., *Body, Self, and the Property Paradigm*, in Hastings Center Report, Vol. 22 (5), 1992, at 34−42.

[31] See Radin, *supra*, note 29 at 962−963 (where Radin describes the Kantian and Lockean views of personhood)

[32] Andrews, *supra* note 25

[33] Radin, *supra* note 29, at 967

[34] Andrews, Lori and Nelkin, Dorothy, *Do The Dead Have Interests? Policy Issues For Research After Life*, 24 Am. J.L. & Med. 261, 1998.

[35] This is not to suggest that Andrew and Nelkin support this type of commercialization; in fact, in their article cited *supra* note 32 recognizes and advocates policy restrictions on this type of action.

[36] Canadian Biotechnology Advisory Committee, *Biotechnology And Intellectual Property:*

Patenting of Higher Life Forms and Related Issues, Interim Report to the Government of Canada,

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[37] Canada currently prohibits the patenting of higher life forms, which any organism with more than a single cell; however, the report mentioned in fn 28 recommends that legislation be introduced to allow patenting of higher life forms, which certainly could include cell lines or stem cells of human origin.

[38] Campbell, Courtney S., *Body, Self, and the Property Paradigm*, in Hastings Center Report, Vol. 22 (5), 1992, at 34−42.

[39] T. W. Reich (ed.), Zaner, R.M.. *Body: Embodiment: The Phenomenological Tradition*, in Encyclopedia of Bioethics, New York, Simon & Schuster Macmillan, 1995, Vol. 1, p. 293−299.

[40] Radin, *supra*, note 29, p. 959

[41] *Id*., at 986−988

[42] Freedman and Coughlin, *supra* note 28

[43] Hughes, James J., *The Future of Death: Cryonics and the Telos of Liberal Individualism*, This Journal, Volume 6, July 2001, *also available at* http://www.jetpress.volume6/death.htm

[44] Studer, Lorenz, *Stem Cells with Brainpower*, Nature Biotechnology, Dec. 2001,Vol. 19 No. 12, at 1117 – 1118; see also Hughes, *supra* note 43.

[45] Hughes, *supra* note 43.

[46] A young man who had I pleasure of meeting in Rhode Island; his poignant story is told by his father, Richard Galli, in the book *Rescuing Jeffrey*, St. Martin's Griffin Publishing, 1999.

[47] McGee, Ellen and Maquire, G.Q. Jr., *Implantable Brain Chips? Time for Debate*, The Hastings Center Report, Jan−Feb. 1999, Vol.7.

[48] *Id.*

[49] *Id*.

[50] *Id.*

[51]Gugliotta, Guy, *The Robot with the Mind of an Eel: Scientists Start to Fuse Tissue and Technology in Machines* Washington Post, April 17, 2001; Page A01

[52] To create the hybrid, the team extracted a lamprey's brainstem and part of its spinal cord under total anesthesia, and maintained it in an oxygenated and refrigerated salt solution, then located a few very large nerve cells and attached them by electrodes to the small robot so the nerve cells could receive signals from the device's electronic "eyes" and respond to light and other stimuli; the process worked: the nerve cells sent commands to move the machine's wheels.

[53] Gugliotta, *supra* note 51.

[54] http://www.kevinwarwick.org

[55] Moravec, Hans, *Mind Children: The Future of Robot and Human Intelligence*, Harvard University Press, Cambridge, MA, 1988

[56] http://www.minduploading.org/; see also http://www.foresight.org/Nanomedicine/Uploading.html

[57]Cook, Gareth, *Building the bodies of a new machine: ingenious chips merge human cells and silicon to model human organ*, Boston Globe, June 26, 2001, Section: National, A2.

[58] *Id*.

[59] *Id.*

[60] Vedantam, Shankar, *Brain cells and Silicon Linked*, Washington Post,, August 28, 2001; Page A03

[61] *Id*.

[62] Rotman, David, *Quantum Dot*, Technology Review, Jan−Feb 2001, Vol. 104, No. 1, at51−58

[63]An example of one of these developments is the creation of “Buckyballs,” also known as “Fullerenes,” containers made of molecules containing 60 carbon atoms arranged in a sphere with a hollow center. Named after Buckminster Fuller's geodesic dome because they have the same shape, Buckyballs are extraordinarily tiny −− only a nanometer long, which is one−millionth the diameter of a human hair −− these balls of carbon are perfectly smooth and round. Buckyballs are inert, nontoxic, and so tiny that they interact easily with cells, proteins and viruses; because they are infinitely modifiable they can act as a delivery system for drugs to treat conditions as varied as AIDS, Lou Gehrig's disease, osteoporosis and cancer. See Neimark, Jill, *Buckyballs Make Fantastic Voyage*, Wired News, August 1, 2001, at http://www.wired.com/news/technology/0,1282,45481,00.html

[64] Nicolelis, Miguel, *Brain−Machine Interfaces*, Technology Review, Jan−Feb 2001, Vol. 104, No. 1, at 99

[65] Hockenberry, John, *The Next Brainiacs*, *Wired*, Aug. 2001, at 94 − 105

[66] Kennedy, Philip R., Roy A. Bakay et al., *Direct control of a computer from the human central nervous system*, IEEE Trans Rehabil Eng, Vol. June 8(2), 2000 at 198−202; *see also* Kennedy, Philip R and

Bakay, Roy, *Restoration of neural output from a paralyzed patient by a direct brain connection*,

Neuroreport, Vol. 9(8), 1998 at 1707−11.

[67] A second article in the same magazine entitled *More on the Brain−Body−Machine Interface* lists several websites that one can log on to if you’re interested in either following the technology or in participating as a human subject:

National Institute of Mental Health Human Brain Project:
http://www.nimh.nih.gov/neuroinformatics/index.cfm

UCLA Brain Mapping Center: www.brainmapping.org

General information: www.brainland.com; www.neuroguide.com

Homepage for the scientific journal *Human Brain Mapping*:

www.interscience.wiley.com/jpages/1065−9471

The University of Washington Human Brain Project:

sig.biostr.washington.edu/projects/brain

[68]See Kennedy and Bakay, *supra* note 66; see also
www.education.mcgill.ca/profs/cartwright/papers/wfs99/symbionics.pdf

[69] *Diamond v. Chakrabarty*, 447 U.S. 303; 100 S. Ct. 2204; 65 L. Ed. 2d 144; (1980)

[70] See Canadian Biotechnology Advisory Committee, *Biotechnology And Intellectual Property:*

Patenting of Higher Life Forms and Related Issues, Interim Report to the Government of Canada

Biotechnology Ministerial Coordinating Committee, November 2001, recommending allowance of patenting higher life forms, *also available at* http://www.cbac−cccb.gc.ca

[71] *Id*. at 11

[72] Although "cyberhood" has been used as a term to describe a virtual community as in a "cyber−neighborhood," I am proposing here that this term be used to describe the emerging notion of "cyber−personhood," be it as a virtual extension of a body or a virtual representation of oneself.

[73] Although there might be a claim for lack of informed consent, the compensatory damages on that type of claim are difficult to document and evaluate.

[74] Franklin, Stanley P., *Artificial Minds*, MIT Press, 1998 (3rd ed.), at 187−188

[75] Definition from *Collegiate Dictionary*, Merriam−Webster, Inc., (2001)

[76] *Id.*

[77] http://www.aaai.org/

[78] Franklin, *supra*, note 74, at 186

[79] Kurzweil, Ray, *The Age of Spiritual Machines: When Computers Exceed Human Intelligence* (1999)

[80] Interview with Ray Kurzweil on TechTV, Jan. 11, 2002

[81] Moravec, Hans, *When will computer hardware match the human brain*? This Journal, vol. 1, March 1998

[82] Kurzweil, *supra* note 79; *see also* www.kurzweilai.net.

[83]*Id.*, Chapter 6

[84]Gardner, Howard, *Frames of Mind: The Theory of Multiple Intelligences*, Basic Books, (1993).

[85] Glenn, Jerome Clayton, *Future Mind: Artificial Intelligence*, Acropolis Books, at 286−288, (1989). See also Freitas, Robert A, Jr., *Xenopsychology*, Analog 104(April 1984):41−53; http://www.rfreitas.com/Astro/Xenopsychology.htm#SentienceQuotient, where a "sentience quotient" is suggested as measure of intelligence based upon physical constants of the universe.

[86] Georges, Thomas M., *Smarter than Us?: Intelligent Machines and Human Values*, (2001), at 49

[87] *Id.*

[88] Moravec, Hans, *Robot: Mere Machine to Transcendent Mind* (1998) Oxford University Press, Ch. 4

[89] This vision has been criticized as a dangerous attempt that would threaten the human species and likened to Hitler's *Mein Kampf* in the way that Moravec envisions "perfecting" human beings. Well−respected scientist and author Isaac Asimov, who realized the possible threat long before anyone did proposed that the following three (later, four) rules be programmed into any artificial intelligence:

1. A robot may not injure a human being, or, through inaction, allow a human being to come to harm.*

2. A robot must obey the orders given it by human beings except where such orders would conflict with the First Law.

3. A robot must protect its own existence as long as such protection does not conflict with the First or Second Law.

*Later extrapolated to include the fourth law:

4. A robot may not injure humanity or, through inaction, allow humanity to come to harm.[89]

Although these rules are well intended, they preclude several uses for which intelligent machines are already being used (i.e., military uses, security) and will likely be used (e.g., soldiers, policemen).

[90]Retrieved from the World Wide Web on October 2, 2001 from www.transhumanism.org

[91] Rachels, James, *The Elements of Moral Philosophy*, McGraw−Hill College (3rd ed., 1999)

[92] The quote starts with: "Then God said: Let Us make man in Our image, according to Our likeness.." Query as to whom was he referring when he said "Our"? Traditionally, this has been argued that this is a reference to the Holy Triune (Father, Son, Holy Spirit); some modern spiritual writers argue that this language reflects unity in the sense of "oneness," continuity, and synchronicity. For example, See www.oneness.com and www.celestinevision.com

[93] Gaylin, Willard, *In Defense of the Dignity of Being Human*, The Hastings Center Report, August 1984, at 18−22

[94] Lovejoy, Arthur O., *The Great Chain of Being: A Study of the History of an Idea*, Harvard University Press, 1960.

[95] Barnes, Jonathan, (ed.), *The Complete Works of Aristotle,* Aristotle: On the Generation of Animals, Harvard University Press, Vol. 2, at 1128−1137 (1984)

[96] Lovejoy, *supra* note 100.

[97] Rachels, James, *Created from Animals: The Moral Implications of Darwinism*, Oxford University Press, at 85, 112−117 (1990); see also Barnes, *supra,* note 95, Vol. 3, Aristotle: On the Soul.

[98] Fletcher, Anthony, *Gender, Sex, and Subordination in England 1500−1800,* Yale University Press, at 347−363 (1999)

[99] Rachels, *Created, supra* note 97, at 85−89.

[100] Keyserlingk, Edward, *Sanctity of Life or Quality of Life in the context of medicine, ethics, and law*, Law Reform Commission of Canada (1979), at 10−14

[101] Having been raised Catholic, I can attest to being told that this is one of the reasons women cannot be ordained as priests.

[102] Rachels, *Created, supra* note 97

[103] *Id.*

[104] *Id.*

[105] Wise, Steven M. *Rattling the Cage: Towards Legal Rights for Animals*, Perseus Books, at 20 (2000);

[106] *Id.* at 20, 71−77

[107] Montalbano, William D., *Vatican Finds Galileo 'Not Guilty', Pope Admits Error In Rejecting Theory*, Los Angeles Times, Nov. 1, 1992 at 40.

[108] Goodstein Laurie, *Pope Backs Acceptance Of Evolution: John Paul Continues Effort To Reconcile Science And Faith*, Washington Post, Oct 25, 1996, A1; see also Macer, Darryl C., *Bioethics is a Love of Life*, Eubios Ethics Institute, 1998, available at http://www.biol.tsukuba.ac.jp/~macer/bll/bll6.html

[109] Rachels, *Created, supra* note 97, at 85−90.

[110] Keyserlingk, *supra* note 100, at 9.

[111] *Id.* at 47, 66−68

[112] *Id.*, at 13

[113] *Id.*, at 24−25,42

[114] Ramsey, Paul, *Basic Christian Ethics*, Westminster John Knox Press, Reprint Ed., 1993

[115] Kass, Leon, *Towards a More Natural Science: Biology and Human Affairs*, Free Press, October 1985

[116] McCormick, Richard A., *How Brave a New World?* Washington, DC, Georgetown University Press, 1985

[117] Keyserlingk, *supra* note 100, at 11

[118] Macer, *supra* note 108

[119] *Id.*, and Keyserlingk, *supra* note 100, at 11−12

[120] Quote from Caillat, Colette, *Ahimsa*, Encyclopedia of Religion. 1987, p.152

[121]The other four vows being *Truth* (*Satya*), *Non−stealing* (*Achaurya or Asteya*), *Celibacy/Chastity* (*Brahmacharya*), and *Non−attachment/Non−ownership of material goods* (*Aparigraha*), *Id.* at p. 153

[122] *Id.* at 153

[123] Schweitzer, Albert. *Out of My Life and Thought*. New York, NY: Henry Hold and Company, 1933.

[124] Keyserlingk, *supra* note 100, at p.42

[125] Glenn, H. Patrick, *Legal Traditions of the World*, "Tolerating Change" Oxford University Press, 2000, at 266−278

[126] Rachels, *Elements*, *supra*, note 91 at 132

[127] Wise, *supra*, note 105 at 9 − 22

[128] Rachels, *Elements*, *supra* note 91, at 132

[129] Neither of whom believed that women, children or slaves should be considered as having the same moral status as persons, because they had no immortal souls. See Wise, *supra* note 105 at 12.

[130] See note 85 *supra*; the hierarchical "Great Chain of Being" also reflects the Kantian approach.

[131] Rush, Florence, *The Best Kept Secret: Sexual Abuse of Children*, McGraw−Hill Books, (1981), at 16−55 (discussing the treatment of women and children as property in Greek and Judeo−Christian society).

[132] Woodhouse, Barbara Bennett, *Who Owns The Child?: Meyer And Pierce And The Child As Property*, 33 Wm and Mary L. Rev. 995, Summer, 1992

[133] Parsi, *infra* note 255

[134] Rachels, *Elements*, *supra* note 91, at 98.

[135] If this seems like a leap of logic to you, you're not alone. For a horrific description of the atrocities this so−called logic led to, check out Rachels, *Elements*, *supra* note 91, at 160 and Rachels, *Created*, *supra* note 97, at 131−132.

[136] Rachels, *Created from Animals*, *supra* note 97, at 131−132 and Wise, *supra* note 105 at 1−7.

[137] Rachels, *Elements*, *supra* note 91, p. 103

[138] Peck, M. Scott, *Denial of the Soul*: *Spiritual and Medical Perspectives on Euthanasia and Mortality*, Harmony Books, Crown Publishers, NY (1997)

[139] Engelhardt, Tristam, *The Foundations of Bioethics*, Oxford University Press, 1996, at 138−145

[140] *See infra*, text accompanying notes 184−217.

[141]For the purposes of discussion, I am using Manuela Veloso's limited definition of autonomous, from her "*Robots: The Need for a New Turing Test?"* at the Science and Spiritual Quest Conference presentation, in Boston, October 2001, naming three capabilities: 1) Perception (ability to perceive environment), 2) Action (ability to respond to perceived sensations), 3) Cognition (the ability to reason, experiment, and learn from feedback).

[142] Gershenfeld, Neil, *When Things Start to Think*, Henry Holt and Co. Publishers (1999)

[143] *Id.* at 104

[144] Rachels, *Elements*, *supra* note 91, at 118

[145] Singer, Peter, *Animal Liberation*, New York Review of Books, (2nd ed., 1990)

[146] See Keyserlingk, *supra* note 100

[147] *Id.*

[148] Rollin, Bernard, *The Frankenstein Syndrome: Ethical and Social Issues in the Genetic Engineering of Animals*, Cambridge University Press, 1995, at 11−17.

[149] *Id.* at 156−157.

[150] *Id.* at 159.

[151] Although this is beyond the scope of this paper, Rollins' argument brings up the question of whether or not artificial intelligence, if it could be argued that it was sentient, could experience psychological pain or existential angst. And what of the future cyborg, whose brain tissues may control a computerized body, but cannot experience physical pain, as we know it?

[152] Rollins, *supra* note 148, at 209; for a thorough analysis of the issues regarding nonhuman animals as persons vs. animals as property, *see also* Wise, *supra* note 105.

[153] Keyserlingk, *supra*, note 100 at 97; see also Joseph Fletcher, *Humanhood: Essays in Biomedical Ethics* (New York: Prometheus Books, 1979)

[154] *Id.*

[155] Indeed, when presenting this list at several conferences, a number of participants implied that they knew more than a few people in their workplace and classrooms who might not meet all of these criteria at any given time.

[156] Fletcher, Joseph, *The Ethics of Genetic Control: Ending Reproductive Roulette*, Prometheus Books, 135−139 and 154−156 (1988)

[157] Keyserlingk, *supra* note 100 at 98−99.

[158] *Id.*

[159] *Id*.

[160]Dennett, Daniel, *Conditions of Personhood*, in Brainstorms: Philosophical Essays on Mind and Psychology, (1978) Bradford Books, at 268−270.

[161] Dennett's schizoid approach continues in his latest work, *Brainchildren: Essays on Designing Minds*, Penguin Books, 1998

[162] Parfit, Derek, *Reasons and Persons*, (Oxford: Oxford University Press, 1986).

[163] *Id* at 211.

[164] James, William, *Principles of Psychology*, (1890), also available at http://www.emory.edu/EDUCATION/mfp/james.html#principles

[165] *Id.*, at Ch. 10, p. 181, *available at* http://psychclassics.yorku.ca/James/Principles/prin10.htm

[166] Georges, *supra* note 86, at 77

[167] Castaneda, C. *The Teachings of Don Juan: A Yaqui Way of Knowledge.* Berkeley: University of California Press, 1968

[168] Davies, Paul, "*A Cosmic Religious Feeling*," presentation at the Science and Spiritual Quest Conference, Boston, October, 2001; see also evolutionary biologist Terence Deacon's, *Three Levels of Emergent Phenomena*, same conference

[169] Glenn, Jerome Clayton, *Future Mind: Artificial Intelligence*, Acropolis Books, 35−37 (1989)

161 *Id*.

[171] *See* text accompanying notes 91−93

[172] Glenn, H. Patrick, *supra note 125*, at 56−85.

[173] Keen, Sam, *Hymns to an Unknown God: Awakening the Spirit in Everyday Life*, Bantam Books, 1995

[174] Hammerman, Joshua, *Thelordismyshepherd.com*, Simcha Press/Health Communications, Inc. (2000)

165 Some popular bestsellers reflecting this interest include Deepak Chopra's, *How to Know God, The Soul's Journey into the Mystery of Mysteries*, Three Rivers Press, (2000); Marianne Williamson, *A Woman's Worth*, Ballantine Books (1994); Thomas Moore's *Care of the Soul: A Guide for Cultivating Depth and Sacredness in Everyday Life*, Harperperennial Library (1994)

[176] Zukov, Gary, *The Dancing Wu Li Masters: An Overview of the New Physics*, Bantam Books; (September 1994)

[177] Davies, *supra* note 168

[178] Keen, *supra note 173*, quoting Paul Davies, *The Mind of God*, Simon and Schuster, 1993

[179] Davies, *supra note 168*

[180] Peacocke, Arthur, *God and the New Biology* (London: Dent, 1986), at 6

[181] Davies, *supra note 168*

[182] Deacon, Terrence, "*Three Levels of Emergent Phenomena,*" presentation at the Science and Spiritual Quest Conference, Boston, Oct.2001

[183] *Id.*

[184] *Id*.

[185] Peacocke, Arthur, *Paths from Science towards God: the End of All Our Exploring*, Oneworld, Oxford (2001), *passim*

[186] *Id.;* also from Arthur Peacocke's presentation at *Science and the Spiritual Quest* Conference, Boston, October, 2001

183 *See* note 165; for sample websites, check out www.virtualchaos.org; www.counterbalance.org; www.ctns.org; www.howtoknowGod.com.

[188] For the purposes of this paper, I am limiting my historical perspective to a brief description of the development of the law of personhood in the Western world; for an extensive exploration of the development of legal traditions internationally, see H. Patrick Glenn, *supra note 125*.

[189] See Rachels, *Created*, *supra*, note 97 and Wise, *supra* note 105; *see also* Post, Dianne, *Why Marriage Should Be Abolished*, 18 Women's Rights L. Rep. 283, Spring (1997), at 309

[190] Wise, *supra*, note 105, at 31; see also Douglas MacDowell, *The Law in Classical Athens*, Cornell University, 1978.

[191] Wise, *supra*, note 105, at 33; see also Edward D. Re, *The Roman Contribution to the Common Law*, 29 Fordham L. Review 447 (1960)

[192] Post, Dianne, *Why Marriage Should Be Abolished*, 18 Women's Rights L. Rep. 283, Spring (1997) at 285, 309.

[193] Wise, Steven M., *The Legal Thinghood Of Nonhuman Animals*, 23 B.C. Envtl. Aff. L. Rev. 471 Spring, (1996), p. 492

[194] Chthonic law being defined as native or aborigine law, which is oral rather than written; see H.P. Glenn, *supra note 125* at 56−61.

[195]*Res Nullius* is the Latin phrase for the Roman law pertaining to physical things which "have not or have never had" an owner; s*ee* Wise, *supra* note 189.

[196] Yelpaala, Kojo, Owning The Secret Of Life: Biotechnology And Property Rights Revisited, Symposium: Biotechnology and the Law, McGeorge Law School, Fall 2000

[197] *Id.; See* also Georg Wilhelm Friedrich Hegel, *Elements of the Philosophy of Right*, tr. by A. Wood and H. Nisbet (Cambridge, 1991).

[198] H.P. Glenn, *supra*, *note 125* at 116−153

[199] *Id*.

[200] *Id*.

[201] Wise *Legal Thinghood article*, *supra* note 189 at 506

[202] H.P. Glenn, *supra note 125*

[203] Wise, *Legal Thinghood article*, *supra* note 189 at 516

[204] Post, *supra note 189*

[205] *Id*.

[206] *Id*.

[207] Diwan, Paras, and Diwan, Peeyushi, *Laws relating to dowry, dowry deaths, bride burning, rape and related offences*, Universal Law Pub. Co, Delhi (1997); for a list of books and laws relating to this offense, see http://www.dkagencies.com/dowry.htm and http://www.indiatogether.org/wehost/nodowri/stats.htm

[208] Rierson, Sandra L., *Race And Gender Discrimination: A Historical Case For Equal Treatment Under The Fourteenth Amendment*, 1 Duke J. Gender L. & Pol'y 89, 1994

[209] Post, *supra, note 189*

[210] *Id.* at 306.

[211] *Id.* at 308

[212] *Id*. at 296

[213] L'Heureux−Dube, Claire, *The Legacy of the "Persons Case": Cultivating the Living Tree's Equality Leaves*, 63 Sask. L. Rev. 389, 2000; see also K. Lahey, *Legal 'Persons' and the Charter of Rights: Gender, Race and Sexuality in Canada*, 77 Can. Bar Rev. *40*(1998)

[214] Rierson, *supra* note 197

[215] Post, *supra note 189*

[216] 20 Howell's State Trails 1 (K.B. 1772)

[217] Wise, *supra* note 105 at 50

[218] Wise, *supra* note 105, at 51, citing William M. Wiecek, *Somerset: Lord Mansfield and the Legitimacy of Slavery in the Anglo−American World*, 42 University of Chicago Law Review 86, 102, note 55, 105 (1974).

[219] *Id*.

[220] Wise, *supra* note 105, at 51, citing *Somerset v. Stewart*, *supra*, at note 204, 72 (KB 1772)

[221] *Id.*

[222] Finkelman, Paul, *Let Justice Be Done, Though The Heavens May Fall: The Law Of Freedom*, 70 Chi.−Kent L. Rev. 325, 1994

[223] *Sanford v. Scott*, 60 U.S. 393; 15 L. Ed. 691; 1856 U.S. Lexis 472; 19 How 393

[224] *Id*. at 407

[225] U.S. Const. Amend. XIII, §1: Neither slavery nor involuntary servitude, except as a punishment for crime, whereof the party shall have been duly convicted, shall exist within the United States or any place subject to their jurisdiction, *available at* http://caselaw.lp.findlaw.com/data/constitution/amendment13 .

[226] U.S. Const. Amend. XIV,: All persons born or naturalized in the United States and subject to the jurisdiction thereof, are citizens of the United States and of the State wherein they reside. No State shall make or enforce any law which shall abridge the privileges or immunities of citizens of the United States; nor shall any State deprive any person of life, liberty, or property, without due process of law; nor deny to any person within its jurisdiction the equal protection of the laws; *also available at* http://caselaw.lp.findlaw.com/data/constitution/amendment14.

[227] U.S. Const. Amend. XV, §1:The right of citizens of the United States to vote shall not be denied or abridged by the United States or by any State on account of race, color, or previous condition of servitude; *also available at* http://caselaw.lp.findlaw.com/data/constitution/amendment15.

[228] Rierson, *supra* note 197

[229] *Minor v. Happersett*, 88 U.S. (21 Wall.) 162 (1874).

[230] *Id*. at 172−173

[231] Rierson, *supra* note 197

[232] L'Heureux−Dube, *supra* note 202, citing *Edwards v. Canada (A.G.)*, [1930] A.C. 124 (P.C.); Interestingly, the Honorable Justice L'Heureux−Dube notes that, ironically, the Privy Council came to this conclusion despite the fact that the English courts had decided just a few years earlier that women were not persons in England.

[233] *Id.*

[234] Full text of the Canadian Charter of Rights and Freedom available at http://www.efc.ca/pages/law/charter/charter.text.html.

[235] L'Heureux−Dube, *supra* note 202.

[236] Woodhouse, Barbara Bennett, *From Property To Personhood: A Child−Centered Perspective On Parents' Rights,* 5 Geo. J. Fighting Poverty 313 (1998)

[237] *Id.*

[238] *Id.*

[239] *Id.*

[240] *Id.*

[241] *Id.*

[242] *Id.*

[243] *Id.*

[244] Full text of the convention available at http://www.unhchr.ch/html/menu3/b/k2crc.htm .

[245] Woodhouse, *supra* note 221.

[246] Alison Dundes Renteln, *The Unanswered Challenge of Cultural Relativism and the Consequences for Human Rights,* (1985) 7 Human Rights Quarterly, 514−540; and her book, *International Human Rights: Universalism Versus Relativism,* Newbury Park, CA: Sage, 1990.

[247] *Foley v. Connelie,* 419 F. Suat 889, 891 (S.D.N.Y. 1976), *aff'd,* 435 U.S. 29 (1978) (holding that aliens are "persons" within the meaning of the Fourteenth Amendment's Equal Protection Clause); *C.D.R. Enter., Ltd. v. Board of Educ.,* 412 F. Suat 1164, 1168 (E.D.N.Y. 1976), aff'd, 429 U.S. 1031 (1977) (including resident aliens within the scope of "person" under the Fourteenth Amendment's Equal Protection and Due Process protections).

[248] *In re Scott K.*, 595 P.2d 105, 108 (Cal. 1979) (concluding minors are "persons" with rights under the United States Constitution).

[249] Labor unions have been interpreted to be "persons" under the Sherman Act and the Clayton Act, see, e.g., *Casey v. FTC,* 578 F.2d 793, 797 (9th Cir. 1978)

[250] Rivard, Michael, *Towards a General Theory of Constitutional Personhood: A Theory of Constitutional Personhood for Transgenic Humanoid Species*, 39 UCLA Law Review 1425, at 1467−1470.

[251] *See id.* at 1445 (describing the judicial inclusion of artificial beings in the definition of personhood: "Juridical persons are legal constructs, such as corporations.")

[252]Santa Clara County v. Southern Pacific Railroad Co., 113 U.S. 394 at 396.

[253] Rivard, *supra* note 246, at 1451−54 (describing the judicial decision underlying the precedent as "an important conclusion ... based on... little reasoning")

[254] *Bellis v. United States*, 417 U.S. 85 (1974), *Braswell v. United States*, 487 U.S. 99 (1988) *In re Grand Jury Witnesses*, 92 F.3d 710 (8th Cir. 1996*); U.S. v. Dean*, 989 F.2d 1205 (D.C. Cir. 1993); *U.S. v. Wujkowski*, 929 F.2d 981 (4th Cir. 1991).

[255] Parsi, Kayhan, *Metaphorical Imagination: The Moral and Legal Status of Embryos and Fetuses, 2 DePaul J. Health Care L. 703* (1999)

[256] *Dietrich v. Inhabitants of Northampton*, 138 Mass. 14 (1884).

[257] *Id.* at 15

[258] *Id.* at 15

[259] Parsi, *supra*, note 251 at 719

[260] *Id.*

[261] *Id*. at 708, citing Bonnie Steinbock, *Life Before Birth: The Moral And Legal Status of Embryos And Fetuses* (New York: Oxford Univ. Press 1992)

[262] *Id*. at 709, citing Steven Maynard−Moody, *The Dilemma of the Fetus* 185, St. Martin's Press (1995)

[263] *Id.*

[264] *Id.*; this approach is exemplified in the case of *Davis v. Davis*, 842 S.W.2d 588, 596−97 (Tenn. 1992), where the Tennessee Supreme Court held that one of the parties had a right to dispose of frozen embryos in dispute.

[265] *Id.*

[266] *Id.* at 748.

[267] *Id.*

[268] Warnock, Mary, *A Question of Life: The Warnock Report on Human Fertilization and Embryology.* New York, Basil Blackwell, 1985.

[269] Wertz, Dorothy C., *Human Embryonic Stem Cells: A Source of Organ Transplants*, GeneLetter, Feb. 1, 1999, *also available at* http://www.geneletter.org/archives/humanembryonicstemcells.html

[270] *Id.*

[271] *Id.*

[272] Parsi, *supra* note 251.

[273] *Id*. at 705

[274] *Roe v Wade* (1973) 410 US 113, 93 S Ct 705, reh den (1973) 410 US 959, 93 S Ct 1409.

[275] *Webster v. Reproductive Health Services*, 492 U.S. 490, 106 L. Ed. 2d 410, 109 S. Ct. 3040, (1989)

and *Planned Parenthood v. Casey*, 505 U.S. 833, 120 L. Ed. 2d 674, 112 S. Ct. 2791 (1992)

[276] King, Patricia A. *The Juridical Status of the Fetus: A Proposal for the Legal Protection of the Unborn*, 77 Michigan Law Review 1647 (1979), p. 1684.

[277] *Planned Parenthood v. Danforth*, 428 U.S.52, at 64 (1976)

[278] See *infra*, at 10−12 and text accompanying notes 13,14,15.

[279]See http://www.lucifer.com/~sean/BT/21.html#21womb and http://philosophy.okstate.edu/motherhood.html

[280] *Winnipeg Child and Family Services (Northwest Area) v. G. (D.F.)*, [1997] 3 S.C.R. 925.

[281] See http://www.prochoiceconnection.com/pro−can/fetusperson.html

[282] Parsi, *supra* note 251, at 717 (quoting Strachan Donnelley who has argued that in the animals rights context, there are three groups of people: the anthropocentric advocates of human welfare and scientific progress, the staunch animal rights activists who view animals as our moral equals, and then the "troubled middle ... [who] wish to balance the undeniable benefits that result from scientific research with a genuine concern for the well−being of animals." This troubled middle view could easily be applied to the issue of the status of embryos and fetuses. The troubled middle position suggests the strong ambivalence ordinary people have toward our treatment of the unborn.)

[283] Langerak, Edward A., *Abortion: Listening to the Middle*, Hastings Center Report Vol. 9, No. 5 (October, 1979), at 24−8

[284] An article made this same point 22 years ago: Freitas, Robert A. Jr., *Fetal Adoption: A Technological Solution to the Problem of Abortion Ethics*, The Humanist 40 (May/June 1980):22−23;

http://www.rfreitas.com/Astro/FetalAdoption.htm

[285] Parsi, *supra* note 251, at 704

[286] Rivard, *supra* note 246

[287] *Id.*

[288] Longman, *supra* note 8.

[289] Rivard, *supra*, note 246.

[290]*Notebook, The Scientist* 10[10]:31, May. 13, 1996 and

http://www.the−scientist.com/yr1996/may/notebook_960513.html

[291]Wilson, R.A. (Ed.), *Species: New Interdisciplinary Essays*, The MIT Press, 1998

[292] H. Goerke, *Linnaeus* (New York, Charles Scribner's Sons, 1973), p. 90.

[293] Futuyma Douglas J., *Evolutionary Biology*, 3rd edition, Sinauer Associates, Inc., 1998

[294] Carolus Linnaeus (a/ka/ Carl von Linné) (1706−1778) was a Swedish naturalist who took it upon himself to classify the entire natural world; his grand opus S*ystema Naturae* was published in 1758**;** he became popularly known as "God's Registrar."

[295] Boitani, Luigi and Bartoli, Stefania, *Simon & Schuster's Guide to Mammals*, 1983.

[296] *Id.*

[297] *Id.*

[298] *See* Futuyma, *supra* note 288; this is the most common understanding of the term by non−scientists; however, is important to note that members of the different **species,** but of the same taxonomic **genus,** can interbreed if the correct numbers of chromosomes are present. Often the offspring such as mating are sterile, but this is not a steadfast rule, just a statistical probability. There are some instances of reproduction in hybrids: *See* Jolly, Clifford J., et al., *Intergenetic Hybrid Baboons*, International Journal of Primatology, Vol. 18 at 597−627, 1997; and Markarjan, D.S., et. al., *Intergenetic hybrids of the lower monkey species of the Sukhumi Colony*, Journal of Human Evolution, Vol.3 at 247−255, 1974.

[299] Futuyma, *supra* note 288

[300] *Id.*

[301] *Id.*

[302] *Id.*

[303] *Id.*

[304] Archeology, *A New Species?*, Volume 50, No. 5, September/October 1997, *also available at* http://he.net/~archaeol/9709/newsbriefs/gran.dolina.html; see also http://www.talkorigins.org/faqs/homs/species.html

[305] *Id.*

[306] *Id.*

[307] Annas, George J. *The Man on the Moon, Immortality, and Other Millennial Myths: the Prospects and Perils of Genetic Engineering*, Emory Law Journal, Vol. 49, No. 3, Summer 2000, at 780

[308] *Id*. at 778

[309] Chea, Terence, *Litter of Gene−Altered Pigs Cloned: Step Lifts Hopes For Transplants Into Humans* Washington Post, Thursday, January 3, 2002, E05

[310] Annas, *supra* note 302

[311]Canadian Biotechnology Advisory Committee, *Biotechnology And Intellectual Property: Patenting of Higher Life Forms and Related Issues*, Interim Report to the Government of Canada

Biotechnology Ministerial Coordinating Committee, November 2001.

[312] The Council for Responsible Genetics, Article 2 of the Genetic Bill of Rights, adopted April 2000

[313] Annas, *supra* note 302 at 781, *fn* 92

[314] A phrase borrowed from Kevin Hart, *Samuel Johnson and the Culture of Property*, Cambridge University Press, 1999.

[315] Parsi, *supra*, note 251

[316] Annas, *supra* note 302, at 773

[317] Rivard, *supra* note 246

[318] Dennett, *supra,* note 156; *see also supra* text accompanying note 156

[319] Rivard, *supra* note 246.

[320] Dennett, *supra* note 156 at 275−276.

[321] Kester, Charles, *Is There a Person in That Body?: An Argument for the Priority of Persons and the Need for a New Legal Paradigm*, 82 Geo. L.J. 1643, at 1684−1685

[322] *Id.*

[323]*Id.*

[324] *Id*., at 1671

[325] Parsi, *supra* note 251, at 767; Of note, on the same page, Parsi expresses a sentiment with which I wholeheartedly agree: “If I have any beliefs about immortality, it is that certain dogs I have known will go to heaven, and very, very few persons.”

[326] Fishman, Rachel E., *Do Sub−Human Creatures Deserve Constitutional Protection?*, 15 Am.J.L.and Med 461(1989)

[327] Id. at 477−478

[328] *Id* at 480−481

[329] Canadian Biotechnology Advisory Committee, *Biotechnology And Intellectual Property: Patenting of Higher Life Forms and Related Issues*, Interim Report to the Government of Canada Biotechnology Ministerial Coordinating Committee, November 2001, at p. 17; *also available at* http://www.cbac−cccb.gc.ca

[330] Fishman, *supra* note 321.

[331] *Id.*

[332] Renteln, *supra* note 237; see also Wise *supra* note 105, at 73

[333] United Nations Resolution *A−RES−37−7*, World Charter for Nature, adopted October 28, 1982; full text *available at* http://www.un.org/documents/ga/res/37/a37r007.htm.

[334] Wise, *supra* note 105 at 75

[335] Wise, *supra* note 105, *passim.*

[336] Illich, Ivan, *The Wisdom of Leopold Kohr*, Resurgence magazine, vol. 184

[337] Glenn, H. Patrick, *supra note 125*

[338] *Pierce v. Proprietors of Swan Point*, 14 Am. Rep.667, 10 RI 227 (1872) The court held the body of deceased beloved was a sort of “quasi−property,” Id. at 676−77

[339] *See* discussion in Part V, B−2.

[340] Parsi, *supra*, note 251 at 717

[341] Actually, Dr. Jeanann S. Boyce, doctor of Computer Science at Montgomery College, argues that at this end of the spectrum would be a disembodied artificial intelligence, perhaps existing on the Internet. This raises an interesting prospect, to be explored more fully in another paper.

[342] Inspired, in part, by an example given in *Bending Towards Justice*, a chapter in the book by Stephen Wise, *supra* note 105, at 262−263.

[343] In fact, these arguments have already been advanced and argued in court by lawyer Stephen Wise, *supra* note 105.

[344] Wise, *supra* note 105 at 256; he describes this as “proportional autonomy”

[345] Negative rights can be described as “freedom from”, i.e., the right to be free from physical assault, battery, enslavement, imprisonment, torture. *See* Wise *supra* note 105, at 55.

[346] Positive rights can be described as “freedom to”, i.e., the right to exercise free speech, to vote, to own property. See Wise *supra* note 105, at 56.

[347] Raymond, J G, *Reproductive Gifts and Gift Giving: The Altruistic Woman*, Hastings Center Report, (1990) Vol. 20 (6), p.7

[348] Defining cyborg as someone who relies on cybernetic mechanisms for his or her survival and has merged or bonded with the interface or artifice.

[349] Wise, *supra* note 105, at.49−61

[350] Lockwood, Lisa, *Where are the Parents? Parental Criminal Responsibility for the Acts of Children*, 30 Golden Gate U.L. Rev. 497, Spring, 2000

[351] Note, *What We Talk About When We Talk About Persons: The Language of a Legal Fiction*, 114 Harv. L. Rev. 1745, April 2001, at 1758

[352] An analogical reference to the processing of grain, prior to the mechanical separation of the chaff from the kernel; *see* Glenn, H.P., *supra note 125*, at 12

[353] Harvard Law review Note, *supra* note 334, at 1484

[354] See Post, *supra note 189*, at 285: “This close tie between canon law and secular law surely violates the alleged principal of separation of church and state.”; also see Keyserlingk, *supra* note 100, at 10, wherein he states that Western law is shaped to large degree by Judaism and Christianity.

[355] Wise, *supra* note 105

[356] *Id.*

[357] Parsi, *supra* note 251 at 785

[358]Glenn, *supra note 125*.

[359] Wise, *supra* note 105 at 73−77.

[360] Glenn, H. Patrick, *supra* note 117

[361] Which has been argued to be a very male−oriented paradigm by feminist sociologist Donna Haraway, author of *Simians, Cyborgs and Women: The Reinvention of Nature,* Routledge (1991) at 149−181.