

APES, DARWINIAN CONTINUITY, AND THE LAW

By
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This article proposes that the delusional worldview that “man” is outside of and above the other “defective” organic beings in nature is completely without empirical scientific foundation. While respected members of academia have used this delusion to pander to the vanity of the educated members of the human species, this article presents solid empirical evidence from chimpanzee sign language research to contradict these speculations. The basic assumptions derived from this delusional view are examined and logically discredited. Finally, an alternative and harmonious way of being is presented that is derived from the acceptance of the biological reality of continuity.

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Truly discontinuous, all-or-none phenomena must be rare in nature. Historically, the great discontinuities have turned out to be conceptual barriers rather than natural phenomena. They have been passed by and abandoned rather than broken through in the course of scientific progress. The sign language studies in chimpanzees have neither sought nor discovered a means of breathing humanity into the soul of a beast. They have assumed instead that there is no discontinuity between verbal behavior and the rest of human behavior or between human behavior and the rest of animal behavior—no barrier to be broken, no chasm to be bridged, only unknown territory to be explored.¹

I. PREFACE

For years I have worked closely with lawyers on projects that aimed to make things better for our fellow apes. I have written countless affidavits in support of chimpanzees and other primates. One of my first serious sorties into this arena was with the Animal Legal Defense Fund (ALDF) and the Animal Welfare Institute (AWI). In 1991, the government issued its long overdue regulations for the care of chimpanzees. The problem was that the biomedical industry had successfully lobbied to kill any improved standards, so the new rules said nothing about enlarging cage size or other recommendations that would improve conditions. ALDF and AWI were outraged, as was I. They contacted me, looking for a research scientist to be a co-plaintiff. On July 15, 1991, I joined in a lawsuit against the United States Department of Agriculture (USDA).² In February 1993, U.S. District Court Judge Charles Richey found in our favor, stating that the government's refusal to enlarge cages and set standards for the psychological well-being of primates was arbitrary, capricious, and contrary to law because it was inconsistent with the USDA's original findings.³ It appeared that the USDA would now require the laboratories to take significant and measurable steps to improve the living conditions of captive chimpanzees.

Unfortunately, Judge Richey's ruling did not stand.⁴ The National Association of Biomedical Research (NABR) joined with the USDA to appeal his decision, and in July 1994, Judge Richey's ruling was overturned.⁵ The court did not disagree with the logic Judge Richey used,

¹ *Teaching Sign Language to Chimpanzees* xvii (Gardner et al. eds., St. U. of N.Y. Press 1989).

² *ALDF v. Sec. of Agric.*, 813 F. Supp. 882 (D.D.C. 1993).

³ *Id.* at 889.

⁴ *ALDF v. Espy*, 29 F.3d 720 (D.C. Cir. 1994).

⁵ *Id.* at 726.

but nonetheless held that because the human plaintiffs had not suffered any injury, they had no standing.⁶ Instead of humans, it was the chimpanzees who had suffered because the Animal Welfare Act (AWA)⁷ was not upheld by the USDA. Under our legal system chimpanzees are considered to be property; therefore, they cannot legally suffer or file a suit. This is the result of a major flaw in our legal system and our civilization's conception of our place in Nature; one that is out of touch with biological and empirical realities.

That lawsuit was just the beginning of the legal fight to protect chimpanzees. In 1996, the ALDF sued the USDA once again for not issuing adequate regulations for the psychological well-being of primates under the AWA.⁸ The ALDF sought to protect a chimpanzee named Barney, who was languishing in solitary confinement in a cage at a government-licensed game farm in Long Island.⁹ I visited Barney at the ALDF's request and documented in an affidavit that he had been deprived of all companionship, and as a result, he was suffering severe psychological and physical distress. Judge Richey once again ruled that the USDA had violated the AWA and must rewrite its rules to prevent animal suffering.¹⁰ Once again the NABR joined with the USDA to appeal Judge Richey's decision.¹¹ They petitioned on the issue of standing again, claiming that none of the plaintiffs had the right to bring this action to force the USDA to enforce the AWA. A three-judge panel of the U.S. Court of Appeals first decided in the NABR and USDA's favor, holding that none of the plaintiffs had legal standing.¹² Apparently unsatisfied, the court then ordered an *en banc* hearing.¹³ The court remanded, holding that one of the plaintiffs, Marc Jurnove, had legal standing.¹⁴ The lower court decided there was no AWA violation in allowing institutions and zoos to self-regulate regarding maintenance of the psychological well-being of the primates they control.¹⁵ Even though the ruling was a disappointment, the ALDF's efforts were not wasted. A human may have standing to go to court to pursue enforcement in the future.

The attorneys I worked with saw me as a chimpanzee expert. My assistance ranged from providing general knowledge about chimpanzees that could be used to argue for better care, to the use of my research on the linguistic and cognitive abilities of chimpanzees to

⁶ *Id.* at 725.

⁷ 7 U.S.C. § 2131 (2000).

⁸ *ALDF v. Glickman*, 943 F. Supp. 44 (D.C. 1996).

⁹ *Id.*

¹⁰ *Id.* at 59–60.

¹¹ *ALDF v. Glickman*, 130 F.3d 464 (D.C. Cir.1997).

¹² *Id.* at 466.

¹³ *ALDF v. Natl. Assn. for Biomedical Research*, 136 F.3d 829 (D.C. Cir.1998).

¹⁴ *ALDF v. Natl. Assn. for Biomedical Research*, 154 F.3d 426 (D.C. Cir. 1998) (*en banc*).

¹⁵ *ALDF v. Glickman*, 204 F.3d 229 (D.C. Cir. 2000).

support the case for giving them rights. This article provides the reader with a sample of that research.

As for the type of expert that I am, some people call me a primatologist, which is correct, but my training was in Psychology with a specialization in Comparative Psychology. One of the most basic tenets of Comparative Psychology is that if you are going to study a critter, you should know that critter well. In my efforts to improve the lives of chimpanzees, I have made it a practice not only to know chimpanzees, but to also know the critters who are intent on exploiting them.

I hope that the knowledge of chimpanzees, and of their exploiters, will be of use to lawyers who wish to take up the cause of our next of kin. This article offers information regarding the incorrect viewpoint of exploiters, to help lawyers in their legal arguments. The laws will improve when society recognizes biological reality; therefore, I continue to work with the ALDF's Great Ape Legal Project.¹⁶ I am currently working with the ALDF on a special project to help bring legal recognition to chimpanzees.

II. INTRODUCTION: THE DELUSION

Our perspective of the world determines how we behave in it. If we thought Earth was flat, we would avoid trying to sail around it. If we thought Earth was the center of the universe, we might try to explore other planets, but without much success. While geocentric models are now regarded as an erroneous part of our scientific history, we are currently experiencing a major change in perspective with regard to our species' place in nature and our relationships with other organic beings. Since Darwin wrote *The Origin of Species*¹⁷ almost 150 years ago, a great deal of evidence has been discovered stimulating change from the erroneous view that "man" is superior to and different in kind from our fellow beings, to a view emphasizing evolutionary continuity for both the mind and body.

For an example of how our worldview affects our behavior, consider the following questions: How would witch hunts be viewed today? Would our legislatures consider laws that would allow the punishment of people who practice witchcraft? Could one seek damages from a person they accused of putting a curse on them? Such charges and claims would be laughed at today, yet it is estimated that they resulted in hundreds of thousands of deaths in our past through the offices of church and state.¹⁸ These wrongs were visited mainly on women and were the result of a misled worldview. The judges, prosecutors, and

¹⁶ ALDF, *Issues, The Great Ape Legal Project*, <http://www.aldf.org/article.asp?cid=20> (accessed Oct. 2, 2003).

¹⁷ Charles Darwin, *The Origin of Species: By Means of Natural Selection* (Prometheus Books 1991) (originally published 1859).

¹⁸ Anne Llewellyn Barstow, *Sunshine for Women, Book Summaries, Witchcraze: A New History of European Witch Hunts*, <http://www.pinn.net/~sunshine/book-sum/wichcrz.html> (accessed Oct. 11, 2003).

people of that time believed in this false worldview, though it was inconsistent with the empirical realities of life.

The Platonic-Aristotelian and Cartesian worldviews, which see “man” as superior to all other beings, including women, are also unrealistic. They remain popular even though they starkly contrast the empirical reality of Darwinian continuity, which states that evolution must be gradual, with no major breaks or discontinuities.¹⁹ In the ancient Greek worldview—the more traditional and ladder-like “chain of being” model—inferior creatures were placed in descending order below the superior Greek male human.²⁰ Descartes’ worldview was slightly different, maintaining that a definite gap, or difference in kind, existed between man and the defective automata below him.²¹ But his view still maintained a hierarchy with “man” above and outside of nature, and lumped all the other beings below “man” in one great unthinking, unfeeling, imperfect mass of automata.²² These imperfect automata were considered quite distinct and different in kind from “man” because they lacked reason and, being machinelike, were incapable of thought and feeling.²³

Plato’s notion of the ideal was the basis of man’s assumption of superiority, which implicitly carried with it the notion of “not ideal” as one descended the chain of being below man.²⁴ From Plato’s student, Aristotle, arose a companion concept in the law of contradiction which stated that A cannot be both B and non-B; therefore A must be either B or non-B.²⁵ This bivalence provided us with a false sense of *certainty* and *absolute prediction*.²⁶ True and false became our absolutes. Plato’s ideals²⁷ and Aristotle’s excluded middle²⁸ led to essentialism,²⁹ which was one of the main barriers to the theory of evolution.

¹⁹ Ernst Mayr, *Darwin’s Influence on Modern Thought, A Secular View of Life* ¶ 1, http://www.biologie.uni-hamburg.de/b-online/e36_2/darwin_influence.htm (accessed Oct. 13, 2003).

²⁰ Steven M. Wise, *How Nonhuman Animals Were Trapped in a Nonexistent Universe*, 1 *Animal L.* 15, 18–19 (1995).

²¹ E. G. Boring, *A History of Experimental Psychology* 162 (2d ed., Prentice Hall 1957).

²² *Id.*

²³ *Id.*

²⁴ Plato, *The Republic*, in *The Works of Plato* 397 (Irwin Edman ed., Jowett trans., Modern Lib. College Edition, Random H. 1956); Richard Hooker, *World Civilizations, Greek Philosophy, Plato*, <http://www.wsu.edu:8080/~dee/GREECE/PLATO.HTM> (accessed Oct. 10, 2003).

²⁵ See Aristotle, *The Metaphysics* 58 n.11 (Hippocrates G. Apostle trans., Ind. U. Press 1966) (even Aristotle saw problems with this notion since a few pages earlier in his *Metaphysics* he recognized that “more” and “less” are still present in the nature of things).

²⁶ See generally Bart Kosko, *Fuzzy Thinking: The New Science of Fuzzy Logic* xvi (Hyperion 1993) (explaining the core of fuzzy logic as “the paradigm shift from the black and white to the gray—from bivalence to multivalence”).

²⁷ Hooker, *supra* n. 24.

²⁸ Aristotle, *supra* n. 25, at 70–71.

²⁹ Mayr, *supra* n. 19, at *The Darwinian Zeitgeist* ¶ 4.

Essentialism holds that each species is completely distinct from all other species and is based on an eternal static essence.³⁰ Variations are nothing more than imperfections in the underlying essence.³¹ This model placed permanent gaps in the phylogenetic scale. Today this archaic, superstitious notion still survives and science still implicitly clings to the concept that humans are somehow different from, and superior to, all other beings. Sadly, the law reflects this archaic view, resulting in countless wrongs against nonhuman animals.

Darwin's principle that all biological functions vary in degree rather than kind is accepted with regard to blood and bone. However, application of this principle to the mind still remains embattled, and at the center of the battle is language. A long tradition has perpetuated the claim that language is the defining trait of human primates. This tradition has persisted through the rise and fall of many paradigms, despite a surprising lack of scientific study concerning its place in non-human animals.³² Even today, many theorists hold to the uniqueness of human language in spite of strong empirical evidence to the contrary.³³

The conception of human nature espoused by the Cartesians, who hold humans to be "extra-natural," is not based on empirical fact but, as Harvey Sarles points out, is derived more from our long established theological, political, and metaphysical beliefs about humans.³⁴ The notion is that what makes humans unique and different in kind from nonhuman animals is our rational mind, and language is the ultimate manifestation of that unique rationality.³⁵ This is a system of thought, or perhaps more correctly stated, a dogma that presumes language and rational thought are the same thing.³⁶ This presumption of language-equals-rational-thought prescribes against arguments to the contrary, because they would be against rationality, a circular argument.³⁷ Also, it would view any attempt to study a behavior such as language in another animal to be silly and fruitless. This approach only accounts for the differences between humans and nonhuman animals.³⁸ It eliminates all options for discovering what nonhuman animals are actually like.³⁹

Our conception of nonhuman animals derives from our assumptions about humans and then presumes that these unique abilities are

³⁰ *Id.*

³¹ *Id.*

³² Robert M. Seyfarth & Dorothy L. Cheney, *Communication and the Minds of Monkeys*, in *The Origin and Evolution of Intelligence* ch. 2 (Arnold B. Scheibel & J. William Schopf eds., Jones & Bartlett Publishers 1997).

³³ See *Teaching Sign Language to Chimpanzees*, *supra* n. 1 (collection of data presenting empirical evidence of chimpanzee and human's common use of language).

³⁴ Harvey B. Sarles, *Language and Human Nature* 24-25 (U. of Minn. Press 1977).

³⁵ *Id.* at 26.

³⁶ *Id.* at 23.

³⁷ *Id.*

³⁸ *Id.*

³⁹ *Id.*

absent in our fellow animals, without finding out. Under this system, nonhuman animals are conceptualized as either defective humans or worse, mere unthinking, unfeeling objects to be exploited. It also deems defective any humans who are not ideal in the Platonic sense.⁴⁰ This approach is “implicitly, and perhaps necessarily, RACIST.”⁴¹ It forces us “to convince ourselves how a few of the have-nots could have come upon what we consider to be language.”⁴² Of course, many academics have used the absence of evidence or studied intentional ignorance to come up with explanations to do just that. Two such academics, Steven Pinker and Konrad Lorenz, are discussed in the section that follows.⁴³

A. *Pandering to Human Arrogance and Vanity*

It is virtually impossible to begin a discussion on language without a mention of the Cartesian linguist Noam Chomsky. His influence is apparent in the fact that he currently ranks as one of “the ten most-cited writers in all of the humanities.”⁴⁴ Chomsky claims that grammar is innate and that the neurological structures responsible for it can be conceived as a “language organ.”⁴⁵ As a result, he has been placed squarely in the ranks of Darwinian theory. Darwin stated that natural selection “can act on every internal organ, on every shade of constitutional difference, on the machinery of life.”⁴⁶ Chomsky could base his theory on this Darwinian perspective. However, he is a vocal opponent of Darwin, not only in regard to language but also in regard to natural selection as a mechanism for evolution.⁴⁷ Chomsky said that natural selection “amounts to nothing more than a belief that there is some naturalistic explanation for these phenomena” and that “[t]he laws that determine possible successful mutation and the nature of complex organisms are as unknown as the laws that determine the choice of hypotheses.”⁴⁸

Some of Chomsky’s epigones have tried to correct his disdain for natural selection by incorporating evolutionary ideas into his work. However, the queasiness felt by a Darwinian after reading Chomsky’s statement will not quickly fade by this synthesis. Steven Pinker criticized Chomsky’s elimination of natural selection in an attempt to show his theory of innate grammar in light of instinctual behavior.⁴⁹ Unfor-

⁴⁰ *Id.* at 28.

⁴¹ *Id.* (emphasis in original).

⁴² *Id.* at 23.

⁴³ Steven Pinker, *The Language Instinct: How the Mind Creates Language* (Harper Perennial 1995); Konrad Lorenz, *On Aggression* (Harcourt, Brace & World, Inc. 1966).

⁴⁴ Pinker, *supra* n. 43, at 23.

⁴⁵ Noam Chomsky, *Reflections on Language* 11 (Pantheon 1975).

⁴⁶ Darwin, *supra* n.17, at 61.

⁴⁷ Noam Chomsky, *Language and Mind* 13 (enlarged ed., Harcourt Brace Jovanovich 1972).

⁴⁸ *Id.* at 97.

⁴⁹ Pinker, *supra* n. 43, at 362.

tunately, while praising Darwin's theory for eliminating the theological "chain of being" argument, Pinker systematically refuted the related concept of continuity of organic beings.⁵⁰

Pinker's assertion is based not on observation, but on a misunderstanding of the distinction between species. Darwin's conception of species was not based on static, well-defined distinctions. Instead, Darwin saw *species* as a term:

arbitrarily given, for the sake of convenience, to a set of individuals closely resembling each other, and that it does not essentially differ from the term *variety*, which is given to less distinct and more fluctuating forms. The term *variety*, again, in comparison with mere individual differences, is also applied arbitrarily, for convenience' [sic] sake.⁵¹

Pinker is not alone in this misconception. Others before Chomsky indulged in such pandering to human arrogance, and some did not have the excuse of being ignorant of Darwin. The famous biologist, Konrad Lorenz, felt that language turned humans into demi-animals who were not comparable to nonhuman animals, and the only way we could discover our hidden animal nature was by studying other nonhuman animals.⁵² Lorenz described "the greatest gifts of man" as being "the unique faculties of conceptual thought and verbal speech which have raised him to a level high above all other creatures."⁵³ Note the implicit assumption of a vertical chain of being. This exemplifies adherence to the widely criticized Platonic-Aristotelian and Cartesian worldviews and further displays a lack of acceptance for the Darwinian definition of species.

Other famous scientists such as Simpson⁵⁴ and Dobzhansky⁵⁵ make the same reference to a humanistic worldview. Dobzhansky states, "Language is also the most diagnostic single trait of man: all normal men have language; no other now living organisms do."⁵⁶ Dobzhansky's statement includes an implicit notion of defectives with the phrase "all normal men." Others continue to embrace this difference in kind to justify the wrongs we commit on our fellow nonhuman animals, such as justifying the use of chimpanzees in biomedical research under the guise of maternal and paternal love to save human children.⁵⁷ Likewise, some scientists claim our fellow animals are de-

⁵⁰ Pinker, *supra* n. 43.

⁵¹ Darwin, *supra* n. 17, at 40 (emphasis in original).

⁵² Lorenz, *supra* n. 43.

⁵³ *Id.* at 238.

⁵⁴ George G. Simpson, *The Biological Nature of Man*, 152 *Science* 472, 474 (1966) ("[M]ankind is a kind, a definite and single species. A biological species is an evolutionary unit composed of continuing populations that regularly interchange genes by interbreeding and that do not or cannot have such regular interchange with other species.").

⁵⁵ H. Dobzhansky, *On the Evolutionary Uniqueness of Man*, in *Evolutionary Biology* 415 (T. Dobzhansky, M. K. Heckt, & W. C. Steere eds., Appleton-Century-Crofts 1972).

⁵⁶ *Id.* at 419.

⁵⁷ See generally *Americans for Medical Progress*, <http://www.amprogress.org> (accessed Oct. 19, 2003) ("central resource for news and information about the necessary

fective based not on their own terms, but on conceptions of them as derived from their own arrogant conceptions of themselves. Accordingly, because of this false assumption of defectiveness, humans kill, torture, and exploit nonhuman animals for profit and gain.

III. SIGN LANGUAGE STUDIES OF CHIMPANZEES⁵⁸

Why is the continuity of ape and human language so vehemently and emotionally rejected by some quarters of academe when Darwinism maintains that the cognitive difference between apes and humans is one of degree? It is because many academics still adhere to Aristotelian superstitions and the Cartesian Dark Ages notion that humans are separate from nature and different in kind from our fellow animals. While this egocentric position may be popular and handy for justifying exploitation and abuse, it is out of touch with biological reality and serves little purpose other than exaggerating human-centric notions beyond what science has demonstrated. Below is a sample of the realities derived from careful and empirically sound studies that take chimpanzees on their own terms.

A. Cross-Fostering

While chimpanzees have great difficulty adapting their vocalizations to human speech, they can freely move their hands, illustrating their well-suited ability in gestural language.⁵⁹ R. Allen and Beatrix Gardner recognized this in their sign language studies with young chimpanzees.⁶⁰ In 1966, they brought ten-month-old Washoe to the University of Nevada at Reno when they began their cross-fostering study.⁶¹ The Gardners described their approach as follows:

Cross-fostering a chimpanzee is very different from keeping one in a home as a pet. Many people keep pets in their homes. They may treat their pets very well, and they may love them dearly, but they do not treat them like children. True cross-fostering—treating the chimpanzee infant like a human child in all respects, in all living arrangements, 24 hours a day

and humane nature of scientists' work with laboratory animals in biomedical and behavioral research").

⁵⁸ Subsections A, C, and D of this section are derived from *Chimpanzee Signing: Darwinian Realities and Cartesian Delusions*, in *The Cognitive Animal: Empirical and Theoretical Perspectives in Animal Cognition* ch. 35 (Mark Bekoff, Colin Allen, & Gordon M. Burghardt eds., MIT Press 2002).

⁵⁹ See Keith J. Hayes & Catherine Hayes, *The Intellectual Development of a Home-Raised Chimpanzee*, 95(2) Proc. of the Am. Phil. Soc. 105 (Apr. 1951) (describing the process of speech training with Viki, a chimpanzee); Keith J. Hayes & Catherine H. Nissen, *Higher Mental Functions of a Home-Raised Chimpanzee*, in *Behavior of Nonhuman Primates*, 59, 106–10 (Alan M. Schrier & Fred Stollnitz eds., Academic Press 1971) (suggesting gestures may better enable chimpanzees to express themselves to human primates than speech).

⁶⁰ B. T. Gardner & R. A. Gardner, *Development of Phrases in the Early Utterances of Children and Cross-Fostered Chimpanzees*, 13 Human Evolution 161 (1998).

⁶¹ Gardner & Gardner, *supra* n. 1, at 1.

every day of the year—requires a rigorous experimental regime that has rarely been attempted.⁶²

The Gardners and students involved in the cross-fostering project used only American Sign Language (ASL) in Washoe's presence. They state:

In teaching sign language to Washoe [and to other, later cross-fosterlings] we imitated human parents teaching young children in a human home. We called attention to everyday events and objects that might interest the young chimpanzees, for example, THAT CHAIR, SEE PRETTY BIRD, MY HAT. We asked probing questions to check on communication, and we always tried to answer questions and to comply with requests. We expanded on fragmentary utterances using the fragments to teach and to probe. We also followed the parents of deaf children by using an especially simple and repetitious register of ASL and by making signs on the youngsters' bodies to capture their attention.⁶³

In 1970, Deborah Fouts and I took Washoe to the Institute of Primate Studies (IPS) at the University of Oklahoma. The Gardners began a second cross-fostering project with four other infant chimpanzees. Moja, Pili, Tatu, and Dar were born in American laboratories, and each arrived in Reno within a few days of birth.⁶⁴ Moja arrived in November 1972, and cross-fostering continued for her until winter 1979, when she left for IPS. In 1980, Washoe and Moja moved with us to the Chimpanzee and Human Communication Institute (CHCI) on the campus of Central Washington University in Ellensburg. Tatu arrived in Reno in January 1976 and Dar in August 1976. Cross-fostering continued for Tatu and Dar until May 1981, when they left to join Washoe and Moja in Ellensburg. Pili arrived in Reno in November 1973, and he died of leukemia in October 1975.

Size of vocabulary, responses to *Wh* questions, number of utterances, proportion of phrases, variety of phrases, length of phrases, complexity of phrases, and inflection all grew throughout five years of cross-fostering.⁶⁵ The Gardners state, "Washoe, Moja, Pili, Tatu, and Dar signed to friends and to strangers. They signed to each other and to themselves, to dogs and to cats, toys, tools, even to trees."⁶⁶ Signing was a robust behavior in the chimpanzees.

⁶² Gardner & Gardner, *The Structure of Learning* 292 (Lawrence Erlbaum Assoc. 1998).

⁶³ *Id.* at 297.

⁶⁴ Gardner & Gardner II, *supra* n. 61, at 6.

⁶⁵ See e.g. R. Allen Gardner et al., *Categorical Replies to Categorical Questions by Cross-Fostered Chimpanzees*, 105 *Am. J. Psychol.* 27 (1992); Gardner & Gardner I, *supra* n. 60; *Teaching Sign Language to Chimpanzees*, *supra* n. 1 (each providing charts, graphs, and other empirical data) (*Wh* questions include what, where, when, why, who.).

⁶⁶ Gardner & Gardner II, *supra* n. 61, at 24.

B. Process Versus Stasis: Language Development in Ape and Child

Watching my first grandchild, Marley Grace, take the first steps in her development of language was very exciting. Her clear turn-taking at the breast, her engaging eye contact, and her prosodics and gestures were truly amazing. But at four months of age she demonstrated only the beginnings of a long process of language development. If we were to plot this as a curve over a lifetime, it might be an inverted U. In his last years, my father, who was noted in his youth as a good debater and quick thinker in an argument, struggled to find words or even to remember my name. Certainly, if we were to create a family of curves, we would fill a scatter plot, with some individuals rising quickly to the zenith and others barely leaving the abscissa. But for most humans, language development is an orderly process: children enjoy the ride to the heights their parents have attained, while at the same time the parents may begin to worry about their own slide down the other side.

The human companions to the cross-fostered chimpanzees maintained meticulous field records of the signed output of Moja, Tatu, Pili, and Dar. From the field records, the Gardners plotted vocabulary and phrase development for the 60 months of the cross-fostering project.⁶⁷ A phrase is two or more different signs within two utterance boundaries.⁶⁸ Utterance boundaries are defined by a pause, and marked by a relaxation of the hands within the signing area or a removal of the hands from the signing area altogether.⁶⁹ In the field records, the observers indicated utterance boundaries with a slash.⁷⁰ A reiteration—that is, a repetition of a sign for emphasis—did not count as a phrase because it did not consist of two different signs. The vocabulary of the chimpanzees grew robustly to the 60th month. The volume and variety of phrases also increased steadily. The growth of phrases with three or more signs increased steadily after the 18th month. The Gardners found that vocabulary and phrase development in the cross-fostered chimpanzees, like that in human children, showed degrees of change rather than discrete junctures.⁷¹

C. Cultural Transmission: Project Loulis

In 1979, Washoe adopted a ten-month-old son, Loulis.⁷² To demonstrate that Loulis would learn signs from Washoe and other signing chimpanzees without human intervention, the human companions restricted human signing in Loulis's presence to seven specific

⁶⁷ Gardner & Gardner I, *supra* n. 60, at 164.

⁶⁸ *Id.* at 167.

⁶⁹ *Id.*

⁷⁰ *Id.*

⁷¹ *Id.*

⁷² Roger S. Fouts et al., *The Infant Loulis Learns Signs from Cross-Fostered Chimpanzees*, in *Teaching Sign Language to Chimpanzees*, *supra* n. 1, at 281.

signs: WHO, WHAT, WHERE, WHICH, WANT, SIGN, and NAME.⁷³ Other than these signs, humans used vocal English to communicate in his presence.⁷⁴ Loulis began to sign in 8 days. At 15 months of age, he combined signs. At 73 months of age, his vocabulary consisted of 51 signs.⁷⁵

The human observers maintained written records of Loulis's signing and behavioral development. From these records they plotted the growth of Loulis's phrases using all of the records from his 10th month (the first month of the project) to his 72nd month. After the third year of the project, Loulis showed a steady increase in the variety of his phrases. This pattern was similar to that seen in Moja, Tatu, Pili, and Dar. After the fourth year of the project, there was a sharp increase in the variety of Loulis's phrases of three or more signs, such as HURRY YOU TICKLE. His phrase development paralleled that of the cross-fostered chimpanzees and children in that it grew gradually. Loulis's acquisition of phrases was particularly impressive because it occurred in the absence of human signing and his only signing models were other signing chimpanzees.

D. Remote Videotaping

In June of 1984, the signing restriction around Loulis ended, and the human observers began using remote videotaping (RVT)—an observation technique used to record behaviors of chimpanzees with no humans present.⁷⁶ In the original method, three cameras were focused on the chimpanzees' enclosure. Later, a fourth camera was added. The cameras were attached to television monitors and a videocassette recorder (VCR) in another room. Only one camera recorded at a time, and the VCR operator could control which camera was recording.

Deborah Fouts made 45 hours of RVT recordings to examine Loulis's interactions with Washoe, Moja, Tatu, and Dar, the other chimpanzees at Central Washington University's Chimpanzee and Human Communication Institute.⁷⁷ Loulis initiated 451 interactions, both signed and nonsigned, with the other chimpanzees.⁷⁸ Of those interactions, 40% (181) were directed to his male peer, Dar.⁷⁹ Loulis used 206 signs in his interactions, and 114 of those were directed toward Dar.⁸⁰ Fouts also reported 115 private signs that Loulis made when his face and body were not oriented toward another chimpanzee.⁸¹

⁷³ *Id.* at 282.

⁷⁴ *Id.*

⁷⁵ *Id.* at 285.

⁷⁶ Deborah H. Fouts, *The Use of Remote Video Recordings to Study the Use of American Sign Language by Chimpanzees When No Humans Are Present*, in *The Ethological Roots of Culture* 271, 276 (R. Allen Gardner et al. eds., Kluwer Academic Press 1994).

⁷⁷ *Id.*

⁷⁸ *Id.* at 276-77.

⁷⁹ *Id.*

⁸⁰ *Id.* at 278.

⁸¹ *Id.*

The other chimpanzees signed to each other as well.⁸² A later study by Shannon Cianelli and myself found that the chimpanzees often signed emphatically during high-arousal interactions such as fights and active play.⁸³ One example captured on videotape occurred after a fight between Dar and Loulis, while all the chimpanzees were still screaming. Loulis and Dar separated, and Washoe signed, "COME HUG" to Loulis. He responded by signing, "NO" and continuing to move away from her. These results indicate that the chimpanzees' signing is a regular part of their interactions.

Mark Bodamer looked for instances of private signing by the other chimpanzees in the 45 hours of RVT recorded by Deborah Fouts.⁸⁴ He found 90 instances of private signing⁸⁵—signing done in the absence of interactive behaviors such as looking toward another individual.⁸⁶ Bodamer, the Foutses, and Mary Lee Jensvold later recorded an additional 56 hours of RVT and found 368 instances of private signing.⁸⁷ All instances of private signing were classified into the categories utilized to understand human private speech.⁸⁸ In both samples, one of the most common categories of signing was "referential" (59% of the signs in the 56-hour sample).⁸⁹ In this category, the chimpanzees signed about something present in the room, such as pictures in a magazine.⁹⁰ The "informative" category, consisting of utterances that refer to objects or events that are not present, accounted for 12% of the signs in the 56-hour sample.⁹¹ For example, Washoe signed DEBBI to herself when Debbi was not present.⁹²

One category of private signing was "imaginary" and accounted for 17 instances in the 56 hours of RVT.⁹³ Fifteen hours of RVT was later recorded while the chimpanzees' enclosure was filled with toys.⁹⁴ Six instances of imaginary play were found.⁹⁵ These were classified into

⁸² *Id.* at 276, 278.

⁸³ Shannon N. Cianelli & Roger S. Fouts, *Chimpanzee to Chimpanzee American Sign Language Communication During High Arousal Interactions*, 13 *Human Evolution* 147 (1998).

⁸⁴ Deborah Fouts, *supra* n. 76, at 280.

⁸⁵ *Id.*

⁸⁶ David Furrow, *Social and Private Speech at Two Years*, 55 *Child Dev.* 355 (1984).

⁸⁷ Mark Bodamer et al., *Functional Analysis of Chimpanzee (Pan troglodytes) Private Signing*, 9 *Human Evolution* 281, 282–88 (1994).

⁸⁸ *Id.* at 284–85; see Furrow, *supra* n. 86, at 357–58 (for a discussion regarding categories of human private speech).

⁸⁹ Deborah Fouts, *supra* n. 76, at 280.

⁹⁰ *Id.*

⁹¹ *Id.*

⁹² *Id.*

⁹³ Bodamer et al., *supra* n. 87, at 290.

⁹⁴ M.L.A. Jensvold & R.S. Fouts, *Imaginary Play in Chimpanzees (Pan troglodytes)*, 8 *Human Evolution* 217, 220 (1993).

⁹⁵ *Id.* at 221.

categories utilized to understand human children's play.⁹⁶ There were four instances of "animation," in which a chimpanzee treated an object as if it were alive.⁹⁷ For example, Dar signed, "PEEKABOO" to a stuffed bear.⁹⁸ There were two instances of "substitution," in which a chimpanzee treated one object as if it were another.⁹⁹ For example, Moja wore a shoe and signed "SHOE." She then removed the shoe, put a purse on her foot, and zipped it up.¹⁰⁰ Kimberly Williams used RVT to examine the five chimpanzees' nighttime behavior.¹⁰¹ The chimpanzees were more active at night than had previously been assumed by the human observers. There were even a few instances of signing in their sleep.¹⁰²

The research for Project Washoe demonstrated that chimpanzees can acquire and communicate with American Sign Language. Chimpanzees can pass their signing skills on to the next generation, demonstrating cultural transmission of acquired language. They use their signs to converse spontaneously with each other when no humans are present, they sign to themselves, and they use their signs during imaginary play. Ape language behavior is rich enough to provide texts that could be analyzed for a number of linguistic traits that are shared with human language. This information supports the case for giving rights to chimpanzees, and may be used to help improve laws, as society recognizes biological reality.

IV. OBJECTIONS TO THE DELUSIONAL WORLDVIEW

The argument presented above takes issue with an outmoded worldview which relies on a delusional assumption that humans as a species are outside of nature. This delusional view runs contrary to Darwinian theory, and instead embraces the Cartesian view of discontinuity. As noted earlier, when the problem of language being unique to our species is addressed, it essentially encapsulates the larger issue concerning our species' delusional worldview that we are unique because of our rational mind.¹⁰³ This view holds that the rational mind makes humans unique because of their ability to conceptualize, have emotions, remember, conceive of time, and use language and many other derived conjectures. This worldview serves the purpose of removing our species from nature and dissociating the mind from the body.

⁹⁶ *Id.*; see Wendy S. Matthews, *Modes of Transformation in the Initiation of Fantasy Play*, 13 *Dev. Psychol.* 212, 214 (1977) (for a discussion regarding categories of human children's imaginary play).

⁹⁷ Jensvold & Fouts, *supra* n. 94, at 221.

⁹⁸ *Id.* at 222.

⁹⁹ *Id.* at 221.

¹⁰⁰ *Id.* at 222.

¹⁰¹ Kimberly Williams, *Comprehensive Nighttime Activity Budgets of Captive Chimpanzees (Pan troglodytes)* (unpublished M.S. thesis, C. Wash. U. 1995) (copy on file with C. Wash. U.).

¹⁰² *Id.* at 58.

¹⁰³ Sarles, *supra* n. 34, at 23.

Harvey Sarles presented several objections to this approach when it was used to explain the origins of human language.¹⁰⁴ Below, Sarles' objections and arguments are adopted and expanded to argue against the delusional worldview of human uniqueness.

A. *The Pretentious Uniqueness of Rational Thought*

Rational thought has been considered the hallmark of human evolution, and completely unique to us. However, few have ever asked the question: What it is to be rational and from where did rationality come? Rationality is an emergent property of sociality. Our view of rationality is determined by the society in which we live. A college professor would not be considered a rational person within his community if he wore a grass skirt. In another culture, however, this might be considered quite rational. Thus, rationality is defined by standards that societies deem sensible. In this sense, any animal that punishes his or her young has a sense of society. There is rationality for that species. For example, a cat might discipline her kittens should they run too far from her care, or a chimpanzee might discipline a youngster who jumps from a tree and injures himself. With discipline, the authoritative figures tell the younger animals to behave in a certain manner. Rationality is merely a manifestation of society, and society is not something that is unique to our species. Our "human rationality" may be different, but it is just a different form, not something superior that would place us outside of nature any more than the rationality of the dog or chimpanzee would place them outside of nature.

B. *The Focus on Differences Rather than Similarities*

A worldview which presumes that only humans have rational thought, or a rational soul, is one that prevents us from discovering new insights about humans. This view maintains that we are rational thinkers and that is the end of it. In order to do this it focuses on the differences and ignores the similarities we share with our fellow animals. As a result, valid comparisons are discouraged or attacked. A reporter acquaintance of mine telephoned Noam Chomsky to ask about the chimpanzee sign language studies. Chomsky apparently replied that studying language in apes made as much sense as studying web weaving in pigs.¹⁰⁵

Cartesian linguists and philosophers such as Chomsky continue to insist that language is a uniquely human behavior, despite the continuity of linguistic behavior evinced in the cross-fostered chimpanzee studies. Cartesian critics conjecture that the chimpanzee sign language research is in direct conflict with the empirical data. For example, Steven Pinker claims that:

¹⁰⁴ *Id.* at 27–28.

¹⁰⁵ Related during course of interview with Joe Rose who wrote for the *Yakima Herald* in Yakima, Washington. He now resides in Portland, Oregon and writes for the *Oregonian*.

Even putting aside vocabulary, phonology, morphology, and syntax, what impresses one the most about chimpanzee signing is that fundamentally, deep down, chimps just don't "get it." They know that the trainers like them to sign and that signing often gets them what they want, but they never seem to feel in their bones what language is and how to use it.¹⁰⁶

Pinker goes even further when he states, "The chimps seldom sign spontaneously; they have to be molded, drilled, and coerced."¹⁰⁷ It appears that Pinker has not examined the scientific literature on the issue, especially the scientific evidence on the remote video recording of chimpanzee-to-chimpanzee sign language conversations and the chimpanzees' private signing.

The empirical evidence presented in this paper demonstrates that the difference between chimpanzees and humans is one of degree, just as it is with all of our fellow animals. This evidence is consistent with the Darwinian notion of continuity. The chimpanzee and other fellow apes just happen to be our next of kin in our phylogenetic family. Pinker's statements above indicate the typical approach of many Cartesian thinkers. They use the absence of evidence as evidence of absence, or in this instance, the ignorance of evidence as evidence of absence. This approach has become extremely popular and individuals have actually received grants to support the Cartesian worldview by *not* finding evidence.¹⁰⁸ Even though this approach is popular, it is completely unacceptable as a scientific method. If one fails to find results, the most they should do is withhold judgment. One of the first things taught in statistics is that you cannot prove the null hypothesis. As Sarles points out:

[C]omparative work must proceed from similarities, not from differences or it will tend only to confirm, describe, and account for the observed or presumed differences. (It can only confirm or enlarge human-nonhuman differences; it cannot possibly cast new light on the human condition.) One wonders why people engage in this supposedly comparative problem, where they already presume strong human uniqueness.¹⁰⁹

With regard to Sarles' wonderment as to why people engage in this type of speculation given their presumptions of human uniqueness, here is a conjecture: Does it have to do with the fact that pandering to human arrogance can be a profitable enterprise that results in book sales, fame, and accolades from our Cartesian dominated civilization? A message that puffs up our vanity is more appealing than one that encourages us to be humble.

¹⁰⁶ Pinker, *supra* n. 43, at 340.

¹⁰⁷ *Id.* at 348.

¹⁰⁸ See Daniel J. Povinelli, *Folk Physics for Apes: The Chimpanzee's Theory of How the World Works* (Oxford U. Press 2000) (Daniel Povinelli has made a career of looking for differences using the absence of evidence. In one study he proved that chimpanzees could not point, when sign language chimpanzees regularly point.).

¹⁰⁹ Sarles, *supra* n. 34, at 27.

C. *It Detracts from Interesting and Important Aspects of Human Nature*

By focusing on rational thought and the “mind,” this worldview ignores other important and fascinating aspects of human nature, such as motor behavior and nonverbal behavior. For example, Gabriel Waters and I have proposed that the fine motor movements of the body influence cognitive development and have implications for discovering the continuity of language with our fellow animals.¹¹⁰ If we had focused on *How the Mind Works*,¹¹¹ rather than how brain development is influenced by the body and its movement, we would not have found the neurological continuity for language and our fellow animals.

With regard to another aspect of the body, as opposed to the mind, nonverbal communication is not studied to the extent that grammatical sentences are diagrammed *ad infinitum* by linguists and philosophers from the comfort of their armchairs. However, nonverbal communication is our loudest form of communication and accounts for 75% of the meaning in a two-person conversation between friends or family.¹¹² It is to what we pay attention and if the grammatical, vocal words disagree with the accompanying nonverbal communication, we always accept the nonverbal.¹¹³ It is what bonds us to our children and vice versa. It acts as the glue or the glue-remover in all our relationships, and yet, academia prefers to study the disembodied written language of the logically and rationally diagrammed sentence. Without our nonverbal communication we would not be able to form relationships, develop effective courtships, or have children and raise them successfully if we did manage to bear offspring. Following this scenario, our species would end.

We have almost totally ignored the plasticity and dynamics of the human face as a mode of communication, even though it is one of the most critical features in nonverbal communication.¹¹⁴ Our brain actually has an area that is dedicated solely to recognizing faces.¹¹⁵ This is particularly ironic when one considers that Cartesian linguists, such as Chomsky, have failed to find a “language organ” specialized solely for language.

¹¹⁰ Roger S. Fouts & Gabriel S. Waters, *Chimpanzee Sign Language and Darwinian Continuity: Evidence for a Neurology Continuity of Language*, 23 *Neurological Research* 787 (2001).

¹¹¹ See generally Steven Pinker, *How the Mind Works* (W. W. Norton & Co. 1999) (for a discussion of the workings of the mind).

¹¹² Roger Fouts & Stephen Tukul Mills, *Next of Kin: What Chimpanzees Have Taught Me About Who We Are* 95–96 (William Morrow & Co., Inc. 1997).

¹¹³ Stewart L. Tubbs & Sylvia Moss, *Human Communication* 102 (McGraw Hill 2000).

¹¹⁴ See Sarles, *supra* n. 34, at 200–25 (for an extensive discussion of facial expression).

¹¹⁵ David G. Myers, *Exploring Psychology* 148, 150 (N.Y. Worth Pub. 2002).

D. It Promotes a Static View of Human Experience

The notion of “the rational mind” gives the impression that the ancient Greek man’s rational mind suddenly appeared and was static, and then he stopped evolving. Following this logic, one could assume that women’s rational mind similarly appeared, but not until the last century, given that she has only recently been allowed to participate in male society with the right to vote.¹¹⁶

E. It Idealizes the Human Mind and Sets Up a Group of Defectives

According to the Cartesian worldview, the mind is idealized for both political and theological reasons. Man’s domination of the less fortunate defectives is justified, and he is given a direct line to God through the Rational Soul-Mind that is unique to him. The defectives were seen as godless or ignored by God. With regard to the origin of language, Sarles bluntly makes this point when he states: “By setting man as unique BECAUSE of his mind, it (language) idealizes the normal use of language and sets up a group of defective (or animal-like) humans, e.g. retarded persons, deaf persons, people who speak differently from the majority. The problem is implicitly, perhaps necessarily, RACIST.”¹¹⁷

One only has to look at the history of Western Civilization to see how this view has been used to justify everything from slavery in all its forms (e.g. the domination and oppression of women and the exploitation of children) to genocides committed against peoples such as the Jews, the Gypsies, or the Armenians. Western Civilization, which claims to be ruled by the Rational Mind, has yet to meet a people who lived in harmony with nature it did not destroy on contact, and our civilization continues to do so. Just as we have used our “special nature” to justify the exploitation of members of our own species, we have used it as well to exploit and destroy our fellow organic beings, whether they are free-living or captive chimpanzees, cows, rats, or trees.

People often have been offended when the obvious analogy is drawn between the Holocaust and slavery, and what we are doing to our fellow animals. Both of these analogies have been well documented

¹¹⁶ Of course an alternative to this saltation explanation for the rational mind in women is that they achieved their rational mind as the result of Divine Intervention. With regard to the latter, it is exciting to consider that theological miracles may continue to manifest themselves even in current times. The concept of saltation stems from before the microscope was invented. It was not possible to see flies’ eggs with the naked eye. It was thought that when meat was left in the sun to rot, it saltated into maggots. In another example it was thought that dust balls under one’s bed saltated into mice. The latter was perhaps a device to encourage sweeping under the bed.

¹¹⁷ Sarles, *supra* n. 34, at 28 (emphasis in original).

in books.¹¹⁸ It is curious why someone might be offended by this comparison; it is difficult to understand how a horrendous act committed against a fellow human being becomes acceptable when it is committed against a fellow animal being. Carl Sagan addressed this issue when he asked the question: "How smart does a chimpanzee have to be before killing him constitutes murder?"¹¹⁹

F. It Promotes a View of Human Nature That Is Exhaustively True

The static view of the rational mind also creates the notion that ideas about human nature at any historical time or place are exhaustively true. The convenience of this by-product is that if we have not changed, in the sense that human nature equals the rational mind, then there is no reason to look for the precursors and similarities we might share with our fellow animals. It holds that the rational mind is exclusive to humans because it is what makes us human, otherwise, ignoring the tautology, we would not be human. So there is no need to look for continuity of mind. As stated earlier by Sarles, with regard to the origin of language, the only logical problem is to explain how a few of the defective "have-nots" could have come up with something as special and unique as the rational mind.¹²⁰

G. It Seeks a Simple Explanation That Oversimplifies Humans and Other Animals

With regard to language, setting up humans as more complex than our fellow animals oversimplifies humans.¹²¹ Rather than understanding our fellow animals as beings who are complex in their own right with their own minds and their own interests, we simplify them by defining them as nonhumans. That simplification forces us to lump all other species in a single non-mind universe.¹²² In so doing, we erect a delusional vertical ladder; inspired by our own arrogance and studied ignorance, we place our species on top (excluding those members who our civilization considers to be defective). However, when we stake our uniqueness solely on the rational mind, we oversimplify humans as well. We are certainly more than mere minds. We are social beings with complex lives and relationships, yet we continue to seek a way to leave our bodies behind with our fellow animals and live in our minds. Sarles puts it succinctly: "It has been tempting to seek simple and static solutions or schemata to account for, what in my life, at

¹¹⁸ See Charles Patterson, *Eternal Treblinka* (Lantern Books 2002) (for comparison of the treatment of animals and the Holocaust); Marjorie Spiegel, *The Dreaded Comparison* (Mirror Books 1996) (for comparison of human and animal slavery).

¹¹⁹ Carl Sagan, *The Dragons of Eden* 120 (Random House 1977).

¹²⁰ Sarles, *supra* n. 34, at 28.

¹²¹ *Id.*

¹²² *Id.*

least, is a very complicated and ever-changing being-and-experiencing."¹²³

H. *We Act As If We Know What "Mind" Is*

The claim that it is our mind that makes us unique and different from our fellow animals carries with it the implication that we know what "mind" is. Consider the title of Steven Pinker's book *How The Mind Works*.¹²⁴ The pretentiousness of such a title bears witness to not only Pinker's arrogance but to his ineptitude at understanding science. Science has two limitations: one is our habit of thought, and the other is ignorance. The first affects science with the cultural influence and fads of the time. As a result scientists and lay persons alike need to be aware that what may be proffered as scientific *fact* may in reality be scientific *pandering*. One such fad seems to be the pandering to our arrogance with delusions of mental grandeur as manifested in Pinker's writings.

The second limitation is ignorance; we do not know all the facts, and are not likely to in the future. This is especially true with regard to the mind. In science, one discovery waits upon another.¹²⁵ The title of Pinker's book epitomizes the blunder of assuming that the mind is a static entity and that we can know it as such. Implicit in this assumption is that the mind makes us special and the assumed absence of mind in our fellow animals makes them defective. However, the mind, like all things biological, is in process and is ever changing through its evolution. By this very fact we can never totally grasp its nature other than describing its past process and we display our ignorance by guessing the direction of its future process.

Sarles accurately asserts that our hope lies in comparing humans to our fellow animals; in this way we can hope to become enlightened about humans. But this will only happen when we start seeing the mind as an adaptive process that is shared by our fellow animals across the phylogenetic continuum.

I. *It Carries a Particular Theological and Political Bias*

The Cartesian worldview carries a theological and political bias, which stems from our civilization's view that our uniqueness results from our exclusive possession of the rational mind. In reality, it is nothing more than intellectual pandering masquerading as science. As Sarles points out, "Particular theologies and particular politics are borne on the wings of its proclaimed scientisms."¹²⁶ This harks back to

¹²³ *Id.*

¹²⁴ Pinker, *supra* n. 111.

¹²⁵ Regarding the ignorance limitation of scientific development, consider that during the Civil War, surgeons were not sadists who wished to spread infection by not washing their hands between amputations. They were ignorant of germs, and it took the invention of the microscope to provide the evidence of microscopic germs.

¹²⁶ Sarles, *supra* n. 34, at 28.

one of the two limitations of science mentioned earlier, specifically the one having to do with science being influenced by the habits of thought of a particular time or culture. Indeed science reflects these cultural biases and prejudices through the work of its scientists. For example, slavery was justified by the scientific “facts” of the time.¹²⁷

V. THE THEOLOGICAL AND POLITICAL JUSTIFICATIONS OF EXPLOITATION

The Cartesian worldview is intimately tied to the theological and political interests of Western Civilization. While this article mainly provides examples of this delusional worldview from Plato, Aristotle, Descartes, Chomsky, and Pinker, it was not generated by them alone. This view has been generated and nurtured by our civilization, which welcomes, encourages, and embraces such a worldview because it profits from it. The apologists of this worldview pander to our biases and play on our fears. Plato exploited a neurotic and irrational fear of our inevitable death. A fear of death is as rational as having a fear of exhaling. To assuage our neurotic fears Plato dissociated the mind from the body and presented us with an immortal mind that lived beyond the body and transcended time. The dissociation of the mind from the body was expressed by Plato in his dialogue in the *Phaedo*: “In this present life, I reckon that we make the nearest approach to knowledge when we have the least possible intercourse or communion with the body, and are not surfeited with the bodily nature, but keep ourselves pure until the hour when God himself is pleased to release us.”¹²⁸

Plato’s mind-body dichotomy appealed to Western theology. It presented a mind that transcended death and time, and was infinite in its being, which, in other words, would be an extension of God. It left the defective, godless body behind to suffer the ravages of time and finiteness, meeting its inevitable death. The theological notion that we are not “mere animals,” but instead demiurges, appealed to our vanity and arrogance. It is ironic that the very religion that embraced this pagan, Greek worldview has a book in the Bible that recognizes the underlying arrogance. Solomon writes in *Ecclesiastes*:

I said in my heart with regard to human beings that God is testing them to show that they are but animals. For the fate of humans and the fate of animals is the same; as one dies, so dies the other. They all have the same breath, and humans have no advantage over the animals; for all is vanity. All go to one place; all are from the dust, and all turn to dust again. Who knows whether the human spirit goes upward and the spirit of animals goes downward to the earth? So I saw that there is nothing better than that all should enjoy their work, for that is their lot; who can bring them to see what will be after them?¹²⁹

¹²⁷ Spiegel, *supra* n. 118, at 21–22.

¹²⁸ Plato, *supra* n. 24, at 121.

¹²⁹ *Ecclesiastes* 3:18-22 (New Rev. Stand. Version).

For the church, the choice is between Solomon, who anticipates Darwin, and Plato, who promises a delusional, pagan worldview of male superiority and an immortal, rational mind. The church opted for the latter. It is particularly ironic that a religion believing in resurrection of the *body* would embrace a pagan worldview that separates the mind from the body and from nature in general. It does so regardless of the fact that the Christian Bible clearly states that *creation* “will be set free from its bondage to decay,”¹³⁰ and that it was because of God’s love of the *world* that “He gave his only Son.”¹³¹ The pagan influence has many individual Christians believing that God sent Jesus only for humans. Disregarding the pagan worldview (started by Plato, adopted by the Church through Aristotle, and reinforced by Descartes) would greatly alter matters. For example, it would mean a complete re-evaluation of sin with regard to the way many Christians treat their fellow animals and the earth in general.¹³² Given that exploitation has been the hallmark of Western Civilization, it is easy to see why such a pagan, delusional view would appeal to people in positions of power.

According to Plato and Aristotle’s pagan worldview, though the defectives did not have a rational mind-soul, their brute souls had emotions, which meant that their bodies still could suffer. This notion of an emotional brute soul and body served to hold back the progress of science, since the body was still considered a sacred temple. It was René Descartes who destroyed this notion.¹³³

Descartes, often referred to as the Father of Western Philosophy, provided the idea of the dualism of the Mind and Body. This gave him

¹³⁰ *Romans* 8:19-22 (New Rev. Stand. Version).

¹³¹ *John* 3:16 (New Rev. Stand. Version).

¹³² Often the exploitation of the natural world is justified with Genesis 1:28, which gave man dominion over animals. In a personal communication with a theologian, Dr. David Ellingson, I was informed that the Hebrew word translated as “dominion” in this case was used in two other places in the Bible. One was the anointed King David having dominion over the Israelites, and the other was the husband having dominion over the wife. Given that neither King David nor husbands were encouraged by God to hunt, recreationally kill, eat, or torture their charges, the misinterpretation with regard to our fellow animals is obvious. Dominion is best translated as “to gently care for” as opposed to the popular misinterpretation of “domination.”

¹³³ Boring, *supra* n. 21, at 162.

To the working of the body Descartes was anxious to apply the principles of physics. That thought must have been in the air, for in some of the public garden there were mechanical figures of persons who would appear or disappear when some mechanism was activated. Descartes, with these analogies in mind, held that the body is a machine (emphasis in original). This statement must be true of the human body when it is considered without its soul. Animals, having no souls, are automata. This mechanical view is, as a matter of logic, not open to argument, for it follows necessarily from the definition of the body as all that pertains to the inanimate. Thus it freed Descartes to proceed with his physics of physiology. In a sense it was actually supported by theology, which taught that animals have no souls. If they have no souls they are by definition automata, and even vivisection on them becomes permissible.

Id.

the additional title of Father of Subjective and Objective Psychology and Creator of the present day Mind-Body problem. Descartes objectified our fellow animals and any person who was not considered to possess a rational soul as "automata." The objectification produced by Descartes' dualism had tremendous political implications. Such objectification is an effective method of making money; money means power, and power is the engine of politics. This has resulted in the exploitation or objectification of organic beings wherever profit may be made. Darwin used the phrase "organic being" to refer to plants as well as animals.¹³⁴ The destruction of the rainforest is an objectification of the organic beings we refer to as trees. Logging companies essentially convert "subjects" into objects, namely dollar bills.

Cartesians who are trying to pass themselves off as Darwinian thinkers might argue that my attack on objectification is unwarranted because the exploitation of other beings is a perfectly natural thing—life feeds on life. If they have read Darwin they might even quote his comment that, "we do not see or we forget, that the birds which are idly singing round us mostly live on insects or seeds, and are thus constantly destroying life; or we forget how largely these songsters, and their eggs, and their nestlings, are destroyed by birds and beasts of prey."¹³⁵ Darwinians might not distinguish between Darwin's birds and our species destroying the forests or infecting chimpanzees with dangerous diseases. But there is a difference and Wendell Berry provides the distinction:

The idea that we should obey nature's laws and live harmoniously with her as good husbanders and stewards of her gifts is old. And I believe that until fairly recently our destructions of nature were more or less unwitting—the by-products, so to speak, of our ignorance or weakness or depravity. It is our present principled and elaborately rationalized rape and plunder of the natural world that is a new thing under the sun.¹³⁶

Berry describes how our civilization has used our rational minds. We rationalize our exploitation and blame the victims while making a tidy profit along the way. Some people may argue that they are enlisting chimpanzees to be "soldiers" on the front lines in the war on AIDS or cancer. They may claim they are doing it for humanity's sake; their motive is compassion for their fellow humans, not a selfish impulse to make money and gain power.

A biomedical researcher who was studying a very rare disease in human children once challenged my position. He was using rats to do his research and had received some significant federal grants to support his research. He asked me if I would condemn children to suffer by denying him his effort to find a cure. A man with Canada's Zoo Check came to my rescue. He pointed out to the researcher that star-

¹³⁴ Darwin, *supra* n. 17 (since Darwin supported the notion of continuity, it makes sense to attribute beingness to pear trees as well as pigeons).

¹³⁵ *Id.* at 47.

¹³⁶ Wendell Berry, *What Are People For?* 108 (S.F. N. Point Press 1990).

vation kills 10 million children worldwide each year and we have the cure for it. The cure is food, but we let them die anyway. If compassion for humanity is our motivation, then why are we letting these children die rather than using the money we waste on chimpanzee experiments to stop the suffering that results from starvation?

VI. A NEW PERSPECTIVE, A NEW WORLD, A PRACTICAL HARMONY

Before we can effect change, we must not only recognize the necessity of moving in a new direction, but also recognize how the old direction was wrong and turn away from it. Only then can we begin to make headway and realize this new way of being within our shared world. Personally, such a change was one of the most difficult things I have ever done. I had to recognize that I was a part of a research project, in the ignorance of the times, which was party to a baby being taken from her mother and the killing of her mother. It was a project that condemned a young girl to a life where she could never fully reach the potential for which she was born, and would always be out-of-place, always considered inferior. It was a project that took a young girl from her culture and family where she could have learned and given so much. It was a project that condemned her to life in prison, though she had never committed a crime. For these reasons, I will never support or be a part of such a project again. For these reasons, I have publicly stated that the research project was morally wrong, even though it was done unwittingly.

It is wrong to breed such persons into captivity to serve human purposes. I had to come to grips with the reality that even though the originators of the project had the ignorance of their time to justify the project, I do not have this convenience. I must take responsibility for my actions and their actions given today's knowledge of free-living chimpanzee culture and chimpanzee mental and emotional life. I have to accept the Darwinian fact that Washoe is a person by any reasonable definition, and that the community of chimpanzees from which she was stolen are a people. I have to accept the responsibility for being a party to the unjust imprisonment of a relative of mine who has done nothing wrong. I have to accept the fact that I cannot undo the damage that has been done to her. I cannot return her to her family, nor bring her mother back to life. Therefore, I act. I insist that the interests and well-being of the four chimpanzees for whom I am responsible be our first priority, because they are marooned in this prison for life. In their home, human arrogance of any sort is forbidden. They only take part in research if they wish; they are not bribed with food, forced with threat, or socially harangued into submission. If Loulis spits on you, you have two choices: ignore it or walk away. It is his home and if he wants to spit on you, he can. Enrichment is a full-time effort at our institute, and it goes on all day each day with events, social interactions, food forages, and toys.

Education at the institute is an active process by which visitors first learn how our civilization is exploiting chimpanzees and driving them toward extinction. By requiring the visitors to approach the viewing area as if they are "uninvited guests" with the proper nonverbal, submissive, tentative behavior, visitors are taught to take the chimpanzees on their terms. We educate visitors about our responsibility to stop the exploitation of our closest living relatives, and to pay them respect.

As a scientist I act on behalf of the chimpanzees. I am willing to speak out in favor of better prison conditions, against biomedical research, in favor of sanctuaries, against logging and forest destruction, in favor of protecting preserves, against the bush-meat trade, in favor of poaching patrols, against using apes in entertainment, in favor of The Great Ape Project, against captive breeding, and so on.

In what way would the biomedical community change if our legal system embraced the implications of the Darwinian perspective of biological reality? They would be required to end all research that is in any way invasive, corrosive, manipulative, or harmful to the chimpanzees. They would stop breeding chimpanzees into captivity. They would establish permanent retirement at humane sanctuaries to allow the chimpanzees to live out their lives in peace where the chimpanzees' well-being and interests are first and foremost. Within those sanctuaries, they would individualize treatments to socialize and rehabilitate the chimpanzees who have been damaged socially and psychologically. Finally, as a responsible gesture and a form of reparation for past depravities visited on the chimpanzees and perhaps most critical to the chimpanzees' survival as a species, they would donate money for establishing habitat protection for chimpanzees in Africa.

In what way would the zoo community change if our laws embraced the implications of the Darwinian perspective of biological reality? First, the intentions of zoos toward our great ape populations would have to change. They would have to put the well-being of the individual apes and ape species as their first and foremost priority. This would involve working toward the eventual abolition of zoos and a proactive stance in protecting natural habitats. They would abandon breeding and replace it with active support and establish *in situ* preserves and parks. They would turn their exhibits into sanctuaries where the needs of the individual chimpanzee would come first while public education and humane non-manipulative, non-invasive scientific study would be secondary. Their educational programs would include information about the apes as well as our civilization's role in their exploitation, both in captivity and in their natural habitats. Educational programs would encourage our species to respect chimpanzees and take them on their terms. They could use their positions as honorable professionals to speak out against the use of apes in biomedical research, against the use of apes in entertainment, against logging companies destroying the rainforest, against purchasing hardwoods

taken from the rainforest, and any other human endeavors that harm or exploit our fellow hominids.

Those doing such things might blanch at the risk of being called activists. I have come to realize that one would be less of an activist and more of a healer, in the sense that a clinical psychologist or psychiatrist is a healer. After all, would a psychiatrist be called an activist for treating a delusional patient who thought that she was Napoleon? Taking the road I have mapped would be doing the same thing, but at the species level instead of the individual level. It is simply asking our species to embrace the empirical realities of Darwin and continuity, to accept the reality that our species is not outside of nature and that we are not gods. We might lose the illusory heights of being demiurges, but this new perspective would offer us something greater, the full realization of our place in this great orchestra we call Nature.

Law professionals have begun using much of the ape language research to support arguments for giving our fellow apes recognition under the law. For example, Steven Wise made extensive use of the ape language research to argue for such recognition in *Rattling the Cage*.¹³⁷ In 2002, Angela Campbell wrote "Could a Chimpanzee or Bonobo Take the Stand?"¹³⁸ She used the ape language research to argue that chimpanzees and bonobos could meet the fairly liberal federal competency standards for witnesses testifying on the stand.¹³⁹ Books and articles such as these are laying the foundation for our lawmakers to begin the process of replacing our delusion-based laws with those that reflect biological reality.

Finally, if a scientist such as myself can become a healer, so too can lawyers. I see it as every lawyer's obligation to move toward re-making our laws so that they reflect biological reality. They should move toward replacing the laws that have stemmed from theological and political views that are out of touch with reality and have been used to exploit our fellow beings. It is not in our nature to exploit. There have been hundreds of human societies that have lived in a peaceful harmony with our fellow organic beings. It will be the job of lawmakers to help regain that lost harmony.

¹³⁷ Steven M. Wise, *Rattling the Cage: Toward Legal Rights for Animals* 77 (Perseus Books 2000).

¹³⁸ Angela Campbell, *Could a Chimpanzee or Bonobo Take the Stand?*, 8 *Animal L.* 243 (2002).

¹³⁹ *Id.* at 257.