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A Darwinist View of the Living Constitution

Scott Dodson
dodsons@uchastings.edu

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A Darwinist View of the Living Constitution

*Scott Dodson**

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* Assistant Professor of Law, University of Arkansas School of Law; B.A. Ecology and Evolutionary Biology, Rice University. An earlier draft of this Essay was presented as a keynote address for the first annual Law, Ethics, and the Life Sciences Conference at the University of Louisville’s Brandeis School of Law. It benefited from presentations at Washington University Law School, Florida State University School of Law, Lewis & Clark Law School, and the University of Arkansas School of Law. Thanks particularly to Barry Friedman, Tom Ginsburg, Owen Jones, Don Judges, Ron Krotoszynski, Dan Markel, J.B. Ruhl, Steve Sheppard, Gordon Silverstein, and, especially, Ami Dodson, for enriching my thoughts or for comments on earlier drafts. The research for this essay was supported by a generous grant from the University of Arkansas School of Law. I am indebted to Suba Desikan for her tireless research assistance.

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I. INTRODUCTION

There is much debate, and has been for some time, over whether we have a “living” Constitution, one that adapts to changing circumstances and evolves over time. The metaphor arose and gained initial force during the Progressive Era and has been at the forefront of the debate on constitutional interpretation ever since.

There is a more recent division, most prominently marked by Professor Owen Jones and Professors Brian Leiter and Michael Weisberg, over whether biology has a meaningful role to play in legal developments. Professor Jones has written many articles promoting the potential utility of behavioral and evolutionary science to law.¹ By contrast, Professors Leiter and Weisberg emphatically proclaim that “evolutionary biology offers nothing to law.”²

Despite the ongoing debate over “living” constitutionalism and the fervor of the new debate over the role of biology, no one has tried to connect the two. One might assume that the lack of attention is due to the metaphorical nature of the “living” Constitution. But scholars have studied evolutionary metaphors in other legal areas, such as common law and statutory law,³ though most such studies are

1. See, e.g., Owen D. Jones, *Evolutionary Analysis in Law: An Introduction and Application to Child Abuse*, 75 N.C. L. REV. 1117 (1997); Owen D. Jones, *Sex, Culture, and the Biology of Rape: Toward Explanation and Prevention*, 87 CAL. L. REV. 827 (1999); Owen D. Jones & Timothy H. Goldsmith, *Law and Behavioral Biology*, 105 COLUM. L. REV. 405 (2005). His most recent work is on the endowment effect and its potential impact on the law. See, e.g., Owen D. Jones & Sarah F. Brosnan, *Law, Biology, and Property: A New Theory of the Endowment Effect*, 49 WM. & MARY L. REV. 1935 (2008). As recent critics have noted, Professor Jones is not alone; several others have explored behavioral biology’s implications for law. See Brian Leiter & Michael Weisberg, *Why Evolutionary Biology is (So Far) Irrelevant to the Law*, at 3 n.3 (U. of Texas Law Sch. Pub. Law Research Paper No. 89, 2007), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=892881 (citing others).

2. Leiter & Weisberg, *supra* note 1, at 5.

3. See, e.g., PETER STEIN, *LEGAL EVOLUTION: THE STORY OF AN IDEA* (1980); E. Donald Elliott, *The Evolutionary Tradition in Jurisprudence*, 85 COLUM. L. REV. 38, 38 (1985) (providing a descriptive account of “how the most influential idea of the last century, Charles Darwin’s theory of biological evolution, has affected the way lawyers think about the law”); William Eskridge, *Overriding Supreme Court Statutory Interpretation Decisions*, 101 YALE L.J. 331 (1991); William H. Rodgers, Jr., *Where Environmental Law and Biology Meet: Of Pandas’ Thumbs, Statutory Sleepers, and Effective Law*, 65 U. COLO. L. REV. 25 (1993); J.B. Ruhl, *The Fitness of Law: Using Complexity Theory to Describe the Evolution of Law and Society and its Practical Meaning for Democracy*, 49 VAND. L. REV. 1407 (1996); M.B.W. Sinclair, *The Use of Evolution Theory in Law*, 64 U. DET. L. REV. 451 (1987); Jeffrey Evans Stake, *Evolution of Rules in a Common Law System: Differential Litigation of the Fee Tail and Other Perpetuities*, 32 FLA.

descriptive—even “taxonomist”—rather than evaluative.⁴ To my knowledge, a biological evaluation of the metaphor of a “living” Constitution—a deep exploration of whether biology can tell us something about our conceptualization of constitutional change—has never been done.

That is unfortunate. The metaphor “living” Constitution appears regularly in important legal debates. It imports concepts from biology and, in the process, allows those biological concepts to shape the use and meaning of the metaphor in legal debate. Use of the metaphor implies that the Constitution has some of the traits of a living organism, in particular, that it grows and evolves. The metaphor is used intentionally to evoke biological truths as a way of informing legal understanding. It presents a normative vision of the Constitution that informs how it should be understood, interpreted, and applied.⁵

We ought to look critically at this metaphor and the vision it entails. If the metaphor is inaccurate, we ought to ask why, so that we can better understand its true meaning. If there are gaps, we ought to explore whether we can fill those gaps in a way that will provide a richer conceptualization of the Constitution and its meaning.

That is my task here: to explore the metaphor of a “living” Constitution from a biological perspective and to evaluate whether the metaphor employs those biological implications correctly. I examine where the metaphor loses significance, how far the metaphor might extend, and what this all tells us about the way we envision, conceptualize, and understand our Constitution.

In the process, I hope to shift both debates alluded to above. A more detailed understanding of biology may allow us to better appreciate the nuances of the metaphor of a “living” Constitution. Further, a fuller appreciation of the role biological metaphor can play in constitutional doctrine stakes a middle path in the current debate about what biology can offer to law.

ST. U. L. REV. 401 (2005); *cf.* Jones & Goldsmith, *supra* note 1, at 482–83 (describing a rich literature on the legal use of evolutionary metaphors).

4. See, e.g., Elliott, *supra*, note 3, at 39 (“I do not mean to imply, however, that [legal theories] are based on a correct understanding of evolutionary theory in biology. My central concern is the effect that evolutionary ideas have had on legal thought, not whether the lawyers got their biology right.”); Herbert Hovenkamp, *Evolutionary Models in Jurisprudence*, 64 TEX. L. REV. 645 (1985).

5. For more on the importance of constitutional “vision,” see Thomas P. Crocker, *Envisioning the Constitution*, 57 AM. U. L. REV. 1, 1–8 (2007).

Part I has introduced the metaphor of a “living” Constitution, posed some preliminary questions about the metaphor, and underscored why we ought to care about it.

Part II frames the concept of the “living” Constitution as a powerful biological metaphor characterizing the Constitution as a living organism. For example, the “living” Constitution “grows,” “develops,” and “evolves” over time. These and other conventional expressions of the metaphor evince a purposeful use of biological terms to conceptualize living constitutionalism and an inextricable link between the “living” Constitution and biological notions.

Part III critically analyzes the metaphor from a biological perspective. In many respects, living constitutionalism is true to the biology it uses. Organisms grow, for example, much in the same way that the Constitution “grows” under the theory of living constitutionalism. These similarities help strengthen the metaphor and increase the likelihood that those who use and hear it understand it. In other respects, however, the metaphor has fundamental gaps and is surprisingly inconsistent. For example, the “evolution” of the “living” Constitution does not undergo a process akin to Darwinian natural selection. Instead constitutional evolution is far more like artificial selection or even Intelligent Design. Understanding why leads to a richer understanding of and appreciation for the “living” Constitution.

Part IV then turns to some gaps in the metaphor and embarks on the preliminary, but ambitious, task of filling those gaps by extending the metaphor in ways that are consistent with biological understandings. The results are both surprising and promising, and I make some suggestions for intriguing avenues of deeper conceptualization. For example, conceptualizing the various clauses of the Constitution as genes in a body can lead to a fuller understanding of how the parts relate to the whole. This Part also acknowledges the dangers of extending the metaphor and of extending biology beyond the life sciences, but ultimately concludes that careful use can enrich discussion and understanding of our Constitution, both for those who accept the notion of a “living” constitution and for those who do not.

II. THE METAPHOR OF A “LIVING” CONSTITUTION

My task in this section is to explore the biological facets of the metaphor “living” Constitution. At the outset, let me say what this task will *not* entail. I will not make a normative argument for or against living constitutionalism. Nor will I be so bold as to attempt to construct a single, unified, internally consistent account of living

constitutionalism, which, aside from being tangential to my analysis, might well be impossible.⁶ Instead, I will provide a descriptive account of the metaphor of a “living” Constitution, paying particular attention to the biological terms used to describe it.

If a metaphor can be written as A IS B,⁷ then the metaphor of living constitutionalism can be written as THE CONSTITUTION IS AN ORGANISM. Many prominent constitutional theorists have expressed this metaphor explicitly. For example, Woodrow Wilson wrote: “[G]overnment is not a machine, but a living thing. It falls, not under the theory of the universe, but under the theory of organic life.”⁸ Oliver Wendell Holmes wrote that the provisions of the Constitution “are organic, living institutions.”⁹ Charles Beard wrote, “The Constitution as practice is a living thing.”¹⁰ Arthur Selwyn Miller wrote that the Constitution “is a ‘living’ document.”¹¹ James Thayer also expressly characterized the Constitution as organic.¹² Although Progressives may have popularized the metaphor,¹³ some modern theorists, such as Keith Whittington, adhere to it.¹⁴

6. As Justice William Rehnquist once wrote, “The phrase living constitution has about it a teasing imprecision that makes it a coat of many colors.” William H. Rehnquist, *The Notion of a Living Constitution*, 54 TEX. L. REV. 693, 693 (1976); see also Antonin Scalia, *Common-Law Courts in a Civil-Law System: The Role of United States Federal Courts in Interpreting the Constitution and Laws*, in A MATTER OF INTERPRETATION 45 (Amy Gutmann ed., 1997) (“[T]he evolutionists divide into as many camps as there are individual views of the good, the true, and the beautiful.”); cf. Arthur Selwyn Miller, *Notes on the Concept of the “Living” Constitution*, 31 GEO. WASH. L. REV. 881, 884 (1963) (“The concept of the ‘living Constitution’ has never been explained in detail so as to indicate how far it goes and what it means.”).

7. I borrow this style from Lakoff and Johnson’s seminal work on conceptual metaphor. See GEORGE LAKOFF & MARK JOHNSON, *METAPHORS WE LIVE BY* (1980).

8. WOODROW WILSON, *CONSTITUTIONAL GOVERNMENT IN THE UNITED STATES* 56–57 (1908). For a comprehensive exposition of the “machine” metaphor, see MICHAEL KAMMEN, *A MACHINE THAT WOULD GO OF ITSELF: THE CONSTITUTION IN AMERICAN CULTURE* (1986).

9. *Gompers v. United States*, 233 U.S. 604, 610 (1914).

10. Charles Beard, *The Living Constitution*, 185 ANNALS AM. ACAD. POL. & SOC. SCI. 29, 31 (1936).

11. Miller, *supra* note 6, at 884.

12. See James B. Thayer, *The Origin and Scope of the American Doctrine of Constitutional Law*, 7 HARV. L. REV. 129 (1893).

13. Howard Gillman, *The Collapse of Constitutional Originalism*, 11 STUD. AM. POL. DEV. 191, 215 (1997) (“[T]he Progressives spearheaded the shift from using Newtonian metaphors to describe the Constitution to using Darwinian metaphors, or more specifically, the shift away from viewing the Constitution as a reliable and durable mechanism toward viewing it as an organism.”).

14. Keith E. Whittington, *It’s Alive! The Persistence of the Constitution*, 11 GOOD SOC’Y 8, 9 (2002) (cautioning that “too much can be made of the biological metaphors,” but agreeing that “the Constitution is a living organism”), available at http://www.princeton.edu/~kewhitt/its_alive.pdf#search+constitution%20is%20a%20living%20organism.

The incorporation of recognizable traits of living (and sometimes human) organisms deepens the general metaphor. The “living” Constitution was “born,”¹⁵ it was “nurtured”¹⁶ as it “developed”¹⁷ into “maturity,”¹⁸ and it continues to “grow” with society.¹⁹ Its provisions have a capacity to “adapt” to social changes.²⁰ It has been called a “tap-root”²¹ that “grew” in the “soil” of a particular time but which can be “transplant[ed]” to the “soil” of different times.²² With help, it can “survive.”²³ Eric Claeys has put it this way: “Like an animal, a constitutional order must adapt or die.”²⁴

If these descriptions were not enough, additional metaphorical extensions abound. For example, the Constitution has an animating “spirit”²⁵ or “vitality.”²⁶ It has organic structure, with a “skin[],”²⁷

15. *Olmstead v. United States*, 277 U.S. 438, 472–73 (1928) (Brandeis, J., dissenting) (alluding to the “birth” of constitutional principles); *Missouri v. Holland*, 252 U.S. 416, 433 (1920) (finding that the Framers “called into life a being the development of which could not have been foreseen completely by the most gifted of its begetters”); see also *Home Bldg. & Loan Ass’n v. Blaisdell*, 290 U.S. 398, 442–43 (1934) (adopting an evolving characterization of the Constitution); Thurgood Marshall, *The Constitution: A Living Document*, 30 HOW. L.J. 915, 919 (1987) (alluding to its “birth”).

16. Marshall, *supra* note 15, at 919; see also Ruth Bader Ginsburg, *Looking Beyond our Borders: The Value of a Comparative Perspective in Constitutional Adjudication*, 22 YALE L. & POL’Y REV. 329, 337 (2004) (“In conclusion, my cheers as you undertake the challenging mission to support and nurture the Constitution, as it has evolved over the span of two centuries and more.”).

17. HOWARD LEE MCBAIN, *THE LIVING CONSTITUTION: A CONSIDERATION OF THE REALITIES AND LEGENDS OF OUR FUNDAMENTAL LAW* 11 (1927); see also *id.* at 25 (“[The Constitution] has developed. It has been altered and enlarged by several different methods. The [C]onstitution has developed by the growth of customs and especially the customs or practises of political parties.”).

18. 1 LAURENCE H. TRIBE, *AMERICAN CONSTITUTIONAL LAW* § 1-16, 81–82 (3d ed. 2000) (“[T]he bare words of the Constitution’s text and the skeletal structure on which those words were hung, only begin to fill out the Constitution as a mature, ongoing system of constitutional law.”).

19. WILSON, *supra* note 8, at 22; First Presidential Debate between George W. Bush and Al Gore, 2000 WL 1466168 (ABC, Oct. 3, 2000) (“[T]he Constitution ought to be interpreted as a document that grows with our country and our history.”), available at <http://abcnews.go.com/Politics/Story?id=122806&page=1>.

20. *Olmstead*, 277 U.S. at 472 (1928) (Brandeis, J., dissenting).

21. WOODROW WILSON, *CONGRESSIONAL GOVERNMENT: A STUDY IN AMERICAN POLITICS* 28–30 (Meridian Books 1956) (1885).

22. *W. Va. State Bd. of Educ. v. Barnette*, 319 U.S. 624, 639–40 (1943); *Gompers v. United States*, 233 U.S. 604, 610 (1914).

23. Miller, *supra* note 6, at 885, 912.

24. Eric R. Claeys, *The Living Commerce Clause: Federalism in Progressive Political Theory and the Commerce Clause after Lopez and Morrison*, 11 WM. & MARY BILL RTS. J. 403, 449 (2002).

25. WILSON, *supra* note 8, at 69 (“[The Constitution is not] a mere lawyer’s document: It is a vehicle for life, and its spirit is always the spirit of the age.”).

26. *Trop v. Dulles*, 356 U.S. 86, 103 (1958) (asserting that the provisions of the Constitution “are vital, living principles”); *Olmstead v. United States*, 277 U.S. 438, 473 (1928) (Brandeis, J.,

“skelet[on],”²⁸ and “body and blood.”²⁹ It “palpitat[es],”³⁰ has “health,”³¹ and can “atrophy.”³² Akhil Amar recently wrote a “biography” of it, painting a “portrait” that reflects its “personality” and “deep convictions.”³³ And, those who do not believe in a “living” Constitution are portrayed as believing in a “dead”³⁴ or “lifeless”³⁵ one.

Thus, the metaphor THE CONSTITUTION IS AN ORGANISM is a rich one,³⁶ full of biological implications. But does the metaphor hold up from a biological perspective? And where does it take us? Those are questions I turn to next.

III. EVALUATING THE METAPHOR

To evaluate the metaphor, I will look both at the ways it accurately captures its own biological implications and at the ways it does not (yet). In addition, I will take one strong feature of the metaphor—the idea that the “living” Constitution “evolves”—and explore what type of evolution the metaphor contemplates and what that might mean for our conception of a “living” Constitution.

dissenting) (“Therefore a principle to be vital must be capable of wider application than the mischief which gave it birth.”); *Gompers*, 233 U.S. at 610 (“[T]he provisions of the Constitution and the amendments . . . are not mathematical formulas [T]hey are organic living institutions [T]heir significance is vital not formal.”).

27. Miller, *supra* note 6, at 885.

28. 1 TRIBE, *supra* note 18, at 81–82 (“[T]he bare words of the Constitution’s text and the skeletal structure on which those words were hung, only begin to fill out the Constitution as a mature, ongoing system of constitutional law.”).

29. EDWARD S. CORWIN, *COURT OVER CONSTITUTION: A STUDY OF JUDICIAL REVIEW AS AN INSTRUMENT OF POPULAR GOVERNMENT* 68 (1938).

30. Edward S. Corwin, *Constitution v. Constitutional Theory*, 19 AM. POL. SCI. REV. 290, 303 (1925).

31. CORWIN, *supra* note 29, at 127.

32. Charles A. Reich, *Mr. Justice Black and the Living Constitution*, 76 HARV. L. REV. 673, 735–36 (1963).

33. AKHIL REED AMAR, *AMERICA’S CONSTITUTION: A BIOGRAPHY* 471 (2005).

34. Saby Ghoshray, *To Understand Foreign Court Citation: Dissecting Originalism, Dynamism, Romanticism, and Consequentialism*, 69 ALA. L. REV. 709, 722 (2006).

35. HERMAN BELZ, *A LIVING CONSTITUTION OR FUNDAMENTAL LAW?* 238 (1998); *see also* Erwin Chemerinsky, *The Constitution is Not “Hard Law”: The Bork Rejection and the Future of Constitutional Jurisprudence*, 6 CONST. COMMENT. 29, 37–38 (1989).

36. It is rich enough that even those who disagree with the existence of a “living” Constitution nonetheless understand the metaphor. *See, e.g., Scalia blasts critics of “living Constitution,”* ASSOCIATED PRESS (Feb. 14, 2006), <http://www.msnbc.msn.com/id/11346274>; *see also* Antonin Scalia, *Constitutional Interpretation the Old Fashioned Way*, Remarks at the Woodrow Wilson International Center for Scholars (Mar. 14, 2005), *available at* http://www.cff.org/htdocs/freedomline/current/guest_commentary/scalia-constitutional-speech.htm.

A. Metaphorical Accuracies and Gaps

To those who ascribe to it, the metaphor THE CONSTITUTION IS AN ORGANISM accurately parallels biological understanding in many ways. For example, biologists generally agree that living organisms have structure; that they develop, grow, and repair themselves; and that they respond to environmental changes and are the subject of evolution.³⁷ Thus, it is entirely consistent to describe a “living” Constitution as having skin, skeleton, body, and blood; as developing, maturing, and growing; as changing, adapting, and evolving; and as having the capacity to be healthy and to atrophy.³⁸

In other ways, however, the metaphor currently lacks analogues to fundamental characteristics of living things. Biologists generally agree that living organisms use raw materials from their environment for energy.³⁹ I have found no conventional expression of living constitutionalism that adopts this feature of biology. Similarly, living organisms reproduce.⁴⁰ Again, I have found no conventional expression of reproduction.⁴¹ Finally, living organisms have a definitive life cycle, punctuated by senescence and death.⁴² Living constitutionalism has no analogue for this life cycle. Indeed, living constitutionalism holds something of the opposite—that change can prevent the Constitution from growing old and dying. In short, these accepted and fundamental features of living organisms find no metaphorical expression in living constitutionalism.

There are at least two responses to the identification of these “gaps.” The first response is that metaphor is not meant to be (and, in fact, is the opposite of) identity. The Constitution is not actually a living biological organism; indeed, it is obviously and fundamentally unlike a living organism in many ways. The metaphor merely links the two objects according to certain similarities, not according to all

37. See ERNST MAYR, *THIS IS BIOLOGY: THE SCIENCE OF THE LIVING WORLD* 21–22 (1997); NANCY L. PRUITT & LARRY S. UNDERWOOD, *BIOINQUIRY: MAKING CONNECTIONS IN BIOLOGY* 8 (3d ed. 2006); IRWIN W. SHERMAN & VILIA G. SHERMAN, *BIOLOGY: A HUMAN APPROACH* 5 (4th ed. 1989); J. ARTHUR THOMASON & PATRICK GEDDES, *LIFE: OUTLINES OF GENERAL BIOLOGY* 12–29 (1931); PAUL B. WEISZ, *THE SCIENCE OF BIOLOGY* 22 (3d ed. 1967).

38. See *supra* text accompanying notes 15–35.

39. See *supra* note 37.

40. *Id.*

41. Glenn Reynolds comes close when he likens democracy to sex, though he does so only through a single common effect—resistance to parasites—and without engaging the metaphor of a living Constitution. See Glenn Harlan Reynolds, *Is Democracy Like Sex?*, 48 *VAND. L. REV.* 1635, 1637–38 (1995).

42. MAYR, *supra* note 37, at 22.

traits. And so, this first response goes, gaps are not fatal to the metaphor.

This truism is a cop-out of sorts, a shortcut to avoid the second response to the gaps: rather than accept the gaps and passing them off as the byproduct of metaphor, perhaps we can use our understanding of the metaphor to fill them. For example, does living constitutionalism really lack an analogue for death? Perhaps not; perhaps the Constitution does have a life cycle in which it continually dies as society's needs outpace it and is reborn with updated modifications in a constant dialogue with We the People.⁴³ The point is that creative thought may reveal appropriate and meaningful analogues for the gaps that currently exist in the metaphor.

Filling those gaps is an exciting part of thinking deeply about the metaphor, and I will return to this task in the next Part to explore some of the ways in which extending the metaphor can shed light on our conception of the Constitution. But first, I must acknowledge a different, and more serious, kind of flaw. Not only does the metaphor have gaps, but it also has potential inaccuracies.

B. Constitutional Evolution?

One prominent component of the metaphor THE CONSTITUTION IS AN ORGANISM is evolution. The Constitution “changes” and “evolves” over time in order to meet the needs of society.⁴⁴ Not all evolutionary

43. Indeed, others have argued expressly that constitutions have life cycles and “mortality rates.” See Zachary Elkins, Tom Ginsburg & James Melton, *The Lifespan of Written Constitutions* (on file with the Vanderbilt Law Review) (arguing that the mortality rate of constitutions is influenced by executive overreaching in response to external shocks such as wars and other crises).

44. See *Olmstead v. United States*, 277 U.S. 438, 472 (1928) (Brandeis, J., dissenting) (writing that constitutional provisions “must have a . . . capacity of adaptation to a changing world”); ARTHUR SELWYN MILLER, *SOCIAL CHANGES AND FUNDAMENTAL LAW: AMERICA'S EVOLVING CONSTITUTION* 349 (1979) (“The idea of the living Constitution thus is a justification for adaptation of the basic document to fit new social exigencies.”); JED RUBENFELD, *REVOLUTION BY JUDICIARY: THE STRUCTURE OF AMERICAN CONSTITUTIONAL LAW* 9 (2005) (“A living Constitution (it is said) must evolve and adapt to contemporary needs and values.”); William J. Brennan, Jr., *The Constitution of the United States: Contemporary Ratification*, Address at Georgetown University, Text & Teaching Symposium (Oct. 12, 1985), *reprinted in* 26 S. TEX. L. REV. 433, 438 (1986) (“For the genius of the Constitution rests not in any static meaning it might have had in a world that is dead and gone, but in the adaptability of its great principles to cope with current problems and current needs.”); Chemerinsky, *supra* note 35, at 37–38 (“The modern activist Court [stood] between legislative supremacy that threatened to overrule fundamental values embodied in the Constitution and the rule of a static and lifeless Constitution incapable of changing and evolving by interpretation.”); Edward S. Corwin, *Statement of March 17, 1937 Before the Senate Judiciary Committee on Court Reorganization*, in *AMERICAN CONSTITUTIONAL HISTORY* 134, 134 (Alpheus T. Mason & Gerald Garvey eds., 1964) (charging the Court of the early 1930s as turning its back upon a Constitution that “adapts . . . to present needs”);

models are Darwinian,⁴⁵ but this one is. The metaphor of a “living” Constitution did not arise before Darwin, despite the long history and influence of the concept of the “living law.”⁴⁶ When living constitutionalism did arise, it was promoted by advocates like Woodrow Wilson, who were heavily influenced by Darwinist evolutionary thought.⁴⁷ Wilson even made the focus of the metaphor explicit: “[G]overnment . . . is accountable to Darwin, not to Newton. It is modified by its environment, necessitated by its tasks, shaped to its functions by the sheer pressure of life. . . . Living political constitutions must be Darwinian in structure and practice.”⁴⁸ This is consistent with the metaphor THE CONSTITUTION IS AN ORGANISM: living things are subject to Darwinian evolutionary pressures. Thus, the “living” Constitution does not “evolve” in a vernacular sense but in the Darwinian sense.

Under Darwin’s theory of evolution,⁴⁹ individuals of various genetic makeups compete under environmental pressures such as scarcity of food or shelter, and those with less-favored genetic makeups generally lose out to those with more-favored genetic makeups. The winners reproduce and pass on their favored genetic makeups to their offspring.⁵⁰ As a result, the genetic pool in the population shifts.⁵¹ When one population’s genetic makeup has so

Ginsburg, *supra* note 16, at 337 (“In conclusion, my cheers as you undertake the challenging mission to support and nurture the Constitution, as it has evolved over the span of two centuries and more.”); Scalia, *supra* note 6, at 38 (calling living constitutionalism “a body of law that . . . grows and changes from age to age, in order to meet the needs of a changing society”).

45. See Hovenkamp, *supra* note 4, at 646–47 (providing an overview of evolutionary models of jurisprudence, including non-Darwinian models); Jones & Goldsmith, *supra* note 1, at 479 (“The word ‘evolution’ is frequently used in everyday speech to convey the idea simply of change, or of nonrandom change.”).

46. See, e.g., SIR EDWARD COKE, *Second Institute, Magna Charta*, in 2 SELECTED WRITINGS OF SIR EDWARD COKE 801 (Steve Sheppard ed., 2003) (“Now as out of the old *fields* must come the new corne, so our old books do excellently expound, and expresse this matter, as the Law is holden at this day.”).

47. Morton J. Horwitz, *The Supreme Court, 1992 Term—Foreword: The Constitution of Change: Legal Fundamentalism with Fundamentalism*, 107 HARV. L. REV. 30, 51–54 (1993) (describing the influence of Darwinism on Wilson and other Progressives).

48. WILSON, *supra* note 8, at 56–57; see also WOODROW WILSON, *THE NEW FREEDOM* 46–48 (1913) (“All that progressives ask or desire is permission . . . to interpret the Constitution according to the Darwinian principle . . .”).

49. Although Darwinist adherents themselves are split on some of its nuances, see Michael Ruse, *Darwinism*, in KEYWORDS OF EVOLUTIONARY BIOLOGY 74 (Evelyn Fox Keller & Elisabeth A. Lloyd eds., 1992), I mean to set forth here some fundamentals that exhibit less internal disagreement among scientific adherents.

50. CHARLES DARWIN, *ORIGIN OF SPECIES* 39, 107–08 (1859).

51. STEPHEN JAY GOULD, *HEN’S TEETH AND HORSE’S TOES* 334 (1983).

shifted from another population's makeup that the two cannot reproduce among each other, they have become two different species.⁵²

There are some obvious gaps in the metaphor here. Living constitutionalism lacks clear analogues for variation, reproduction, competition, and populations. As I mentioned above, however, deeper exploration of these characteristics of evolution may lead to some surprising discoveries, about which I will have more to say in the next Part.

In addition, the unit of constitutional evolution is unclear. In biology, individual organisms may grow and develop, but only *species* evolve. In living constitutionalism, the Constitution appears to have attributes of both.

A little inaccuracy here is not fatal, in my view. After all, metaphor is not identity, and some play in the metaphorical joints is necessary to give the metaphor its richest meaning. We should use this flexibility to enhance our own understanding—perhaps the formal amendment process is more like the growth and development of an individual organism, while interpretative developments and changed meanings over time are akin to evolution—but we should not let the mere presence of an inaccuracy sidetrack the goal of greater understanding.⁵³

As an example of what I mean by capitalizing on the inaccuracies as points of departure for deeper discussion, I will explore another point here: What kind of evolution does the metaphor evoke? The question (and its answer) is provocative.

1. By Natural Selection

Despite Woodrow Wilson's sentiments supporting it,⁵⁴ the wrong answer is Darwinian natural selection. To show why, I must explain a little about natural selection, which is a two-step process.

In the first step, genetic variation among individual organisms arises without direction and without purpose. For example, if global temperatures drop and increased body hair would provide warmth and enhance survival, animals will not somehow perceive the need and

52. DARWIN, *supra* note 50, at 649; MAYR, *supra* note 37, at 182–89.

53. Indeed, separating out the notions of a “living” Constitution that grows by amendment and the “living” Constitution that evolves by judicial reinterpretation may have metaphorical appeal across the political spectrum; originalists can advocate for a metaphor that restricts living constitutionalism to an organism-based focus, and liberals can advocate for a species-based metaphor. There is much to be explored here, and perhaps my efforts will serve as the springboard for their development in a larger project.

54. *See supra* note 48.

thereby grow body hair. To the contrary, the mutation rate for body hair is independent of the environment, and some individuals may be born with a genetic makeup that causes them to have *less* body hair than their parents.⁵⁵ In addition, variation is path dependent. Because of its historical evolutionary path, grass cannot suddenly grow hair, even if it would be ideal for the grass in light of impending cold.⁵⁶ Thus, it is possible that the random variation that occurs will not produce any capacity for increased body hair in a particular species. The point is that variation is unoriented, constrained by morphology, and completely independent of environmental pressures.⁵⁷

In the second step of natural selection, the environment then exerts pressures that cause competition among the genetic variants. The result is that those variants that happen to be best adapted to the local environment tend to survive and reproduce more copies of themselves, ultimately reducing variation.⁵⁸ Importantly, the success of a variant is dependent solely on the whims of the local environment, and that environment has no goal of progress or inherent worth in mind. And, because the environment itself and the selection pressures within it are themselves protean and somewhat random, an organism that may be well adapted in one time and place may go extinct in another.⁵⁹ In short, selection results only in local (and temporary) adaptation.

Take these two steps together, and a couple of conclusions arise. First, natural selection is not a progressive, optimizing force in which a more advanced species replaces its outdated ancestors.⁶⁰ Variation can go in both directions, and which direction is favored depends upon the local environment. The relatively hairless elephants that evolved as the ice ages ended are not inherently superior to their antecedent woolly mammoths. They just happen to have found the

55. See RICHARD DAWKINS, *RIVER OUT OF EDEN* 3 (1995) ("It is not success that makes good genes. It is good genes that make success . . .").

56. RICHARD DAWKINS, *THE BLIND WATCHMAKER* 45 (1986); STEPHEN JAY GOULD, *AN URCHIN IN THE STORM* 45–46 (1987); WEISZ, *supra* note 37, at 783–84.

57. STEPHEN JAY GOULD, *THE PANDA'S THUMB* 79 (1980).

58. GOULD, *supra* note 51, at 334; GOULD, *supra* note 56, at 213 n.1, 232; MAYR, *supra* note 37, at 188–89.

59. GOULD, *supra* note 51, at 343–44. For example, the Permian extinction, 225 million years ago, wiped out over 80% of all species. The likely cause was the coalescence of all the Earth's dry land into a single continent, Pangaea, which caused dramatic and rapid changes in the Earth's environment. The changes were too dramatic and too rapid for evolution to keep pace with, and, as a consequence, most species died. STEPHEN JAY GOULD, *EVER SINCE DARWIN*, 135–38 (1977).

60. GOULD, *EVER SINCE DARWIN*, *supra* note 59, at 45; GOULD, *supra* note 51, at 338; STEPHEN JAY GOULD, *I HAVE LANDED* 338 (2002); E. RAY LANKESTER, *DEGENERATION: A CHAPTER IN DARWINISM* 60 (1880).

current favor of a very fickle Mother Earth.⁶¹ It may very well be that the next ice age will again favor woolly-mammoth-like pachyderms over their now dominant hairless kin.⁶² There is no such thing as a perfect species, and humans are not the long-term culmination of evolutionary progress.⁶³ As Stephen Jay Gould put it, “The Darwinian mechanism includes no concept of general progress or universal betterment.”⁶⁴

Second, natural selection is not forward looking or directed but is backward looking and undirected.⁶⁵ Organisms do not look to the future and change themselves in anticipation. Rather, the environment looks at the organisms and picks out which ones just happen to be best adapted at the time.⁶⁶

Thus, natural selection is random, undirected, nonprogressive, and indifferent. It has no purpose, no design, and no perfection. As Richard Dawkins put it, “The process of trial and error, completely unplanned and on the massive scale of natural selection, can be expected to be clumsy, wasteful, and blundering.”⁶⁷

That’s a far cry from the evolutionary concept of a “living” Constitution. The metaphor of a “living” Constitution was initially used to support a constitutional evolution that was progressive and for the betterment of society.⁶⁸ The “living” Constitution was designed to

61. DAWKINS, *supra* note 55, at 132–33.

62. STEPHEN JAY GOULD, FULL HOUSE 139 (1996). For more on the flip-flop of fitness among species, see JONATHAN WEINER, THE BEAK OF THE FINCH: A STORY OF EVOLUTION IN OUR TIME 104–06 (1994).

63. DAWKINS, *supra* note 56, at 50 (“There is no long-distance target, no final perfection to serve as a criterion for selection, although human vanity cherishes the absurd notion that our species is the final goal of evolution.”); GOULD, *supra* note 62, at 15, 18; GOULD, *supra* note 51, at 246. Indeed, as Gould points out, this is not, and will never be, the Age of Man: “[L]ife has always been, and will probably always remain . . . in the Age of Bacteria.” GOULD, *supra* note 62, at 33, 176.

64. GOULD, I HAVE LANDED, *supra* note 60, at 340.

65. Michael S. Fried, *The Evolution of Legal Concepts: The Memetic Perspective*, 39 JURIMETRICS J. 291, 293 (1999):

A common fallacy regarding natural selection is the supposition that the evolutionary process progresses inexorably toward some pre-ordained goal. Darwinian development is sometimes popularly conceived as a gradual movement toward perfection; evolution is assumed to progress inexorably toward the achievement of ever more sophisticated and highly developed organisms. In fact, natural selection is backward-looking.

66. DAWKINS, *supra* note 56, at 5 (“Natural selection, the blind, unconscious, automatic process which Darwin discovered . . . has no purpose in mind. It has no mind and no mind’s eye. It does not plan for the future. It has no vision, no foresight, no sight at all.”).

67. RICHARD DAWKINS, A DEVIL’S CHAPLAIN 8 (2003).

68. See, e.g., J.B. BURY, THE IDEA OF PROGRESS (1920); Marshall, *supra* note 15, at 919–20 (lauding the progress made since the Founding and indicating that the progress is a “promising evolution” towards betterment that has not yet been fully realized); Steve Sheppard, *The State*

effectuate the Preamble's declaration of a desire for "a more perfect Union," more extensive "Justice" and "Tranquility," and more secure "Blessings of Liberty."⁶⁹ The Supreme Court itself has picked up on this idea, first noting that the invalidation of state laws under the Due Process Clause helped to ensure the "progress [and] improvement" of the Constitution.⁷⁰ Later, the Court reiterated that the Constitution is "progressive" and stated that it acquires meaning as public opinion becomes more "enlightened by humane justice."⁷¹ Finally, the Court famously proclaimed that the Eighth Amendment must draw meaning from the "evolving standards of decency that mark the progress of a maturing society."⁷² In each case, the "living" Constitution's evolution is not haphazard or random but is progressive; the Constitution reaches towards enlightenment and improvement. That is emphatically not the case for natural selection.

The metaphor of a "living" Constitution does not represent the Progressive view exclusively. Bruce Ackerman and others have used it to support the democratic principle that popular support justifies changed constitutional meaning.⁷³ Under this view, the changes in the Constitution are directed by the people to keep up with the changing needs of society.⁷⁴ The Constitution is "update[ed],"⁷⁵ "modified,"⁷⁶ and

Interest in the Good Citizen: Constitutional Balance between the Citizen and the Perfectionist State, 45 HASTINGS L. J. 969, 1010 n.146 (1994) (describing progress towards an increasingly better life). Not all living constitutionalists find this view persuasive. See, e.g., Bruce Ackerman, *The Living Constitution*, 120 HARV. L. REV. 1737, 1754 (2007) ("For me, the 'living constitution' is not a convenient slogan for transforming our very imperfect Constitution into something better than it is.").

69. See Corwin, *supra* note 30, at 302 (discussing constitutional interpretation and the Preamble).

70. *Hurtado v. California*, 110 U.S. 516, 529 (1884).

71. *Weems v. United States*, 217 U.S. 349, 378 (1910).

72. *Trop v. Dulles*, 356 U.S. 86, 100–01 (1958).

73. See, e.g., Ackerman, *supra* note 68, at 1754 (noting the importance of popular sovereignty to changes in constitutional meaning); William J. Brennan, Jr., *Presentation to the American Bar Association* (July 9, 1985), in AMERICAN CONSTITUTIONAL LAW 607, 610 (Alpheus Thomas Mason & Donald Grier Stephenson eds., 8th ed. 1987) (referring to "contemporary ratification"); Ethan J. Leib, *The Perpetual Anxiety of Living Constitutionalism*, 24 CONST. COMMENT. 353, 363 (2007) ("The document and our life under it always needs justification morally, practically, and politically – and living constitutionalism always requires us to ask for that justification at the very moment when we ask for the meaning of the document and its provisions.").

74. Miller, *supra* note 6, at 885 (explaining that the cause of constitutional change is the people and the instrument is the Court); see also G. Edward White, *The "Constitutional Revolution" as a Crisis in Adaptivity*, 48 HASTINGS L.J. 867, 874–75 (1997) (describing the role of legal realism in promoting the belief that people could change the law to keep pace with society).

75. Miller, *supra* note 6, at 886.

76. White, *supra* note 74, at 874.

“adapted”⁷⁷ by the people or the courts rather than selected by an agenda-less environment. It relies on “the purposive activities of human actors as shaping forces in the universe.”⁷⁸ In other words, the people purposefully change constitutional meaning with the goal of better fitting the environment, rather than the environment selecting whatever happens to be the most adapted meaning at the time. Constitutional evolution is active and directed, not passive. As I have discussed, natural selection—undirected, purposeless, and backward looking—is exactly the opposite.

2. Other Options

If the “evolution” of the “living” Constitution does not reflect Darwin’s natural selection, then what does it reflect? Two possible answers come to mind.

a. Artificial Selection

Not all Darwinian evolution occurs through natural selection. Darwin also coined the term “artificial selection” to refer to a process similar to natural selection except that the selecting agents are human rather than the natural environment.⁷⁹ Thus, in artificial selection, human influence forms the dominant selection pressure.

Artificial selection occurs in many domesticated species.⁸⁰ Man has artificially selected for beauty in pigeons, speed in greyhounds, and taste in tomatoes. In each case, the artificial selection was directed and progressive. Artificial selection is far more reflective of the evolution of the “living” Constitution than haphazard and indifferent natural selection. Artificial selection is still suboptimal because variation must work with what it has, and the process is still backward looking because the human selecting agents must sift through the offspring to eliminate the less desirable individuals. But artificial selection describes constitutional evolution better than natural selection.

If artificial selection is the agent of change for the “living” Constitution, what might that tell us? At this depth in the metaphor,

77. Brennan, *supra* note 44, at 445; see also MILLER, *supra* note 44, at 349 (stating that the Constitution is adapted to fit new social problems); RUBENFELD, *supra* note 44, at 10 (“If we believed in the living Constitution, we would ask whether our courts had generated doctrine well adapted to the country’s needs.”).

78. White, *supra* note 74, at 873.

79. DARWIN, *supra* note 50, at 7–43.

80. PAUL B. WEISZ, *THE SCIENCE OF BIOLOGY* 778–79 (3d ed. 1967).

many gaps arise, but let me at least hazard some preliminary thoughts.

Artificial selection distributes variation very differently than natural selection. In the wild, genetic variation is spread among and within individuals. Thus, the phenotypes of individuals are all relatively similar, with mostly minor differences. In domesticated species, however, the variation is focused in different breeds, and within a breed, variation is minimized. Thus, a population of wolves may have all of the genetic variation existing in domestic dogs, but a population of golden retrievers has far less genetic variation. As a population, then, wolves are far more likely to survive when confronted with random environmental pressures than are golden retrievers, for the likelihood that an individual wolf will have an adapted genetic makeup is greater.⁸¹

To make matters worse for the golden retriever, man is often short sighted and fallible in his artificial selection.⁸² Nature “sees” the entire organism and therefore may select for an interconnected complex of traits, some of which may be invisible but nevertheless important to survival. Humans, on the other hand, only “see” what they can perceive, and the view of artificial selection is particularly narrow.⁸³ The result is unconscious selection—when artificial selection results in major changes that are not anticipated.⁸⁴

Thus, a gardener who selects for thornless roses may indeed succeed in quickly breeding a variety of thornless rose, but he may be surprised to learn that, in the process, he also has unwittingly bred out of the roses their natural resistance to disease. Similarly, that golden retrievers suffer from an unusually high incidence of hip problems is a result of artificial selection.⁸⁵

In short, artificial selection works quite well at creating organisms specifically tailored to a particular goal in a relatively short

81. EDWARD O. PRICE, ANIMAL DOMESTICATION AND BEHAVIOR 36 (2002). For more on the deleterious effects of inbreeding, see D.S. FALCONER & T.F.C. MACKAY, INTRODUCTION TO QUANTITATIVE GENETICS (1996); T.F.C. MacKay, *A Quantitative Genetic Analysis of Fitness and Its Components in Drosophila Melanogaster*, 47 GENETICS RES. 59–70 (1985).

82. L.T. Evans, *Darwin's Use of the Analogy Between Artificial and Natural Selection*, 17 J. HIST. OF BIOLOGY 113, 132 (1984) (“Man selects only what is useful and curious—has bad judgement [sic], is capricious—grudges to destroy those that do not come up to his pattern . . . does not select those best adapted to the conditions under which the form lives, but those most useful to him.”).

83. DARWIN, *supra* note 50, at 83–84 (“Man can act only on external and visible characters . . . [Nature] can act on every internal organ, on every share of constitutional difference, on the whole machinery of life.”).

84. James A. Secord, *Nature's Fancy: Charles Darwin and the Breeding of Pigeons*, 72 ISIS 162, 183–84 (1981).

85. PRICE, *supra* note 81, at 35–36.

period of time,⁸⁶ but it often comes with unintended consequences.⁸⁷ Charles Darwin put it this way: “How fleeting are the wishes and efforts of man? How short his time? And consequently, how poor will his products be, compared with those accumulated by nature during whole geological periods.”⁸⁸

If, therefore, the evolution of the “living” Constitution is akin to artificial selection, artificial selection may have something to tell us about tinkering with the document toward a narrow goal. It may be that the human-driven changes in the Constitution are just as short sighted and fallible as in artificial selection, yielding unintended consequences.

b. Intelligent Design

Artificial selection is perhaps a better analogue in the metaphor, because it accounts for constitutional evolution’s direction and progressive advancement. But artificial selection does not explain fully the forward-looking nature and non-randomness of the constitutional changes. In some respects, We the People exercise control not only over the selection process, but also over the variation step preceding selection. We propose changes in a forward-looking, goal-oriented way. Artificial selection—and, indeed, Darwinian evolution in general—does not capture this aspect of constitutional evolution.

Perhaps the best analogue, then, is not scientific at all but quasi-religious: Intelligent Design.⁸⁹ Intelligent Design posits that certain features of living things are best explained by an intelligent cause, not an undirected, chance-based process such as Darwinian evolution.⁹⁰ The Intelligent Design movement does not deny that

86. Michael S. Fried, *The Evolution of Legal Concepts: The Memetic Perspective*, 39 JURIMETRICS J. 291, 292 (1999). For example, all of the various types of dogs have been created from wolves by artificial selection in only a few thousand years. RICHARD DAWKINS, CLIMBING MOUNT IMPROBABLE 21–23 (1996).

87. Evans, *supra* note 82, at 132.

88. DARWIN, *supra* note 50, at 84.

89. To make my own position clear, a disclaimer is warranted: I emphatically believe that Intelligent Design is neither a segment of biology nor in any sense a scientific theory. See *Kitzmiller v. Dover Area Sch. Dist.*, 400 F. Supp. 2d 707, 722 (M.D. Pa. 2005) (“[C]ompelling evidence strongly supports Plaintiffs’ assertion that [Intelligent Design] is creationism re-labeled.”). See generally ROBERT T. PENNOCK, TOWER OF BABEL: THE EVIDENCE AGAINST THE NEW CREATIONISM (1999) (presenting a history and criticism of Creationism). But what may be properly disparaged as science may be more acceptable as a metaphor.

90. Intelligent Design and Evolution Awareness Center, <http://www.ideacenter.org/contentmgr/showdetails.php/id/1136> (last visited Aug. 28, 2008); Intelligent Design Network,

evolution has occurred; it proposes that evolution has occurred at the direction of an intelligent and prescient source. In contrast to natural selection, Intelligent Design sees all stages of evolution as forward looking, progressive, and directed.

Two features of living constitutionalism suggest that the “living” Constitution is closely analogous to Intelligent Design. First, the Progressives’ view of advancement and betterment combined with Bruce Ackerman’s view of popularly directed change leads to the conclusion that the American people are the (presumably intelligent) driving force behind the purposeful and directed changes to our constitutional order. The people, with benign foresight, direct constitutional evolution for the advancement and betterment of society. That kind of evolution is more like Intelligent Design than natural, or even artificial, selection.

Second, the quasi-religious nature of Intelligent Design complements the reverence of living constitutionalism. The “living” Constitution “has a mystical significance for the American people—an object of reverence and awe that projects a quasi-religious fervor to aspects of secular life.”⁹¹ It performs the “vastly important function of being a unifying symbol.”⁹² It is “timeless” and it “inspire[s].”⁹³ It achieves the Preamble’s promise of “a more perfect Union,” “domestic Tranquility,” “general Welfare,” and the “Blessings of Liberty.”⁹⁴ For living constitutionalism, the Constitution is omnipresent and engaged in a continuing dialogue with We the People. It is a repository of our most fundamental values. In a word, the Constitution is sacred.⁹⁵ And that view is far more consonant with Intelligent Design than with the emphatically secular natural selection.⁹⁶

www.intelligentdesignnetwork.org; see also William S. Harris & John H. Calvert, *Intelligent Design: The Scientific Alternative to Evolution*, NAT’L CATHOLIC BIOETHICS Q. 531, 538 (2003).

91. Miller, *supra* note 6, at 881.

92. *Id.* at 881–82.

93. Brennan, *supra* note 44, at 445.

94. U.S. CONST. pmbl.

95. I do not mean to suggest that this sentiment and others expressed in this Section are restricted to living constitutionalists. Many who have divergent interpretative views of constitutionalism may hold the Constitution with the kind of reverence described here. See generally Thomas Grey, *The Constitution as Scripture*, 37 STAN. L. REV. 1 (1984); Symposium, *Religious Dimensions of American Constitutionalism*, 39 EMORY L.J. 1 (1990). But to the extent those views are part of living constitutionalism, their impact on the metaphor is worth studying.

96. GOULD, *supra* note 62, at 20, 29 (arguing that the need to view evolution as progressive and designed is a “delusion based on social prejudice and psychological hope engendered by our unwillingness to accept [our own inconsequentialism]”). Darwin himself wrote: “What a book a Devil’s Chaplain might write on the clumsy, wasteful, blundering low and horridly cruel works of nature.” DAWKINS, *supra* note 67, at 8. Indeed, Darwin is said to have lost his faith because he could not fathom a benevolent deity designing creatures such as the digger wasp. A digger wasp

c. Hybridization

Ultimately, it may be that a hybrid of artificial selection and Intelligent Design best explains the evolution of a metaphorical “living” Constitution. Constitutional evolution is, at all stages, forward looking, directed, purposeful, and progressive, like Intelligent Design supposes, but is also fallible, imperfect, and short sighted as artificial selection can be.

I need not resolve all of the nuances of this preliminary thought here. The important point is that a deeper exploration of the metaphor THE CONSTITUTION IS AN ORGANISM can help conceptualize and explain how the Constitution “evolves,” and it may even help us recognize and anticipate some of the risks that that evolution entails.

IV. EXTENDING THE METAPHOR

Part III identified some gaps in the metaphor and hinted that deeper thinking about the Constitution from a biological perspective may reveal ways to fill those gaps, whether one adheres to the theory of living constitutionalism or not. This Part takes up that task in a preliminary way, exploring several important extensions of the metaphor. I will not defend them in detail, but I hope that opening the discussion here will help stimulate debate, reframe issues, and improve our overall understanding of constitutional theory.

The gap I wish to explore here is that if the “living” Constitution is an organism, then what are its genes? The current expressions of the metaphor lack an analogue for genes, but an obvious possibility is that individual clauses are genes. In structural respects, this is an entirely accurate portrayal of biology. An organism’s genes are its blueprint, just as the clauses are the blueprint for the Constitution. But the CLAUSES ARE GENES metaphor has the potential to be even more powerful.

A. Clause Selection

Some genes remain unchanged through thousands, sometimes millions, of generations. There are two competing reasons why a gene might exhibit such stasis. First, the gene could be so vitally important

female swoops down on an unsuspecting caterpillar and precisely stings it so that the caterpillar is immobilized but alive. Then, she drags the caterpillar back to her underground lair, where she lays an egg on it. The egg hatches, and the wasp larva that emerges has a fresh and immobile source of nourishment. The caterpillar is eaten alive and may even be cognizant of the fact at the time. DAWKINS, *supra* note 55, at 95.

to the organism that any changes would result in death. In such a case, natural selection would exert irresistible pressure against change. Second, the gene could be so insignificant that natural selection exerts almost no pressure to change, and random drift of the genetic makeup simply has not occurred.

The histone H4 gene is an example of the former. It helps structure chromosomes, which are strands of genes. It is an incredibly crucial gene, for without it, reproduction is impossible. For that reason, the gene exists in most species, including humans, and it has remained essentially unchanged over at least 1.5 million years. Natural selection has preserved it, unchanged, over the course of millions of generations because of its vital importance to life.⁹⁷

But other genes fall into the latter category at the nadir of importance.⁹⁸ Examples abound in humans—*toe hair*, *wisdom teeth*, *vomer nasal organs*,⁹⁹ and *appendices* confer so little advantage or disadvantage to our reproductive success that natural selection simply is indifferent toward them and exerts so little pressure that these structures have yet to be eliminated from our bodies.¹⁰⁰

Not all genes are so resistant to change; most DNA is subject to natural selection and goes through evolutionary change far more frequently. The interesting biological point is that different genes have different rates of evolutionary change.¹⁰¹

As many have recognized, the clauses of the Constitution also have different rates of change.¹⁰² The Commerce Clause, for example, has changed famously over the years, shifting from modestly broad

97. DAWKINS, *supra* note 56, at 123–24.

98. “Junk DNA” is an extreme example. These strands of DNA have no functionality but are just along for the ride, piggybacking on the survival capabilities produced by functional genes. RICHARD DAWKINS, *THE SELFISH GENE* 47 (1976). By one estimation, 99% of human DNA is nonfunctional junk DNA. GOULD, *I HAVE LANDED*, *supra* note 60, at 227.

99. These are small pits on either side of the septum that contain nonfunctioning chemoreceptors, all that is left of a structure that once sensed pheromones. Eric B. Keverne, *The Vomeronasal Organ*, *SCIENCE*, Oct. 22, 1999, at 716.

100. CHARLES DARWIN, *THE DESCENT OF MAN* 13–15 (1871).

101. The view that genes are the units of selection is not universally accepted. Indeed, there is a widespread and unresolved debate among evolutionary theorists as to whether natural selection operates on the gene, individual, population, or species level. *See* DAWKINS, *supra* note 56, at 255–69; GOULD, *supra* note 57, at 85–86; GOULD, *supra* note 56, at 66–67; MAYR, *supra* note 37, at 20, 201; WEISZ, *supra* note 37, at 770; Mark J. Roe, *Chaos and Evolution in Law and Economics*, 109 *HARV. L. REV.* 641, 664 (1996); Sewall Wright, *Genic and Organismic Selection*, 34 *EVOLUTION* 825, 825–43 (1980).

102. *See, e.g.*, Barry Friedman & Scott B. Smith, *The Sedimentary Constitution*, 147 *U. PA. L. REV.* 1, 36 (1998) (explaining how different provisions of the Constitution reflect different levels of historical development and change).

(particularly in a negative sense) under the Marshall Court¹⁰³ to rather narrow in the *Lochner* era,¹⁰⁴ to quite broad after the New Deal,¹⁰⁵ to its present-day flux.¹⁰⁶ Other provisions, by contrast, such as the Vacancies Clause,¹⁰⁷ the Third Amendment,¹⁰⁸ or the Privileges or Immunities Clause of the Fourteenth Amendment,¹⁰⁹ have hardly changed at all.

Resort to the metaphor may help explain these differential rates of change. I will go out on a limb and say that the Third Amendment is more likely the wisdom tooth of the Constitution than the histone H4 gene, at least from today's viewpoint.¹¹⁰ But that is a

103. *See, e.g.*, *Gibbons v. Ogden*, 22 U.S. (9 Wheat.) 1 (1824) (holding that an act of Congress gave full authority to defendants' vessels to navigate the waters of the United States and that the New York state law prohibiting navigation in the state's waters was repugnant to the Constitution and void).

104. *See, e.g.*, *United States v. E.C. Knight Co.*, 156 U.S. 1, 1–6, 17–18 (1895) (holding that contracts made by four sugar refining companies were not restraints upon trade or commerce).

105. *See, e.g.*, *Wickard v. Filburn*, 317 U.S. 111 (1942); *United States v. Darby*, 312 U.S. 100 (1941).

106. *Compare* *United States v. Morrison*, 529 U.S. 598 (2000) (striking down the Violence Against Women Act on Commerce Clause grounds), *and* *United States v. Lopez*, 514 U.S. 549 (1995) (striking down a gun control law on Commerce Clause grounds), *with* *Gonzalez v. Raich*, 545 U.S. 1 (2005) (upholding a federal law banning intrastate use of medical marijuana on Commerce Clause grounds).

107. The Supreme Court has never construed Article I, Section 2's Vacancies Clause directly, and only one appellate court has applied it. *See* *Jackson v. Ogilvie*, 426 F.2d 1333, 1337 (7th Cir. 1970) (holding that a defendant governor had a duty to issue a writ of election to fill a vacancy of a Congressional representative).

108. Only one has applied the Third Amendment. *See* *Engblom v. Carey*, 677 F.2d 957 (2d Cir. 1982). The Supreme Court has construed the Third Amendment only in passing or in very general terms. *See, e.g.*, *Griswold v. Connecticut*, 381 U.S. 479, 484 (1965); *Youngstown Sheet & Tube Co. v. Sawyer*, 343 U.S. 579 (1952). The Third Amendment in particular is nearly universally viewed as the forgotten stepchild of the Constitution. *See, e.g.*, Tom W. Bell, *The Third Amendment: Forgotten but Not Gone*, 2 WM & MARY BILL RTS. J. 117, 117 (1993) (stating that it "languishes in comparative oblivion" and that the "scant attention that it does receive usually fails to serve it well"); B. Carmon Hardy, *A Free People's Intolerable Grievance: The Quartering of Troops and the Third Amendment*, in *THE BILL OF RIGHTS: A LIVELY HERITAGE* 67 (Jon Kukla ed., 1987) (asserting that students of constitutional history tend to dismiss it as "an insignificant legal fossil").

109. The Court emptied the Clause of meaning five years after the Fourteenth Amendment was ratified, *see* *Slaughter-House Cases*, 83 U.S. (16 Wall.) 36 (1873), and it has remained that way ever since, *see* ERWIN CHERMERINSKY, *CONSTITUTIONAL LAW: PRINCIPLES AND POLICIES* 377 (1997) ("Not once in the 130 years since the ratification of the Fourteenth Amendment has a law been declared unconstitutional as violating the privileges or immunities clause.").

110. One might argue that the reason the Third Amendment has not experienced much interpretative change is that its text is clear and unambiguous. *See, e.g.*, William Sutton Fields, *The Third Amendment: Constitutional Protection from the Involuntary Quartering of Soldiers*, 124 MIL. L. REV. 195, 195 (1989); Seymour W. Wurfel, *Quartering of Troops: The Unlitigated Third Amendment*, 21 TENN. L. REV. 723, 729 (1951). But the First Amendment's Free Speech Clause is just as clear and unambiguous as the Third Amendment yet has experienced drastic

far less interesting issue than the one raised by the dramatic changes of the Commerce Clause. The biological metaphor, if it holds true, may suggest that the Commerce Clause is somewhat more important than the Third Amendment to modern society. But it might also suggest that large changes in the Commerce Clause are all within the realm of the tolerable, and that the Commerce Clause is not quite as important as the amount of ink spilled on it would otherwise indicate.

B. Clause Cooperativism and Constitutional Emergence

Clause reductionism (like gene reductionism) does not tell the whole story. Most genes are both pleiotropic (one gene affects more than one phenotypic trait) and polygenic (more than one gene creates a phenotype).¹¹¹ In other words, Gene 1 affects both your thumb size and foot size (pleiotropy), but you need both Gene 1 and Gene 2 to give you the particular thumb size that you have (polygeny).¹¹² Thus, genes have multiple effects that are colored by the effects of other genes. The resulting bodies are not an inventory of individual genes that correspond one-to-one with traits but are integrated structures.¹¹³

Evolutionary pressures may favor genes that “cooperate,” thus creating “teams” of genes.¹¹⁴ Genes for sharp teeth and genes for digesting meat, for example, are more likely to survive together than apart. Genes may compete on one level, but they also cooperate with one another to the extent their cooperation benefits the bodies that hold them. As Richard Dawkins has said, “To survive in the long run, a gene must be a good companion.”¹¹⁵

The same could be said for our Constitution. Clauses need not be read in isolation; in many cases, it would be incomplete to do so. On a general level, this principle is reflected in a variety of interpretative forms. Akhil Amar, for example, has proposed intratextualism as an interpretive tool, in which he reads clauses containing the same word or phrase together to help inform the meaning of both.¹¹⁶ Looking at clauses together, as he does, can help explain their multiple and cooperative effects.

changes in meaning through the years. Thus, I would tend to attribute the dormancy of the Third Amendment to other causes.

111. MAYR, *supra* note 37, at 196.

112. GOULD, I HAVE LANDED, *supra* note 60, at 234.

113. GOULD, *supra* note 56, at 67.

114. DAWKINS, *supra* note 56, at 169–72.

115. DAWKINS, *supra* note 55, at 5.

116. Akhil Reed Amar, *Intratextualism*, 112 HARV. L. REV. 747 (1999).

As a specific example of how clauses might cooperate, consider the Free Exercise and Establishment Clauses of the First Amendment. There is obviously some tension between them; one constrains government from prohibiting religious exercise and the other constrains government from favoring one religion over another. But both Clauses can be viewed as complementing rather than competing with each other; they provide different paths towards the same goal.¹¹⁷ Just as one cannot understand the appearance of a thumb by looking only at Gene 1, one cannot understand the constitutional implications for religion (even the free exercise of it) by looking only at the Free Exercise Clause. The analogy to gene cooperation may help shed light on the complementary nature of the two Clauses.

Cooperativism leads to a larger point about holism. A complex organism exhibits nonadditive properties that are greater than the sum of individualistic genes.¹¹⁸ Complex bodies may be “[c]olonies of genes,” but they “acquire[] an individuality of their own.”¹¹⁹ These properties that are greater than the sum of gene effects are called emergent properties.¹²⁰ At higher levels of complexity, holistic characteristics of the organism gain primacy because of the impact of organization, mutual interrelations, interactions, and interdependencies.¹²¹ Thus, a reductionist view of genes cannot tell the whole story; rather, emergent properties require a holistic study and understanding. Studying the individual, in other words, is as critical an undertaking as studying its genes.

Similarly, the Constitution is more than its individual clauses read in isolation. Isolated readings are, of course, important, as is an understanding of interactions between clauses. But a holistic view of the Constitution is a critical third perspective that allows for the study

117. See *Locke v. Davey*, 540 U.S. 712, 718 (2004) (noting the tension but expressing the need to find “play in the joints”); Thomas C. Berg & Douglas Laycock, *The Mistakes in Locke v. Davey and the Future of State Payments for Services Provided by Religious Institutions*, 40 TULSA L. REV. 227, 245–46 (2004) (stating that they express complementary principles); Michael W. McConnell, *Accommodation of Religion: An Update and a Response to the Critics*, 60 GEO. WASH. L. REV. 685, 730–31 (1992) (“[I]t makes more sense to see the two Religion Clauses as complementary and symmetrical propositions, protecting the autonomy of religious life against government inhibition as well as inducement.”).

118. STEPHEN JAY GOULD, *THE STRUCTURE OF EVOLUTIONARY THEORY* 618–28 (2002).

119. DAWKINS, *supra* note 98, at 49.

120. Donald T. Hornstein, *Complexity Theory, Adaptation, and Administrative Law*, 54 DUKE L.J. 913, 920 (2005).

121. MAYR, *supra* note 37, at 16–19.

of its emergent properties.¹²² Such properties might include a right to privacy arising from but greater than the individual clauses of the Bill of Rights,¹²³ a principle of state sovereign immunity that is broader than the text of the Eleventh Amendment,¹²⁴ and the law as integrity, as Ronald Dworkin argues.¹²⁵ This all suggests that the way genes relate to each other and to the organisms they make up can help explain the way the clauses of the Constitution relate to each other and to the document as a whole.

C. Constitutional Contrivance and Opportunism

As I discussed earlier in Part III, path dependence can constrain the permissible range of variation that arises in a species. An effect is that adaptation often is achieved through contrivances built out of parts at hand. These contrivances may be cumbersome and relatively ill adapted for their function, yet they are the best that can evolve. Pandas, for example, have evolved a unique “thumb” to aid in stripping away the tough woody exterior of bamboo to reveal the more tender and edible shoots. The “thumb,” however, is not a digit at all but a common mammalian wrist bone that, in the panda, has become elongated.¹²⁶ It is a contrivance, a contraption jury-rigged out of available parts. Though workable, it is clumsy and far from ideal.¹²⁷ Indeed, evolution is full of sub-optimal contrivances caused by path dependence.¹²⁸

Like biological organisms, the adaptations of a “living” Constitution may be cumbersome, clumsy, and constrained in their optimality. Optimal adaptations and changes are frustrated by an old

122. See, e.g., CHARLES L. BLACK, JR., STRUCTURE AND RELATIONSHIP IN CONSTITUTIONAL LAW (1969) (searching beyond individual clauses for larger patterns of constitutional meaning); JOHN HART ELY, DEMOCRACY AND DISTRUST: A THEORY OF JUDICIAL REVIEW 77–101 (1980) (proposing that important themes and patterns arise from a holistic study of the Constitution); Richard H. Fallon, Jr., *A Constructivist Coherence Theory of Constitutional Interpretation*, 100 HARV. L. REV. 1189, 1192–94 (1987).

123. See, e.g., *Griswold v. Connecticut*, 381 U.S. 479, 484–86 (1965) (finding a deep and coherent vision of privacy arising from the individual clauses of the Bill of Rights).

124. *Alden v. Maine*, 527 U.S. 706 (1999).

125. RONALD DWORKIN, LAW'S EMPIRE 225–75 (1986) (seeing the idea of “law as integrity” arising from a holistic view of the Constitution).

126. GOULD, *supra* note 56, at 21–24.

127. GOULD, *supra* note 57, at 23–24 (“So the panda must use parts on hand and settle for an enlarged wrist bone and a somewhat clumsy, but quite workable, solution. The sesamoid thumb wins no prize in an engineer’s derby.”).

128. RICHARD DAWKINS, THE EXTENDED PHENOTYPE 35–40 (1982). Path dependency has been explored in sociological systems elsewhere. See, e.g., Mark J. Roe, *Chaos and Evolution in Law and Economics*, 109 HARV. L. REV. 641 (1996).

text and the path dependence of historical acceptance of meaning. Take the Fifth Amendment, for example. Unlike the Fourteenth Amendment, it lacks an Equal Protection Clause. Yet the possibility that the Constitution prohibited segregation in state schools¹²⁹ but not in federal public schools was “unthinkable.”¹³⁰ Thus, the Supreme Court inferred an equal protection “component” to the Fifth Amendment’s Due Process Clause.¹³¹ This is a cumbersome and clumsy textual analysis, and Chief Justice Warren’s opinion in *Bolling* does not suggest otherwise. But the Court had to work with the materials on hand, and though a contrivance, *Bolling* made the Constitution better adapted to the times.¹³²

The ability to create contrivances makes living constitutionalism similar to biological organisms in another respect. Evolution makes organisms opportunistic. Useful functionalities suddenly may have great capacity for other functionalities. Take a wing, for example. The first dinosaurs to develop feathers may have done so for purposes of insulation. Once densely covered with feathers, small feathered reptiles might have achieved—rather fortuitously—the ability to glide. If gliding were a survival advantage, other evolutionary adaptations (lighter bones, wing muscles) would then have developed because they improved upon that functionality. The point is that the bird wing did not initially evolve for flying but adapted for flying opportunistically from an entirely separate functionality.¹³³

The Equal Protection Clause of the Fourteenth Amendment is one example of an opportunistic clause.¹³⁴ Adopted in the aftermath of the Civil War, the Equal Protection Clause was intended to counteract

129. *Brown v. Bd. of Educ. of Topeka*, 347 U.S. 483 (1954).

130. *Bolling v. Sharpe*, 347 U.S. 497, 500 (1954).

131. *Id.*

132. For an additional defense of *Bolling* that relies upon commandeering the seemingly unrelated Bill of Attainder and Nobility Clauses, see Amar, *supra* note 116, at 770–73. Amar’s defense strikes me as another opportunity to see evolutionary-like contrivances in action. For a reaction, see Adrian Vermeule & Ernest A. Young, *Hercules, Herbert, and Amar: The Trouble with Intratextualism*, 113 HARV. L. REV. 730, 747 (2000) (calling Amar’s defense “ingenious, perhaps brilliant, but . . . requir[ing] a certain suspension of disbelief”).

133. GOULD, *supra* note 57, at 50, 57, 189; GOULD, *supra* note 56, at 122.

134. Some might also include the 1964 cases *Heart of Atlanta Motel, Inc. v. United States*, 379 U.S. 241 (1964), and *Katzenbach v. McClung*, 379 U.S. 294 (1964), which used the expansive New Deal Commerce Clause to uphold the Civil Rights Act, as opportunities to get around the “path dependence” of the *Civil Rights Cases*, 109 U.S. 3 (1883), which would have had to have been overruled to uphold the Civil Rights Act on Fourteenth Amendment grounds. Others might put them in the category of “contrivances.” In either view, however, they can be viewed in biological metaphor. For more on these cases in their historical context, see Ackerman, *supra* note 68, at 1779–81.

racial discrimination. It was not intended to protect women from discrimination,¹³⁵ and it remained limited in this way for many years.¹³⁶ Yet as social norms changed and the concept of protecting women from invidious gender discrimination gained acceptance, people began to turn to the Constitution to find a way to curb governmental gender discrimination. The Equal Protection Clause was there, with language that might reasonably be used to protect against gender discrimination as well as racial discrimination.¹³⁷ The Clause has been used to protect against other forms of discrimination not within its original meaning, including alienage and child legitimacy discrimination.¹³⁸

These constitutional contrivances and path dependences have another similarity with genetics: a historical record. Evolution stops short, leaves imperfections uncorrected, and keeps outmoded traditions. We see those imperfections and developments in the fossil record and in an organism's genetic code. So too does constitutional history, in which "traditions may arise for small and sensible reasons but may then outlive their utility by persisting as oddities and impediments in an altered world."¹³⁹ We do not always let egregious

135. See *Palmore v. Sidoti*, 466 U.S. 429, 432 (1984) ("A core purpose of the Fourteenth Amendment was to do away with all governmentally imposed discrimination based on race."); *Strauder v. West Virginia*, 100 U.S. 303, 310 (1879) (holding that the Fourteenth Amendment was aimed at racial—not gender—discrimination); *Bradwell v. Illinois*, 83 U.S. (16 Wall.) 130, 140–42 (1873) (Bradley, J., concurring) (holding that the Fourteenth Amendment is not intended to protect women from being denied the right to practice law in a state); *Slaughter-House Cases*, 83 U.S. (16 Wall.) 36, 81 (1873) (discussing protections provided by the Fourteenth Amendment); Ruth Bader Ginsburg, *Sexual Equality Under the Fourteenth and Equal Rights Amendments*, 1979 WASH. U. L.Q. 161, 162–63 ("When the post-Civil War amendments were added to the Constitution, women were not accorded the vote. [Married] women in many states could not contract, hold property, litigate on their own behalf, or even control their own earnings. The fourteenth amendment left all that untouched.").

136. Oliver Wendell Holmes once derided it as the "last resort of constitutional arguments." *Buck v. Bell*, 274 U.S. 200, 208 (1927).

137. See *Reed v. Reed*, 404 U.S. 71, 76–77 (1971) (holding that a statute could not give mandatory preference to members of one sex over the other, as this was the type of arbitrary legislative choice forbidden by the Equal Protection Clause); see also *United States v. Virginia*, 518 U.S. 515, 555–56 (1996) (applying heightened scrutiny to gender classifications under the Equal Protection Clause); *Craig v. Boren*, 429 U.S. 190, 197 (1976) (same). The Equal Protection Clause was not there right away, however; the women's suffragist movement in the late 1800s could not convince the Court to extend the franchise to women under it. See generally Adam Winkler, *A Revolution Too Soon: Woman Suffragists and the "Living Constitution,"* 76 N.Y.U. L. REV. 1456, 1518–26 (2001) (examining the reasons behind the Court's refusal to grant women the franchise).

138. See *Clark v. Jeter*, 486 U.S. 456, 461–64 (1988) (requiring intermediate scrutiny for discrimination against non-marital children); *Graham v. Richardson*, 403 U.S. 365, 376 (1971) (requiring strict scrutiny for alienage classifications).

139. GOULD, I HAVE LANDED, *supra* note 60, at 181.

traditions persist—women can vote now¹⁴⁰—but, as Sandy Levinson recognizes, we are a long way from a perfect Constitution.¹⁴¹ The Third Amendment, discussed above, is an oddity, a relic from another time. It persists because insufficient pressure exists to discard it. And yet—who knows?—perhaps someday when times have changed it will reemerge as a forceful and active provision.

V. SOME PARTING THOUGHTS

At the end of the day, the metaphor THE CONSTITUTION IS AN ORGANISM is still just a metaphor. There are fundamental and laughably obvious differences between the Constitution and an organism. As John Locke famously overstated: “All the artificial and figurative applications of Words Eloquence hath invented are for nothing else but to insinuate wrong *Ideas*, move the passions and thereby mislead the Judgment.”¹⁴² His underlying concern is valid: overuse of metaphor may impede rather than promote meaningful discussion. Overreliance on the conceptual similarities between X and Y, for example, can lead to an overly narrow conception of X.¹⁴³

I do not mean to exclude other conceptualizations of the Constitution. My task here has been to take one conceptualization, THE CONSTITUTION IS AN ORGANISM, and explore it in depth in an attempt to generate a conversation and enrich our understanding of the Constitution. My effort has been toward broadening, rather than narrowing.

There is good reason to embark on the exploration despite the limits of metaphor. This metaphor is not simply a matter of rhetoric or

140. *Id.* at 182.

141. SANFORD LEVINSON, *OUR UNDEMOCRATIC CONSTITUTION: WHERE THE CONSTITUTION GOES WRONG (AND HOW WE THE PEOPLE CAN CORRECT IT)* (2006).

142. JOHN LOCKE, *AN ESSAY CONCERNING HUMAN UNDERSTANDING* 508 (P.H. Nidditch ed., 1975) (1690); *cf.* JEREMY BENTHAM, *THE THEORY OF LEGISLATION* 69 (Harcourt, Brace & Co. 1931) (1789) (“Metaphors are not Reasons.”); 1 JEREMY BENTHAM, *WORKS* 235 (William Tait 1843) (1789) (calling metaphors a “pestilence”). Ironically, Benjamin Cardozo, a proponent of a “living” Constitution, held similar misgivings of metaphor. *See Berkey v. Third Ave. R.R. Co.*, 155 N.E. 58, 61 (N.Y. 1926) (“Metaphors in law are to be narrowly watched, for starting as devices to liberate thought, they end often by enslaving it.”). A modern trend seems to have a more charitable view. *See, e.g.,* MILNER BALL, *LYING DOWN TOGETHER: LAW, METAPHOR, AND THEOLOGY* 25–28 (1985); Michael Boudin, *Antitrust Doctrine and the Sway of Metaphor*, 75 *GEO. L.J.* 395, 395–96 (1986); Robert L. Tsai, *Fire, Metaphor, and Constitutional Myth-Making*, 93 *GEO. L.J.* 181, 183–90 (2004).

143. J.M. BALKIN, *CULTURAL SOFTWARE* 247–48 (1998); LAKOFF & JOHNSON, *supra* note 7, at 157; *see also* Jones & Goldsmith, *supra* note 1, at 479 (“But when common or casual use [of evolutionary metaphor] does not correspond closely with biological evolution, it can create a false sense of familiarity that undermines an understanding of evolutionary processes . . .”).

isolated analogy,¹⁴⁴ though it certainly could be, and likely has been, used that way. Rather, the metaphor is an important tool for understanding, conceptualizing, and communicating one complex and ephemeral idea in terms of another that is more concrete and easier to understand.¹⁴⁵ Metaphor has an important role to play, no less in constitutional law than in any other discipline.¹⁴⁶ As Robert Shaw once artfully observed, “You don’t see something until you have the right metaphor to let you perceive it.”¹⁴⁷

At its broadest, this Essay shifts the ongoing debate over whether biology can tell us something about the law. I am hesitant to embrace current sentiments that Darwinian evolution is an all-encompassing theory that applies with full force beyond the biological sciences.¹⁴⁸ Stretched so thin, the risk that evolution can be misapplied is too strong, as history has proven.¹⁴⁹ But that does not

144. See ARISTOTLE, *THE ART OF RHETORIC* 235 (H.C. Lawson-Tranced trans., 1991) (discussing the style of metaphor and providing examples of its use in past works); Elliot Zashin & Phillip C. Chapman, *The Uses of Metaphor and Analogy: Toward a Renewal of Political Language*, 36 J. POL. 290, 292 (1974) (explaining that metaphor is often used as a rhetorical device to communicate ideas to an unsophisticated audience).

145. See LAKOFF & JOHNSON, *supra* note 7, at 153–54.

146. Tsai, *supra* note 142 (asserting that metaphor can play a unique and salutary role in constitutional law by structuring and reinforcing doctrinal categories, bestowing accessible meaning on amorphous constitutional theories, and by creating constitutional subcultures). Darwin himself borrowed Adam Smith’s invisible hand from economics to help conceptualize his theory of natural selection. GOULD, *supra* note 56, at 103. Other scientists have used metaphors to help understand natural phenomena. See, e.g., THEODORE L. BROWN, *MAKING TRUTH: METAPHOR IN SCIENCE* 146–59 (2003) (describing how the metaphor of common terms like “factory” can help clarify biological concepts such as a “cell”); *id.* at 14:

[M]etaphorical reasoning is at the very core of what scientists do when they design experiments, make discoveries, formulate theories and models, and describe their results to others—in short, when they do science and communicate about it. . . . [Metaphor] enables the scientist to interpret the natural world in wonderful and productive ways.

147. Hornstein, *supra* note 120, at 934. I am aware of my own rampant use of metaphor in this Article, including the anthropomorphization of the environment and of natural selection.

148. David Brooks, *The Age of Darwin*, N.Y. TIMES, at WK-14 (Apr. 15, 2007):

[W]hile we postmoderns say we detest all-explaining narratives, in fact a newish grand narrative has crept upon us. . . . [T]oday Darwin is everywhere. . . . The logic of evolution explains why people vie for status, form groups, fall in love and cherish their young. It holds that most everything that exists does so for a purpose. If some trait, like emotion, can cause big problems, then it must provide bigger benefits, because nature will not expend energy on things that don’t enhance the chance of survival. . . . We have a grand narrative that explains behavior and gives shape to history. We have a central cosmology to embrace, argue with or unconsciously submit to.

149. See, e.g., *Buck v. Bell*, 274 U.S. 200, 207 (1927) (“It is better for all the world, if instead of waiting to execute degenerate offspring for crime, or to let them starve for their imbecility, society can prevent those who are manifestly unfit from continuing their kind. . . . Three

mean, as Brian Leiter and Michael Weisberg have asserted, that “evolutionary biology offers nothing to law.”¹⁵⁰ To the contrary, evolutionary theory justifiably has great cross-disciplinary influence.¹⁵¹ At the very least, as I propose rather modestly here, constitutional theory could benefit from a more detailed understanding of biology (and its limits). A little Gould can go a long way.

generations of imbeciles are enough.”); GOULD, *supra* note 56, at 36 (noting that Darwinism has been used to justify characterizing men as naturally aggressive and promiscuous and women as naturally discriminating and caring); J. PHILIPPE RUSHTON, RACE, EVOLUTION, AND BEHAVIOR: A LIFE HISTORY PERSPECTIVE 5–7, 259–62 (1995) (arguing that race evolved genetically from separate reproductive and survival strategies and accounts for differential behavior among races); Arthur Jensen, *How Much Can We Boost IQ and Scholastic Achievement?*, 39 HARV. EDUC. REV. 1, 117 (1969) (suggesting that IQ is a heritable genetic trait that has different levels in different races); Paul A. Lombardo, “*The American Breed*”: *Nazi Eugenics and the Origins of the Pioneer Fund*, 65 ALB. L. REV. 743, 754–66 (2002) (detailing the eugenics movement). *See generally* RICHARD S. HERRNSTEIN & CHARLES MURRAY, *THE BELL CURVE: INTELLIGENCE AND CLASS STRUCTURE IN AMERICAN LIFE* (1994) (discussing the implications of supposed enduring racial differences in intelligence); HERBERT SPENCER, *SOCIAL STATISTICS* (1851) (applying the notion of “survival of the fittest” to human society and asserting that “unfit” people should be eliminated for the greater good).

150. Leiter & Weisberg, *supra* note 1, at 5. It may be that that assertion is broader than they intend it. Their specific arguments seem far narrower in scope (such as attacking the claim that robust findings of human behavioral biology support concrete policy changes to the law) than the assertion would warrant.

151. Elliott, *supra* note 3, at 90 (“Most realms of thought have been deeply influenced by Darwin.”).