

October 2019

Sticking Points: Epistemic Pluralism In Legal Challenges To Mandatory Vaccination Policies

James R. Steiner-Dillon

University of Dayton, jsteinerdillon1@udayton.edu

Follow this and additional works at: <https://scholarship.law.uc.edu/uclr>

Recommended Citation

James R. Steiner-Dillon, *Sticking Points: Epistemic Pluralism In Legal Challenges To Mandatory Vaccination Policies*, 88 U. Cin. L. Rev. 169 (2019)

Available at: <https://scholarship.law.uc.edu/uclr/vol88/iss1/5>

This Article is brought to you for free and open access by University of Cincinnati College of Law Scholarship and Publications. It has been accepted for inclusion in University of Cincinnati Law Review by an authorized editor of University of Cincinnati College of Law Scholarship and Publications. For more information, please contact ronald.jones@uc.edu.

STICKING POINTS: EPISTEMIC PLURALISM IN LEGAL CHALLENGES TO MANDATORY VACCINATION POLICIES

James R. Steiner-Dillon*

ABSTRACT

“Everyone is entitled to his own opinion,” so the saying goes, “but not to his own facts.” Yet contemporary society is marked by a remarkable divergence of belief concerning matters of “objective” fact. This Article explores the phenomenon of “epistemic pluralism”—entrenched disagreement about matters of empirical fact—from the perspective of John Rawls’s work on political liberalism. Expanding on Rawls’s discussion of reasonable pluralism among normative viewpoints, it argues that the persistence of epistemic pluralism poses challenges to the legitimacy of coercive state action analogous to the challenges that Rawls identified as arising from normative pluralism.

The Article examines legal challenges to mandatory vaccination policies as a principal case study of epistemic pluralism in the law. For over two hundred years, antivaccinationists have rejected the mainstream medical consensus that vaccines are safe and effective and have opposed immunization mandates on both empirical and normative grounds. This Article develops a principle of “epistemic public reason,” which incorporates a principle of epistemic reasonableness by which to distinguish those epistemic viewpoints entitled to moral duties of civility and reciprocity by fellow citizens. Finding that most empirical objections to vaccination mandates are either directly or indirectly epistemically unreasonable, the Article concludes that the coercive imposition of immunization requirements on epistemic outliers is consistent with the principle of epistemic public reason. It also clarifies more generally the nature and extent of public officials’ obligation to offer reasons on contested empirical questions relevant to public policy that all reasonable citizens, including dissenters, can reasonably accept.

* Assistant Professor of Law, University of Dayton School of Law. I am deeply indebted to many who have provided useful feedback on drafts of this Article, including: Kathy Abrams, Yavar Bathaee, Faisal Chaudhry, Malcolm Feeley, Erica Goldberg, Anna Kirkland, Jody Kraus, Chris Kutz, Jennifer Reich, Dorit Rubenstein Reiss, Andrea Roth, Sarah Song, Ryan Copus, Luke Haqq, Jeff Gordon, Chris Roederer, Elisabeth Ryan, Jeff Schmitt, Matthew Shapiro, Blake Watson, and attendees of the Columbia Law School Associates and Fellows Workshop. I am also grateful to Thomas Nagel, with whom my discussions of Rawls while completing my M.A. in Philosophy germinated many of the ideas expressed herein.

TABLE OF CONTENTS

I. Introduction	171
II. The Problems of Normative and Epistemic Pluralism	175
A. Normative Pluralism and the Overlapping Consensus	175
B. Epistemic Pluralism: An Omission from Rawls's Account..	178
1. Epistemic Pluralism and Legitimacy	178
2. Sources and Characteristics of Epistemic Pluralism	179
3. Epistemic Pluralism and Normative Reductivism ..	190
III. Legal Challenges to Mandatory Vaccination Policies: A Case Study in Epistemic Pluralism.....	195
A. History of Mandatory Vaccination Policies	198
B. Normative and Epistemic Pluralism in the Antivaccination Movement.....	200
1. Themes in Antivaccinationist Argument	200
2. The Autism Controversy: 1998 – Present	210
C. Judicial Responses to Legal Challenges to Mandatory Vaccination Policies	217
D. Legislative Accommodation of Normative Pluralism	222
IV. Rationalizing the Normative/Epistemic Divide in Law and Theory: Toward a Principle of Epistemic Public Reason.....	224
V. Conclusion: Epistemic Public Reason as a Rationalizing Legal Principle	231
VI. Post Script: A Note of Caution.....	235

*There is . . . no more truth, there is just what's trending on Twitter.*¹

I. INTRODUCTION

“Everyone is entitled to his own opinion,” so the saying goes, “but not to his own facts.”² Yet contemporary society is marked by a remarkable divergence of belief concerning matters of “objective” fact. Many policy debates are characterized by disagreement not only about questions of normative value, but also about issues of empirical fact that seem to defy resolution.³ Significant disagreement persists regarding the extent to which anthropogenic greenhouse gas emissions contribute to climate change,⁴ the ability of fetuses to feel pain when undergoing abortion,⁵ and the safety of genetically modified organisms for human consumption and for the environment, to name a few examples.⁶ Even the existence of a stable consensus of expert opinion is often insufficient to establish social consensus. Disagreement persists, viewpoints become entrenched, and adherence to a particular empirical belief becomes as central to a person’s identity as their religious or political affiliation.

This proliferation of disagreement on matters of empirical fact, which

1. Ed Pilkington, *Trapped in a Hoax: Survivors of Conspiracy Theories Speak Out*, THE GUARDIAN, Jan. 24, 2019, <https://www.theguardian.com/technology/2019/jan/23/conspiracy-theories-internet-survivors-truth> (quoting Lenny Pozner). Mr. Pozner’s six-year-old son, Noah, was killed in the 2012 mass shooting at Sandy Hook Elementary School in Newtown, CT. Mr. Pozner subsequently became a target of conspiracy theorists who maintain that the shooting never occurred, and that Noah Pozner never existed. *Id.*

2. See George F. Will, *The Wisdom of Pat Moynihan*, WASH. POST (Oct. 3, 2010), <http://www.washingtonpost.com/wp-dyn/content/article/2010/10/01/AR2010100105262.html> (attributing the statement to Sen. Moynihan).

3. See Dan M. Kahan, *Why Smart People Are Vulnerable to Putting Tribe Before Truth*, SCIENTIFIC AMERICAN BLOG NETWORK (DEC. 3, 2018), <https://blogs.scientificamerican.com/observations/why-smart-people-are-vulnerable-to-putting-tribe-before-truth>.

4. Compare e.g., U.S. GLOBAL CHANGE RESEARCH PROGRAM, CLIMATE CHANGE IMPACTS IN THE UNITED STATES: THE THIRD NATIONAL CLIMATE ASSESSMENT 7 (2014), <https://www.nrc.gov/docs/ML1412/ML14129A233.pdf> (stating that the scientific evidence “tells an unambiguous story: the planet is warming, and over the last half century, this warming has been driven primarily by human activity”), and INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2007: SYNTHESIS REPORT 37 (2007), https://www.ipcc.ch/site/assets/uploads/2018/02/ar4_syr.pdf (stating that “[t] here is *very high confidence* that the global average net effect of human activities since 1750 has been one of warming.”), with Editorial, *Rigging a Climate “Consensus,”* WALL ST. J., Nov. 28, 2009, <http://online.wsj.com/news/articles/SB10001424052748703499404574559630382048494> (“The impression left by the [the release of emails among climate scientists] is that the climate-tracking game has been rigged from the start.”).

5. Pam Belluck, *Complex Science at Issue in Politics of Fetal Pain*, N.Y. TIMES, Sept. 16, 2013, <http://www.nytimes.com/2013/09/17/health/complex-science-at-issue-in-politics-of-fetal-pain.html>.

6. See, e.g., David Winickoff et al., *Adjudicating the GM Food Wars: Science, Risk, and Democracy in World Trade Law*, 30 YALE J. INT’L L. 81 (2005).

I will refer to as “epistemic pluralism,” is not a transitory or contingent phase of social development, but is an intrinsic feature of a liberal political culture characterized by freedom of conscience and the operation of free institutions. Drawing upon John Rawls’s work on political liberalism,⁷ this Article contends that epistemic pluralism is endemic to the liberal state and raises many of the same questions concerning the legitimacy of coercive state action. Rawls argues that the moral legitimacy of democratically enacted policy is undermined when the coercive apparatus of the state is used to impose upon an individual an obligation grounded in a normative viewpoint that she cannot reasonably accept. Does the same threat to legitimacy arise when the dissenter’s objection rests not on a normative viewpoint but rather on a disputed empirical claim? If so, how might legislatures, courts, and administrative agencies, all of which are routinely called upon to make decisions privileging some empirical propositions over others, make policy in a way that respects the moral duties of reciprocity and civility owed by members of a liberal democratic society to other members of the political community? This Article addresses two questions unresolved by the existing literature: first, the extent to which the problem of legitimacy of state coercion in a liberal society extends to pluralism on the epistemic as well as the normative axis; second, the extent to which Rawls’s solution to the problem in the normative context can be adapted to the problem of epistemic pluralism.

This Article examines epistemic pluralism in one of the many areas in which it has given rise to entrenched disagreement: legal challenges to mandatory vaccination requirements. Although a stable consensus of medical experts has held for over two centuries that vaccinations are one of the most cost-effective interventions for the protection of public health,⁸ antivaccinationists have rejected this consensus and denied the effectiveness or safety of vaccinations since the earliest mass immunization programs were implemented in the nineteenth century. This disagreement of fact poses a challenge both for policymakers attempting to devise rational and effective public health policies and for courts called upon to resolve conflicts between individuals’ objections to compulsory immunization and the state’s interest in implementing evidence-based public health policies for the benefit of the community.

7. See JOHN RAWLS, *POLITICAL LIBERALISM* (1993) (arguing that pluralism of *normative* belief is an inevitable feature of a liberal society and examining the implications of that pluralism for the legitimacy of state policymaking in a liberal democratic society).

8. See, e.g., Sandra J. Bean, *Emerging and Continuing Trends in Vaccine Opposition Website Content*, 29 *VACCINE* 1874, 1874 (2011); Anna Kata, *A Postmodern Pandora’s Box: Anti-Vaccination Misinformation On The Internet*, 28 *VACCINE* 1709, 1709 (2010) (noting that “morbidity and mortality from vaccine-preventable diseases [] hav[e] reached record lows”); Centers for Disease Control and Prevention, *Achievements in Public Health, 1900–1999: Impact of Vaccines Universally Recommended for Children – United States, 1990–1998*, 48 *MORB. MORTAL. WKLY. REP.* 243 (1999).

Persistent disagreement about the basic facts of vaccination risk raises a challenging question: when, and under what circumstances, may the state coercively impose policies that are grounded in an epistemic viewpoint that accepts vaccination as a relatively safe and effective method of disease prevention on individuals who reject that viewpoint?

If the phenomenon of epistemic pluralism is analogous to the problem of normative pluralism that Rawls discusses, then we might expect to address it by adapting Rawls's principle of public reason to the epistemic context. Under such a principle, public decisions would be grounded in reasons that may be accepted by all citizens adhering to any "reasonable" epistemic viewpoint, where the bounds of epistemic reasonableness are defined by an overlapping consensus of reasonable epistemic methodologies.⁹ This approach would be analogous to Rawls's solution to the problem of normative pluralism, which distinguishes comprehensive views grounded in the overlapping consensus of reasonable normative viewpoints from those outside that consensus,¹⁰ and would distinguish the types of empirical views to which others owe duties of reciprocity and civility from those "unreasonable" viewpoints to which no such duties are owed. It would also clarify the nature of the state's obligation to reasonable dissenters—those whose methods of empirical knowledge construction share in the overlapping consensus of reasonable epistemic viewpoints, but who disagree with the majority's empirical conclusions in a particular instance.

This Article develops a principle of epistemic public reason that articulates, on a constructivist basis analogous to Rawls's principle of normative public reason, a criterion of reasonableness that distinguishes epistemic viewpoints that comprise the overlapping consensus of reasonable epistemic views from those that fall outside it. It contends that, at least with respect to the set of knowledge claims characterized as "scientific,"¹¹ epistemic viewpoints are reasonable insofar as they recognize the primacy of an inductive mode of knowledge construction via the method of scientific empiricism that lies at the heart of the modern liberal consensus. Although articulating a specific "scientific method" has proven a notoriously tricky task for scientists and philosophers of science, it is unnecessary to do so with great precision for the purposes of this Article; the concept of "reasonableness" is a capacious one. We need only

9. It is important to note that the overlapping consensus of both normative and epistemic viewpoints is comprised of *methodologies*, not substantive views. Comprehensive viewpoints, as the name implies, are moral theories—methods by which adherents arrive at answers to specific moral questions. As discussed below, the content of the epistemic overlapping consensus is likewise comprised of empirical methodologies. See *infra* Part III.

10. RAWLS, *supra* note 7, at 15.

11. See *infra* Part III (defining "scientific" questions).

recognize that an epistemic viewpoint can violate the principle of epistemic reasonableness in two ways: first, by a direct rejection of scientific empiricism's privileged epistemic status in the construction of empirical knowledge; second, by professing an empirical position that conforms to the *form* of the scientific empiricist mode of knowledge construction, but rejects the body of empirical knowledge that has accrued from the application of that method. In both these circumstances—non-scientific and pseudoscientific unreasonableness—the democratic majority is free to enact policies backed by the coercive force of law upon empirical premises grounded in scientific empiricism without regard to the unreasonable dissent of epistemic outliers.

Applying the principle of epistemic public reason to challenges to mandatory vaccination policies, this Article finds that most empirical antivaccinationist arguments are epistemically unreasonable in either the non-scientific or the pseudoscientific sense. Of the remainder—the relatively small number of antivaccinationist views that accept the epistemic primacy of scientific empiricism and the settled body of knowledge concerning the safety and efficacy of vaccination constructed by that method—the principle of epistemic public reason requires only that the state give reasons that such dissenters could recognize as legitimate. By definition, such dissenters recognize reasons grounded in the application of scientific empiricism as legitimate, even if they disagree with the majority's empirical conclusions concerning vaccination. Thus, the principle of epistemic public reason simultaneously clarifies the moral obligations owed by citizens in a liberal democracy to one another when disagreements about questions of empirical fact and methodology arise, articulates a criterion of reasonableness by which to distinguish “reasonable” epistemic viewpoints, to which duties of reciprocity and civility are owed, from unreasonable viewpoints, and describes the nature of the reasons that the majority must provide to reasonable epistemic dissenters. Expanding upon Rawls's focus on moral disagreement, it explains when, and to whom, reciprocity is owed in areas of factual disagreement. Most crucially, in this era of “fake news” and polarized opinion about matters of scientific fact, it articulates a normative principle defining when and to whom such duties are *not* owed.

Part I of this Article introduces Rawls's discussion of political liberalism and the problem of reasonable pluralism, explaining Rawls's solution to that problem via the principle of public reason. Part I also elaborates upon the concept of epistemic pluralism as an omission from Rawls's account and asks whether the phenomenon of epistemic pluralism raises legitimacy concerns similar to those raised by the normative pluralism on which Rawls focuses. Part II discusses the history of mandatory vaccination and the normative and empirical debates

surrounding vaccinations, followed by an examination of judicial and legislative responses to challenges to mandatory vaccination policies. Part III assesses the extent to which the phenomenon of epistemic pluralism poses the same challenges to the legitimacy of majoritarian public policy as normative pluralism. It develops a principle of epistemic public reason and, applying that principle to the example of empirical disagreement about vaccination, demonstrates that most empirical antivaccinationist arguments are epistemically unreasonable. Part IV considers other areas of doctrinal confusion as to which the principle of epistemic public reason could productively be applied.

II. THE PROBLEMS OF NORMATIVE AND EPISTEMIC PLURALISM

A. Normative Pluralism and the Overlapping Consensus

In his later work, Rawls addressed what he described as the fundamental question of political philosophy: “how is it possible for there to exist over time a just and stable society of free and equal citizens, who remain profoundly divided by reasonable religious, philosophical, and moral doctrines?”¹² While he continued to believe that his own comprehensive doctrine of justice as fairness¹³ remained a reasonable comprehensive position, Rawls recognized that a key assumption underlying his work in *A Theory of Justice*—that universal agreement on a single comprehensive moral or philosophical doctrine is achievable in principle in a democratic society characterized by freedom of conscience and expression—was mistaken. Following his realization that “a basic feature of democracy is the fact of reasonable pluralism—the fact that a plurality of conflicting reasonable comprehensive doctrines, religious, philosophical, and moral, is the normal result of its culture of free institutions,”¹⁴ Rawls developed a theory of political liberalism—a political conception of justice that seeks to articulate a model for social cooperation among citizens in a society characterized by reasonable pluralism.

Rawls’s solution to the problem of reasonable pluralism is to distinguish between the political conception of liberal democracy shared by all “reasonable” members of liberal democratic society and the diverse comprehensive views in which each individual’s commitment to that

12. RAWLS, *supra* note 7, at 4.

13. See JOHN RAWLS, *A THEORY OF JUSTICE* (rev’d ed., 1999) [hereinafter RAWLS, *THEORY OF JUSTICE*]; JOHN RAWLS, *JUSTICE AS FAIRNESS: A RESTATEMENT* (Erin Kelly ed., 2001). [hereinafter RAWLS, *JUSTICE AS FAIRNESS*].

14. JOHN RAWLS, *The Idea of Public Reason Revisited*, in *COLLECTED PAPERS* 573 (Samuel Freeman ed., 2001).

political conception is ultimately grounded. He argues that, although the “burdens of judgment” in a society characterized by freedom of conscience preclude consensus on questions of ultimate moral value, there exists an overlapping consensus of reasonable comprehensive doctrines that lead their adherents to support what Rawls identifies as a “reasonable” conception of justice.¹⁵ By emphasizing the shared values of the overlapping consensus and the family of reasonable political conceptions of justice derived from that consensus, citizens may put aside the disagreements between their comprehensive doctrines in order to participate in a society that embodies their shared political values and facilitates the goal of mutual cooperation.¹⁶

The fact of reasonable pluralism as an inevitable and permanent feature of a liberal democratic system raises vexing questions concerning the legitimacy of coercive state policies imposed on dissenting members of the political community. The fundamental idea behind Rawls’s principle of public reason is that legitimate political decisions involving “constitutional essentials”¹⁷ and matters of “basic justice”¹⁸ must be justified by reasons that could be accepted by anyone who accepts the fundamental normative commitments of liberal democracy. The principle is grounded in two related concepts democracy—the duty of civility¹⁹ and the criterion of reciprocity²⁰—that embody the fundamental principle of

15. RAWLS, *supra* note 7, at 131–50.

16. Rawls offers the work of Abdullahi Ahmed An-Na’im as an example of how the political doctrine of liberal constitutionalism may be derived from comprehensive religious doctrine. An-Na’im writes that “[t]he Qur’an does not mention constitutionalism, but human rational thinking and experience have shown that constitutionalism is necessary for realizing the just and good society prescribed by the Qur’an. An Islamic justification and support for constitutionalism is important and relevant for Muslims. Non-Muslims may have their own secular or other justifications.” RAWLS, *supra* note 14, at 590–91 n.46 (quoting ABDULLAHI AHMED AN-NA’IM, TOWARD AN ISLAMIC REFORMATION: CIVIL LIBERTIES, HUMAN RIGHTS, AND INTERNATIONAL LAW 52–57 (1990)); cf. William R. O’Neill, *Modernity and Its Religious Discontents: Catholic Social Teaching and Public Reason*, 20 NOTRE DAME J.L. ETHICS & PUB. POL’Y 295 (2006) (arguing that Catholic doctrine is consistent with the overlapping consensus of reasonable comprehensive doctrines).

17. Constitutional essentials “are of two kinds: (a) fundamental principles that specify the general structure of government and the political process; the powers of the legislature, executive and the judiciary; the scope of majority rule; and (b) equal basic rights and liberties of citizenship that legislative majorities are to respect; such as the right to vote and to participate in politics, liberty of conscience, freedom of thought and of association, as well as the protections of the rule of law.” RAWLS, *supra* note 7, at 227.

18. Matters of basic justice “relate to the basic structure of society and so would concern questions of basic economic and social justice and other things not covered by a constitution,” RAWLS, *supra* note 14, at 575 n.7, and include “such fundamental questions as: who has the right to vote, or what religions are to be tolerated, or who is to be assured of fair equality of opportunity, or to hold property.” RAWLS, *supra* note 7, at 214.

19. “[T]he ideal of citizenship imposes a moral, not a legal, duty—the duty of civility—to be able to explain to one another on those fundamental questions how the principles and policies they advocate and vote for can be supported by the political values of public reason.” RAWLS, *supra* note 7, at 217.

20. “The criterion of reciprocity requires that when those terms are proposed as the most

mutual respect among democratic citizens. It emphasizes the special realm of politics as distinct from what Rawls terms the “background culture,” essentially the free-for-all marketplace of ideas in which comprehensive doctrines pursue ideological hegemony with little regard for fairness toward competing views.²¹ The principle of public reason also emphasizes the special responsibility placed on citizens as they exercise political authority through public debate and voting. A citizen engages in public reason “when he or she deliberates within a framework of what he or she sincerely regards as the most reasonable political conception of justice, a conception that expresses political values that others, as free and equal citizens might also reasonably be expected reasonably to endorse.”²² This requirement of universal justifiability (within the broad confines of the “reasonable”) rests largely upon the concept of reciprocity and Rawls’s view of society as a “fair system of cooperation over time from one generation to the next, where those engaged in cooperation are viewed as free and equal citizens and normal cooperating members of society over a complete life.”²³ While it leads to surprising conclusions in this and other contexts,²⁴ the principle of reciprocity is simply a recognition of the free and equal status of all citizens in a liberal society.²⁵ It is, in essence, an expression of respect for one’s fellow citizens, acknowledging on the basis of their equal political standing that when decisions are made by majority vote, they should be made in a manner by which all reasonable citizens can understand the reasons behind the decision, even if they disagree with the majority’s application of those reasons.

reasonable terms of fair cooperation, those proposing them must also think it at least reasonable for others to accept them, as free and equal citizens, and not as dominated or manipulated, or under the pressure of an inferior political or social position.” RAWLS, *supra* note 14, at 576.

21. *See id.* at 576 n.1.

22. *Id.* at 581. Ronald Dworkin formulates the principle in a manner that emphasizes its relevance to the present inquiry: “Public reason requires officials to offer justifications that are based on the political values of the community and not on comprehensive religious or moral or philosophical doctrines. The doctrine, therefore, requires judges searching for a justification of the law’s structure to avoid controversial religious, moral, or philosophical doctrines.” Ronald Dworkin, *Rawls and the Law*, 72 *FORDHAM L. REV.* 1387, 1397 (2004).

23. RAWLS, *JUSTICE AS FAIRNESS*, *supra* note 13, at 4.

24. *Id.* at 64 (“What the difference principle requires, then, is that however great the general level of wealth . . . the existing inequalities are to fulfill the condition of benefiting others as well as ourselves. This condition brings out that even if it uses the idea of maximizing the expectations of the least advantaged, the difference principle is essentially a principle of reciprocity”); RAWLS, *THEORY OF JUSTICE*, *supra* note 13, at 88 (“[T]he difference principle expresses a conception of reciprocity. It is a principle of mutual benefit.”).

25. Rawls notes that “[t]here are many liberalisms and related views, and therefore many forms of public reason specified by a family of reasonable political conceptions . . . The limiting feature of these forms is the criterion of reciprocity, viewed as applied between free and equal citizens, themselves seen as reasonable and rational.” RAWLS, *supra* note 14, at 581.

It is this manifestation of respect for the political autonomy of dissenters that Rawls argues bestows legitimacy on the decisions of electoral majorities pertaining to constitutional essentials and matters of basic justice.²⁶ Non-public reasons, which are drawn from a comprehensive moral, religious, or philosophical doctrines, are illegitimate grounds for political action because “[t]here is no reason why any citizen . . . should have the right to use state power to decide constitutional essentials as that person’s . . . comprehensive doctrine directs.”²⁷ Because reasonable pluralism is a natural feature of liberal freedom of expression and of conscience, if one accepts the premise that any political action pertaining to constitutional essentials or matters of basic justice must be justified by reasons that everyone, including dissenters, could reasonably accept, the very nature of liberal democracy makes it impossible to justify any such action on the basis of a non-public reason. The failure to observe the principle of public reason effectively disenfranchises some group by imposing upon it a legal requirement that cannot be justified on any grounds that its members might reasonably accept. This is particularly problematic when the group that does not share the comprehensive view of the legislative majority is the one most burdened by the policy in question.²⁸ Rawls argues that permitting such a coercive imposition of the majority’s comprehensive values violates the duty of reciprocity, and insists that all political decisions affecting constitutional essentials or matters of basic justice be made in accordance with the principle of public reason.

B. Epistemic Pluralism: An Omission from Rawls’s Account

1. Epistemic Pluralism and Legitimacy

Rawls’s account of “reasonable” pluralism—which I will henceforth refer to as *normative pluralism*—addresses a dilemma in governing a complex, ideologically heterogeneous society in a morally legitimate way. But it significantly understates the scope of the problem in at least one respect. Rawls is correct that normative pluralism is an intrinsic feature of a liberal society characterized by free institutions, but his exclusive focus on the normative component overlooks a second source

26. “Thus when, on a constitutional essential or matter of basic justice, all appropriate government officials act from and follow public reason, and when all reasonable citizens think of themselves ideally as if they were legislators following public reason, the legal enactment expressing the opinion of the majority is legitimate law.” *Id.*; see also RAWLS, *THEORY OF JUSTICE*, *supra* note 13, at 253.

27. RAWLS, *supra* note 7, at 226.

28. Cf. THOMAS CHRISTIANO, *THE CONSTITUTION OF EQUALITY: DEMOCRATIC AUTHORITY AND ITS LIMITS* (2008) (discussing the problem of “persistent minorities” and democratic legitimacy).

of pluralism, which I shall refer to as *epistemic pluralism*. Epistemic pluralism refers to pluralism of beliefs not along the normative axis, which Rawls emphasized, but along the empirical one. Not only do citizens in a liberal democracy fundamentally disagree about questions of normative value, they also disagree to a significant extent about empirical facts.²⁹ These empirical beliefs can be as deeply held, as central to personal identity, and as resistant to reconsideration as the normative views on which Rawls focuses his discussion.³⁰

The phenomenon of epistemic pluralism raises problems concerning the legitimacy of democratic governance analogous to those posed by normative pluralism. If Rawls is correct that the coercive apparatus of the state cannot legitimately impose policies grounded in normative views that dissenters cannot reasonably accept, then it would seem to follow that such coercion is equally illegitimate when grounded upon empirical beliefs that dissenters reject.

2. Sources and Characteristics of Epistemic Pluralism

Rawls was content simply to ascribe the inevitability of normative pluralism to the “burdens of judgment” and the operation of “free institutions” in a liberal democratic state.³¹ Without disagreeing with that ultimate conclusion, the more empirically oriented may wish to parse out how these mechanics lead to a permanent state of epistemic pluralism. This section briefly surveys the sources of empirical disagreement, examining how psychological features of human cognition and institutional features of liberal democracy work together to produce entrenched disagreement concerning matters of empirical fact. It will also consider whether, given the psychological linkages in the formation of normative and empirical beliefs, the distinction between normative and epistemic pluralism is conceptually viable.

a. The Non-Ideal Burdens of Judgment

Asking what can account for the persistence of normative pluralism, Rawls discards the explanations that “most people hold views that advance their own more narrow interests” and that “people are often

29. See *supra* notes 4–6.

30. See, e.g., Kahan, *supra* note 3; Dan M. Kahan et al., *The Second National Risk and Culture Study: Making Sense of—and Making Progress in—The American Culture War of Fact*, THE CULTURAL COGNITION PROJECT AT YALE LAW SCHOOL (2007), <https://scholarsbank.uoregon.edu/xmlui/bitstream/handle/1794/22049/629.pdf> (finding individuals’ empirical views and perceptions of risk closely aligned with their location on a 2-dimensional personality assessment measuring hierarchical/egalitarian and individualist/communitarian normative tendencies).

31. RAWLS, *supra* note 7, at 36–37, 55–57.

irrational and not very bright,” not because he believes those statements to be false, but because of his commitment to “always work[ing] at first within ideal theory.”³² But that commitment seems an ill fit to the project of *Political Liberalism*, and to those of us who do not share it, it is apparent that the idiosyncratic processes of human belief formation contribute significantly to the entrenchment of normative and epistemic pluralism. The process of empirical belief formation is influenced by non-rational factors via a suite of psychological and other phenomena that collectively cause the process of real-world belief formation to bear little resemblance to Rawls’s rationalistic ideal.

The human brain is not an ideal truth-producing device; it is a biological organ the structure, operation, and limitations of which have been shaped by eons of evolutionary pressure.³³ This pressure has not been uniformly toward veridicality of belief. By the logic of natural selection, the ability to form veridical beliefs is valuable only instrumentally, insofar as it contributes toward survival and reproduction.³⁴ Thus, veridicality of belief formation must be balanced against conservation of the scarce energy and resources necessary to operate a complex brain as well as scarcity of computational time when survival can depend on the ability to make decisions near-instantly. Our brains evolved to delegate much routine decision-making to cognitive heuristics—rules of thumb that, evolutionarily speaking, make the “right” decision most of the time while conserving time and resources.³⁵ Cognitive psychology describes two modes of thinking. The first (“System 1”) is automatic, quick, and intuitive, while the second (“System 2”) is slower, more deliberative, and requires the expenditure of mental effort.³⁶ We rely on System 1 thinking constantly to form impressions and associations between ideas; it is fast, effortless, and often sufficient for moment-to-moment cognitive operations, but it is also prone to specious associations, flawed heuristics, and hasty generalization.³⁷ System 2 reasoning can work to correct the shortcomings of System 1, but because System 2 thinking requires the expenditure of mental effort, it can become

32. RAWLS, *supra* note 7, at 55.

33. See generally RICHARD H. THALER, *MISBEHAVING: THE MAKING OF BEHAVIORAL ECONOMICS* (2015); ROBERT WRIGHT, *THE MORAL ANIMAL: THE NEW SCIENCE OF EVOLUTIONARY PSYCHOLOGY* (1994).

34. Justin T. Mark, Brian B. Marion & Donald D. Hoffman, *Natural Selection and Veridical Perceptions*, 266 J. THEORETICAL BIO. 504 (2010) (applying game-theoretic evolutionary simulations to conclude that the natural selection of perceptual apparatus may drive perceptual veridicality to extinction); see generally JONATHAN HAIDT, *THE RIGHTeous MIND: WHY GOOD PEOPLE ARE DIVIDED BY POLITICS AND RELIGION* (2012); RICHARD DAWKINS, *THE SELFISH GENE* (1976).

35. See generally DANIEL KAHNEMAN, *THINKING, FAST AND SLOW* (2011).

36. *Id.*

37. *Id.*

overloaded or distracted, falling back on System 1's quick associations to fill in for the lack of available System 2 bandwidth.³⁸ Among many other effects, cognitive psychologists have found that humans tend to interpret new information in such a way as to confirm their existing beliefs,³⁹ to view the arguments of others more critically than their own,⁴⁰ and to be irrationally influenced by the framing of identical risks.⁴¹

Not all failures of veridical belief formation are failures of rationality, at least where the "rational" is defined as maximizing the individual's personal utility. Just as evolutionary pressures on the brain facilitated the development of adaptive but non-veridical heuristic decision making, so do social forces exert similar pressures on individuals. Such pressures act both affirmatively, by incentivizing individuals to hold or profess group-conforming empirical beliefs without regard to those beliefs' veridicality, and negatively, by disincentivizing individuals from investing substantial time and resources into improving the veridicality of their beliefs.⁴²

The affirmative side of these social pressures involve a set of related phenomena that I will collectively refer to as *cognitive tribalism*. Perhaps the most significant manifestation of cognitive tribalism is "identity protective cognition," that is, the tendency of individuals to espouse both empirical and normative views shared by some in-group with which they strongly identify.⁴³ Individuals' empirical beliefs are influenced by the

38. *Id.*

39. *Id.*; see also Raymond S. Nickerson, *Confirmation Bias: A Ubiquitous Phenomenon in Many Guises*, 2 REV. GEN. PSYCHOL. 175 (1998); SCOTT PLOUS, *THE PSYCHOLOGY OF JUDGMENT AND DECISION MAKING* (1993); Charles G. Lord, Lee Ross & Mark R. Lepper, *Biased Assimilation and Attitude Polarization: The Effects of Prior Theories on Subsequently Considered Evidence*, 37 J. PERSONALITY & SOC. PSYCHOL. 2098 (1979).

40. See, e.g., Emmanuel Trouche et al., *The Selective Laziness of Reasoning*, 40 COGNITIVE SCI. 2122 (2015); Ulrike Hahn & Mike Oaksford, *The Rationality of Informal Argumentation: A Bayesian Approach to Reasoning Fallacies*, 114 PSYCHOL. REV. 704 (2007).

41. KAHNEMAN, *supra* note 35; Amos Tversky & Daniel Kahneman, *The Framing of Decisions and the Psychology of Choice*, 211 SCI. 453 (1981); see generally James R. Steiner-Dillon, *Epistemic Exceptionalism*, 52 IND. L. REV. 207 (2019) (surveying literature on cognitive illusions and bias).

42. See, e.g., Nir Grinberg et al., *Fake News on Twitter During the 2016 U.S. Presidential Election*, 363 SCI. 374, 376 (2019) (finding congruency between the user's political orientation and the alignment of the article as "the most dominant factor in sharing decisions for political news" on Twitter, and noting that this finding "is consistent with an extensive body of work showing that individuals evaluate belief-incongruent information more critically than belief-congruent information.").

43. See, e.g., Dan M. Kahan, David A. Hoffman & Donald Braman, *Whose Eyes are You Going to Believe—Scott v. Harris and the Perils of Cognitive Illiberalism*, 122 HARV. L. REV. 837, 852 (2009); Dan M. Kahan et al., *Culture and Identity-Protective Cognition: Explaining the White-Male Effect in Risk Perception*, 4 J. EMPIRICAL LEGAL STUD. 465, 470 (2007). Identity protective cognition is a form of motivated reasoning. "The . . . psychological theory of motivated reasoning holds that when decision makers have a preference regarding the outcome of an evaluative task, they are more likely to arrive at that desired conclusion by engaging in inadvertently biased processes for 'accessing, constructing, and evaluating beliefs.'" Avani Mehta Sood, *Motivated Cognition in Legal Judgments—An Analytic Review*, 9 ANN. REV. L. & SOC. SCI. 307, 309 (2013) (quoting Ziva Kunda, *The Case for Motivated Reasoning*, 108 PSYCHOL. BULL. 480, 480 (1990)).

views of social groups—religious, political, communal, or otherwise—with which they identify; they are motivated to adopt the prevailing beliefs of these communities and to rationalize inconsistencies.⁴⁴ As Kahan *et al.* explain:

Individual wellbeing, material and emotional, is bound up with membership in various self-defining groups. Rejecting factual beliefs widespread within such a group can undermine individual well-being, either by threatening to estrange a person from his peers or by forcing that person to contemplate the social incompetence of those he identifies with. As a means of psychological self-defense, then, people tend to process information in a selective fashion that bolsters beliefs dominant within their self-defining groups.⁴⁵

Cognitive tribalism also manifests in the related phenomenon of *cultural cognition*, which describes the manner in which individuals' normative commitments affect their perceptions of risk. As Kahan *et al.* explain, “[t]his theory posits that people tend to conform factual beliefs about risk to their cultural evaluations of putatively dangerous behavior. As a result of various cognitive mechanisms, people are motivated to believe that behavior they find noble is also socially beneficial (or at least benign) and behavior they find base is also socially harmful.”⁴⁶

The cultural cognition effect is vividly demonstrated by Kahan *et al.*'s study of the video evidence on which the Supreme Court relied in *Scott v. Harris*.⁴⁷ The authors showed the video at issue in that case, which the Supreme Court claimed would “speak for itself” in showing that the respondent's driving created a “substantial and immediate risk of physical injury to others,”⁴⁸ to a sample of 1,350 individuals and asked them to rate their agreement with the statements that Harris's driving, as depicted in

44. Robert Jervis, *Understanding Beliefs*, 27 POL. PSYCH. 641 (2006); see also Per Espen Stoknes, *Rethinking Climate Communications and the “Psychological Climate Paradox,”* 1 ENERGY RES. & SOC. SCI. 161, 165 (2014).

45. Kahan, Hoffman, & Braman, *supra* note 43, at 852 (citing Joshua Aronson & Claude M. Steele, *When Beliefs Yield to Evidence: Reducing Biased Evaluation by Affirming the Self*, 26 PERSONALITY & SOC. PSYCHOL. BULL. 1151 (2000)); Geoffrey L. Cohen, *Bridging the Partisan Divide: Self-Affirmation Reduces Ideological Closed-Mindedness and Inflexibility in Negotiation*, 93 J. PERSONALITY & SOC. PSYCHOL. 415 (2007); Roger Giner-Sorolla & Shelly Chaiken, *Selective Use of Heuristic and Systematic Processing Under Defense Motivation*, 23 PERSONALITY & SOC. PSYCHOL. BULL. 84–97 (1997); see also Dan M. Kahan et al., *Motivated Numeracy and Enlightened Self-Government*, 1 BEHAV. PUB. POL'Y 54, 56–57 (2017) (“[I]dentity-protective cognition can be viewed as psychic self-defense mechanism that steers individuals away from beliefs that could alienate them from others on whose support they depend in myriad domains of everyday life.”).

46. Kahan, Hoffman, & Braman, *supra* note 43, at 852; see also Dan M. Kahan, Jenkins-Smith, & Donald Braman, *Cultural Cognition of Scientific Consensus*, 14 J. OF RISK RES. 147, 148 (2010) (“The cultural cognition thesis asserts that individuals are psychologically disposed to believe that behavior they [and their peers] find honorable is socially beneficial and behavior they find base socially detrimental.”).

47. 550 U.S. 372 (2007); see Kahan, Hoffman, & Braman, *supra* note 43 at 853.

48. *Scott*, 550 U.S. at 378 n.5, 386.

the video, put “members of the public at great risk of death” and “put the police at serious risk of death.”⁴⁹ The results showed that the subjects’ assessment of the risks and of the reasonableness of the police’s actions were closely associated with their cultural style. Subjects displaying a “hierarchical and individualist” style were more likely to see the risk posed by Harris’s driving as significant, to agree that the use of potentially lethal force against him was justified, and to blame Harris rather than the police.⁵⁰ Those whose style aligned with the “egalitarian and communitarian” type, however, were more likely “to reject the conclusion that the police acted reasonably in using deadly force to terminate the chase.”⁵¹ Kahan *et al.* explain that these results are consistent with other studies “which show that competing cultural outlooks of these varieties dispose people to disagree about the facts of all manner of putative dangers – from climate change to gun control to HPV vaccinations for school-age girls.”⁵²

Intelligence, access to information, and education are not correctives to cognitive tribalism; to the contrary, the polarizing effects of cultural and identity protective cognition tend to be positively associated with access to information and technical proficiency.⁵³ Nor is ideological polarization on empirical matters solely the result of overreliance on System 1 heuristics—deliberative System 2 processes show the same vulnerability to identity-protective effects.⁵⁴ As individuals become more educated on scientific issues, they become more adept at rationalizing scientific statements as compatible with their normative priors even when thinking deliberately. For example, Kahan *et al.* found that epistemic

49. Kahan, Hoffman, & Braman, *supra* note 43, at 854–57.

50. *Id.* at 862, 879.

51. *Id.* at 879.

52. *Id.* at 904 (citing Dan M. Kahan, *The Cognitively Illiberal State*, 60 STAN. L. REV. 115, 123, 134–36, 139–42 (2007)).

53. See, e.g., Brendan Nyhan & Jason Reifler, *Does Correcting Myths about the Flu Vaccine Work? An Experimental Evaluation of the Effects of Corrective Information*, 33 VACCINE 459 (2015) (information that the influenza vaccine cannot cause influenza resulted in individuals with an initially high degree of concern about the vaccine self-reporting a *lower* probability that they would receive it); Kahan et al., *supra* note 45 (polarization of interpretation of quantitative data on politically salient issue was highest among respondents who displayed high numeracy); Dan M. Kahan et al., *The Polarizing Impact of Science Literacy and Numeracy on Perceived Climate Change Risks*, 2 NATURE CLIMATE CHANGE 732, 732 (2012) (finding that “[m]embers of the public with the highest degrees of science literacy and technical reasoning capacity were not the most concerned about climate change. Rather, they were the ones among whom cultural polarization was greatest.”).

54. Kahan et al., *supra* note 45; Dan M. Kahan, *Climate-Science Communication and the Measurement Problem*, 36 ADVANCES IN POL. PSYCHOL. 1 (2015) [hereinafter Kahan, *Climate-Science Communication*]; Dan M. Kahan, *Ideology, Motivated Reasoning, and Cognitive Reflection*, 8 JUDGMENT & DECISION MAKING 407 (2013); see Dan M. Kahan et al., *Science Curiosity and Political Information Processing*, 38 POL. PSYCHOL. 179, 181 (2017) [hereinafter Kahan et al., *Science Curiosity*] (surveying observational studies finding that “individuals most proficient in System 2 reasoning are in fact the *most* politically polarized on facts relating to gun control, climate change, and other contested issues”).

polarization on questions of scientific fact was positively associated with ordinary science knowledge on empirical questions that have become components of political identity, but not as to other questions.⁵⁵ Science-literate conservative Republicans and liberal Democrats showed *more* disagreement about the reality and causes of anthropogenic climate change than did their less science-literate peers, but science-literate individuals showed a uniform risk assessment regardless of ideology with respect to exposure to the magnetic fields of high-voltage power lines.⁵⁶

Not only does the profession of ingroup-conforming empirical beliefs carry social advantage, the negative consequences of holding or professing empirically false beliefs—at least those relevant to public policy—are usually quite low. Indeed, it is usually rational for the typical voter *not* to invest substantial time and effort into understanding the facts of complex policy domains because individual voters have virtually no influence over public decision making.⁵⁷ Thus, political realities of attenuated democratic influence align with cognitive predilection to incentivize low expenditure of effort to acquire politically salient information and the identity-protective interpretation of such information one does acquire. These conditions are ripe for the development of network-centric epistemic pluralism.

b. The Operation of Free Institutions

Finding a deep connection between the conditions necessary for scientific flourishing and those prevalent in liberal democratic society, Dan Kahan observed:

It's no accident that the best philosophical exposition of science's distinctive way of knowing—*The Logic of Scientific Discovery*—and one of if not the best philosophical expositions of liberal democracy—*The Open Society and its Enemies*—were both written by Karl Popper. Only in a society that denies any institution the authority to stipulate what must be accepted as true, Popper recognized, can individuals be expected to develop the inquisitive and disputatious habits of mind that fuel the scientific engine of conjecture and refutation.⁵⁸

It may well be that the epistemic openness of democratic liberalism is a

55. Dan M. Kahan, *What is the "Science of Science Communication"?*, 14 J. SCI. COMM. 1, 4–6 (2015).

56. *Id.* at 7 (noting that “[p]ersistent nonconvergence—polarization—is in fact pathological. It occurs when factual issues become entangled in antagonistic cultural meanings that transform positions on them into badges of loyalty to opposing groups.”); see Kahan et al., *supra* note 54 at 181 (“Because it is rational under these circumstances for individuals to form this expressive mode of information processing, they are likely to marshal all their cognitive resources to do so.”).

57. ILYA SOMIN, *DEMOCRACY AND POLITICAL IGNORANCE* 52–67 (2d ed. 2016).

58. Kahan, *supra* note 55, at 7.

necessary condition for the productive pursuit of scientific inquiry. But it is also true that the same conditions that give rise to a vibrant scientific culture also make the entrenchment of diversity of opinion about empirical matters inevitable. Thus, some measure of epistemic pluralism is a *fait accompli* in liberal society. But an additional measure is contingent upon structures and institutions of contemporary society that go beyond the bare commitments of liberalism. This section will survey some of the major institutional contributors to the prevalence of epistemic pluralism in the United States.

The foundation of entrenched epistemic pluralism in the United States is surely the culture of political liberalism that Rawls identified. The First Amendment to the United States Constitution states, in relevant part, that “Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof; or abridging the freedom of speech, or of the press.”⁵⁹ This provision embodies an Enlightenment commitment to tolerance and rationalism and a belief in the truth-seeking tendencies of human reason and discourse. Although the First Amendment’s guarantees have been far from uniformly respected, and its normative contours remain contested,⁶⁰ the constitutional commitment to freedom of conscience and the culture of tolerance of which it is both a cause and an effect is essential to the flourishing of epistemic pluralism. The absence of state-imposed orthodoxy gives free rein to the “burdens of judgment” in a way that inevitably increases the diversity of empirical viewpoints within the society.

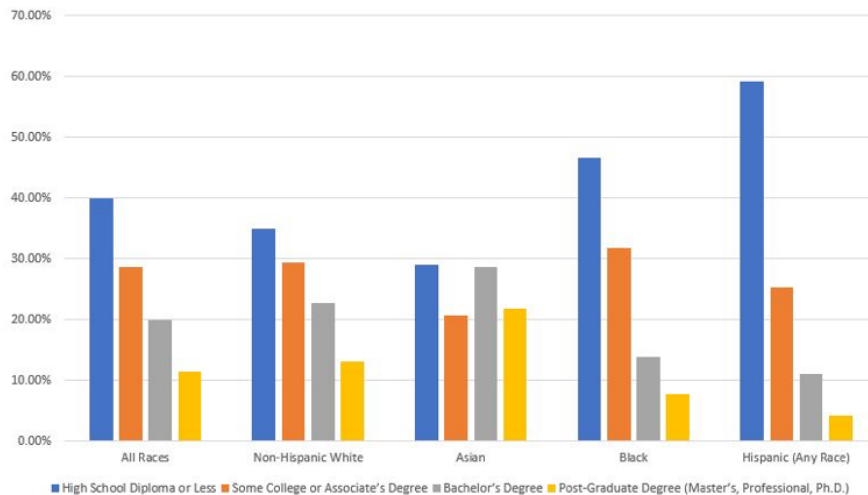
Other factors are not fundamental to the liberal democratic state, but arise from contingencies of political and technological development. For example, significant disparities in access to, and quality of, education no doubt contribute to the scope of disagreement on empirical matters. If access to education is a scarce resource, its inequitable distribution facilitates the conditions for entrenched epistemic pluralism. Figure 1 summarizes US Census data reflecting the highest level of educational attainment for Americans over the age of 18 in 2017.⁶¹

59. U.S. CONST. amend. I.

60. See, e.g., Eugene Volokh, *The Law of Compelled Speech*, 97 TEX. L. REV. 355 (2018); Robert Post, *Legitimacy and Hate Speech*, 32 CONST. COMMENT. 651 (2017).

61. U.S. CENSUS BUREAU, EDUCATIONAL ATTAINMENT IN THE UNITED STATES: 2017 (2017), <https://www.census.gov/data/tables/2017/demo/education-attainment/cps-detailed-tables.html>.

Figure 1: Educational Attainment of Americans Over 18 (2017)



In terms of highest level of educational attainment, a plurality of Americans—about 40%—possessed a partial or complete high school education but no college. About 29% have either an associate’s degree or some college credits without a degree. Twenty percent of Americans’ highest educational attainment is a 4-year bachelor’s degree, and only 11% of Americans over 18 had a graduate degree—including master’s, professional, and doctoral degrees.⁶² But those numbers only begin to illustrate the disparities of educational attainment that characterize the contemporary United States. Figure 1 further summarizes the census data with respect to each of the major census racial or ethnic categories—non-Hispanic whites, Asian Americans, African Americans, and Hispanics. The results are striking. Asian Americans, the group with the highest educational attainment, are almost three times more likely than African Americans to hold a post-graduate degree (21.8% vs. 7.7%), and over five times more likely than Hispanics (21.8% vs. 4.2%). To the extent that epistemic injustices in access to education are associated with such identity-constitutive demographic categories as race, class, gender, or political affiliation, they have the potential to exacerbate the entrenchment of epistemic pluralism by transmuting demographic communities into epistemic ones.⁶³

Closely related to inequalities in access to education is the highly

62. *Id.*

63. See Ben Kotzee, *Education and Epistemic Injustice*, in *THE ROUTLEDGE HANDBOOK OF EPISTEMIC INJUSTICE* 324, 326–28 (Ian James Kidd, Jose Medina, & Gaile Pohlhaus, Jr. eds., 2017); David Coady, *Two Concepts of Epistemic Injustice*, 7 *EPISTEME* 101, 104–05 (2010) (describing disparity in access to knowledge as a form of distributive epistemic injustice).

specialized state of human knowledge. Years of study and substantial expense are necessary to obtain expertise in a single, narrow domain; few individuals ever achieve that status, and only a vanishingly small number can claim expertise in more than one domain. Everyone is a layperson in nearly all domains, victims of humanity's success in generating more cumulative knowledge than can be processed by a single mind within a single lifetime.⁶⁴ The production of knowledge has become primarily a collective rather than an individual undertaking, with the consequence that we are all epistemically dependent on others.⁶⁵ The result of this epistemic fragmentation has been the development of persistent epistemic communities around narrow domains of expertise, creating further space for epistemic pluralism to flourish.

All of these effects have been facilitated by innovations in communications technology. At least since the Protestant Reformation's savvy utilization of the nascent printing industry,⁶⁶ advances in communications technology have made the dissemination of ideas ever faster, cheaper, and simpler—with predictable consequences for the expansion of pluralism, both normative and epistemic. Pamphlets, local newspapers, mass-produced books, radio, broadcast and cable television all contributed to a world in which communication was easier and less subject to the control of centralized authorities.⁶⁷ From one perspective, the Internet is simply the latest incremental step in the direction of cheap, unconstrained communication; from another, it has been a revolution. For the first time in history, a large segment of the human population has access to a near-global communications platform that bypasses even the private gatekeepers like publishers, academic peer reviewers, newspaper editors, and broadcast executives that constrained viewpoint diversity in

64. In 2017, 54,664 research doctorates were awarded by U.S. universities—a slight decline from the historical high of 55,006 reported in 2015, but consistent with a 3.3% *per annum* increase since 1957. NAT'L SCI. FOUND., 2017 DOCTORATE RECIPIENTS FROM U.S. UNIVERSITIES (2018), <https://ncses.nsf.gov/pubs/nsf19301/assets/report/report.pdf>. These newly-minted Ph.D.s have contributed to the prodigious pace of academic publishing. The International Association for Scientific, Technical and Medical Publishers estimates that, "[t]here were about 33,100 active scholarly peer-reviewed English-language journals in 2018, collectively publishing some 3 million articles a year." INT'L ASSOC. FOR SCIENTIFIC, TECHNICAL & MED. PUBLISHERS, THE STM REPORT: AN OVERVIEW OF SCIENTIFIC AND SCHOLARLY PUBLISHING 25 (5th ed. 2018), https://www.stm-assoc.org/2018_10_04_STM_Report_2018.pdf.

65. See John Hardwig, *Epistemic Dependence*, 82 J. PHIL. 335 (1985).

66. See ANDREW PETTEGREE, BRAND LUTHER: 1517, PRINTING, AND THE MAKING OF THE REFORMATION (2015).

67. See, e.g., Edward McKernon, *Fake News and the Public*, 151 HARPER'S MAGAZINE, Oct. 1925, at 528, 529 (difficulty of evaluating reliability of news reports "has increased enormously in recent years by reason of the rapidly increased efficiency of the distributing mechanism . . . Once the news faker obtains access to the press wires all the honest editors alive will not be able to repair the mischief he can do.").

“legacy” media.⁶⁸ On one hand, the Internet has created a world in which millions enjoy near-instant access to a substantial bulk of all human knowledge, much of it available without additional charge. On the other, the circumvention of gatekeeping institutions has contributed to an epistemic flattening, facilitating a culture of skepticism toward claims of epistemic authority, expertise, and even the epistemological *methodologies* of the former gatekeepers.⁶⁹ This tendency has been exacerbated by two distinct factors: the influence of epistemic bad actors or “trolls,” who for political or personal reasons act intentionally to spread false beliefs; and a tendency among the media-consuming public to seek out identity-confirming sources of information while engaging critically (or not at all) with identity-disconfirming sources.⁷⁰

The existence of intentional misinformation online is well documented, perhaps most prominently by accounts of Russian efforts to influence American elections through the dissemination of “fake news” via social media.⁷¹ The intentional dissemination of false information in political

68. The International Telecommunication Union “estimates that at the end of 2018, 51.2 per cent of the global population, or 3.9 billion people, will be using the Internet.” INTERNATIONAL TELECOMMUNICATIONS UNION, STATISTICS (2018), <https://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx>.

69. Shanto Iyengar & Douglas S. Massey, *Scientific Communication in a Post-Truth Society*, 116 PROCEEDINGS NAT’L ACAD. SCI. 7656 (2019); see generally TOM NICHOLS, THE DEATH OF EXPERTISE: THE CAMPAIGN AGAINST ESTABLISHED KNOWLEDGE AND WHY IT MATTERS (2017); HARRY COLLINS, ARE WE ALL SCIENTIFIC EXPERTS NOW (2014). For example, survey data collected by the Pew Research Center found substantial gaps—up to 51 percentage points—between the views of members of the American Academy for the Advancement of Science and the general public on a number of issues relating to science or science policy. See Lee Rainie, *U.S. Public Trust in Science and Scientists*, PEW RESEARCH CENTER (June 27, 2017), <http://www.pewinternet.org/2017/06/27/u-s-public-trust-in-science-and-scientists>.

70. Iyengar and Massey, *supra* note 69, at 7657. While user choice under the influence of motivated reasoning is surely a large contributor to the “silo” effect of online polarization, the marketing decisions of online content providers exacerbate these tendencies. Platform owners often employ algorithms that look to a user’s past behavior to decide what content to highlight, while sites emphasize provocative “clickbait” content to generate page views—thus perpetuating polarization while disincentivizing the production and dissemination of centrist perspectives. *Id.* at 7657. Automated “bots,” programs that emulate human users, can further exacerbate the spread of intentionally false stories. David M. J. Lazer et al., *The Science of Fake News*, 359 SCI. 1094, 1095 (2018); see also Onur Varol et al., *Online Human-Bot Interactions: Detection, Estimation, and Characterization*, in PROCEEDINGS OF THE ELEVENTH INT’L AAAI CONF. ON WEB AND SOCIAL MEDIA 280, 280 (2017), <https://aaai.org/ocs/index.php/ICWSM/ICWSM17/paper/view/15587/14817> (estimating that 9–15% of Twitter accounts are bots).

71. OFFICE OF THE DIR. OF NAT’L INTELLIGENCE, ASSESSING RUSSIAN ACTIVITIES AND INTENTIONS IN RECENT US ELECTIONS 3–4 (2017), https://www.dni.gov/files/documents/ICA_2017_01.pdf. Though the 2016 campaign brought the Russian government’s online trolling activities into the public consciousness, those activities had been documented prior to the campaign. See Max Seddon, *Documents Show How Russia’s Troll Army Hit America*, BUZZFEED NEWS, June 2, 2014, <https://www.buzzfeednews.com/article/maxseddon/documents-show-how-russias-troll-army-hit-america>. Not all online disinformation campaigns are coordinated by foreign governments or target left-wing candidates. In a series of articles, the *New York Times* revealed that “Democratic tech experts” adopted similar tactics, including the dissemination of false information

campaigns is by no means new,⁷² but the low cost of dissemination online and the relative difficulty for many Internet users to identify the source behind online content makes the Internet a particularly fertile breeding ground for viral disinformation. One recent study of registered voters active on Twitter found, excluding partially automated “cyborg” accounts,⁷³ that 6% of users who shared political content on Twitter during the month prior to the 2016 presidential election shared content from a fake news source, and that on average, “content from fake news sources constituted [] 1.18% of political exposures, or about 10 URLs during the last month of the election campaign.”⁷⁴ That average, however, masks substantial variation associated with age and political orientation. Older, more conservative users were significantly more likely to be exposed to and to share content from fake news sources.⁷⁵ Moreover, there is some indication that fake news—perhaps due to its contrived alignment with its target audience’s political identity—is more readily prone to being shared, and therefore spreads faster through the online

through covert Twitter accounts and Facebook pages, to assist Democratic Senate candidate Doug Jones in the 2017 special election in Alabama. Scott Shane & Alan Blinder, *Secret Experiment in Alabama Senate Race Imitated Russian Tactics*, N.Y. TIMES, Dec. 19, 2018, <https://www.nytimes.com/2018/12/19/us/alabama-senate-roy-jones-russia.html>; Scott Shane & Alan Blinder, *Democrats Faked Online Push to Outlaw Alcohol in Alabama Race*, N.Y. TIMES, Jan. 7, 2019, <https://www.nytimes.com/2019/01/07/us/politics/alabama-senate-facebook-roy-moore.html>; see also Jim Rutenberg, *Fake News as ‘Moral Imperative’? Democrats’ Alabama Move Hints at Ugly 2020*, N.Y. TIMES, Jan. 13, 2019, <https://www.nytimes.com/2019/01/13/business/media/democrats-disinformation-election-interference.html> (“[T]he progressives’ political caper in Alabama sent a chilling message to the rest of us: Reality-warping attacks are now coming from inside the house.”); cf. Andrew Coyne, *Opinion, There Are Lies, Damn Lies and Election Campaigns*, NAT’L POST (Feb. 4, 2019), <https://nationalpost.com/opinion/andrew-coyne-there-are-lies-damn-lies-and-election-campaigns> (“While it is true that new technology has made it easier to spread falsehoods in greater volume at lower cost and less detectability than before, one suspects what is really behind the panic over ‘fake news’ is that the [political] parties’ monopoly over it has been broken.”).

72. To give but one infamous example, during the 2000 Republican primary campaign, voters in South Carolina received telephone calls from a putatively independent polling organization—actually operated by the George W. Bush campaign—implying that John McCain had fathered an illegitimate African-American child. Ann Banks, *Dirty Tricks, South Carolina and John McCain*, THE NATION, Jan. 14, 2008, <https://www.thenation.com/article/dirty-tricks-south-carolina-and-john-mccain>.

73. Excluding suspected cyborg accounts has the effect of excluding a large majority of the fake news in the sample—the authors found that “[a] mere 0.1% of the panel accounted for 79.8% of shares from fake news sources, and 1% of panel members consumed 80.0% of the volume from fake news sources.” Grinberg et al., *supra* note 42, at 375. But cyborg accounts are still subject to human oversight; fully-automated “bot” accounts magnify the malicious efforts of fake news producers by dispersing their epistemic pollution into the online ecosystem with no active human involvement. See Chengcheng Shao et al., *The Spread of Low-Credibility Content by Social Bots*, 9 NATURE COMM. 4787, 4791 (2018) (finding that accounts likely to be bots “are responsible for a large share of the traffic that carries misinformation”).

74. Grinberg et al., *supra* note 42, at 376.

75. *Id.* According to the study, 21% of users on the “extreme right” shared content from fake news sources.

environment, than news from mainstream sources.⁷⁶

For all the trolls' efforts, their impact is contingent upon human epistemic practices.⁷⁷ Thus, the second factor—the tendency of cognitive tribalism to induce online siloing—contributes more substantially to the epistemic fracturing of the internet era.⁷⁸ Studies of social media show clustering behavior on both ends of the political spectrum, in which users tend disproportionately to read and share content.⁷⁹ These practices exacerbate and entrench epistemic pluralism insofar as participants' access to news is filtered through ideologically motivated sources that lack mainstream journalism's professional commitment, however imperfectly observed, to objective and truthful reporting,⁸⁰ and their impressions of the news that is shared are shaped by the “echo chamber” of ideologically aligned social media users. As Lazer *et al.* explain, “[h]omogeneous social networks...reduce tolerance for alternative views, amplify attitudinal polarization, boost the likelihood of accepting ideologically compatible news, and increase closure to new information.”⁸¹

3. Epistemic Pluralism and Normative Reductivism

Cognitive tribalism and the other effects described in Part I(B)(2)(a) blur the distinction between normative and epistemic pluralism insofar as they suggest that our beliefs are not formed via the purely rational

76. Soroush Vosoughi, Deb Roy & Sinan Aral, *The Spread of True and False News Online*, 359 SCI. 1146, 1149 (2018) (study of the spread of true and false news on Twitter, finding that “that falsehoods were 70% more likely to be retweeted than the truth”); *but see* Grinberg *et al.*, *supra* note 42, at 376 (finding that fake news was no more likely to be shared when controlling for belief congruence).

77. *See, e.g.*, JOHN SIDES, MICHAEL TESLER & LYNN VAVRECK, *IDENTITY CRISIS: THE 2016 PRESIDENTIAL CAMPAIGN AND THE BATTLE FOR THE MEANING OF AMERICA 198–199* (2018) (“Although Russian interference was and is deeply concerning, there are many reasons to doubt that it changed the outcome of the election . . . Given the billions if not trillions of tweets and posts on [YouTube, Facebook, and Twitter] during the election campaign, Russian-sponsored content was an infinitesimal fraction.”); Vosoughi, Roy & Aral, *supra* note 76, at 1150 (finding that “human behavior contributes more to the differential spread of falsity and truth than automated robots do,” and recommending “that misinformation containment policies should also emphasize behavioral interventions”).

78. *See generally* CASS R. SUNSTEIN, *#REPUBLIC: DIVIDED DEMOCRACY IN THE AGE OF SOCIAL MEDIA* (2018); ELI PARISER, *THE FILTER BUBBLE: WHAT THE INTERNET IS HIDING FROM YOU* (2012).

79. YOCHAI BENKLER, ROBERT FARIS & HAL ROBERTS, *NETWORK PROPAGANDA: MANIPULATION, DISINFORMATION, AND RADICALIZATION IN AMERICAN POLITICS* 54–60 (2018); *see also* Ana Lucia Schmidt *et al.*, *Anatomy of News Consumption on Facebook*, 114 PROCEEDINGS NAT'L ACAD. SCI. 3035 (2017); Michela Del Vicario *et al.*, *The Spreading of Misinformation Online*, 113 PROCEEDINGS NAT'L ACAD. SCI. 554–59 (2016); Alessandro Bessi *et al.*, *Trend of Narratives in the Age of Misinformation*, 10 PLOS ONE e0134641 (2015); Alessandro Bessi *et al.*, *Viral Misinformation: The Role of Homophily and Polarization*, in PROCEEDINGS OF THE 24TH INTERNATIONAL CONFERENCE ON WORLD WIDE WEB 355, 356 (2015).

80. Del Vicario *et al.*, *supra* note 79, at 557–58.

81. Lazer *et al.*, *supra* note 70, at 1095.

processes that Rawls idealizes. Can a meaningful line be drawn between an individual's normative views and her empirical beliefs, or are the two so inextricably intertwined as to confound any attempts to distinguish pluralism grounded in comprehensive normative views from that grounded in empirical disagreement? Does every apparent disagreement about empirical fact ultimately reduce to a disagreement about values? If so, then a justification for Rawls's omission of epistemic pluralism from his account of political liberalism is apparent: epistemic pluralism is not conceptually distinct from the "reasonable pluralism" that Rawls discusses, and it need not be addressed separately.

In considering this question, we must be clear about the sense in which we mean that a superficially empirical disagreement "reduces" to one about normative value. If we designate the claim that superficially factual disagreements can be explained by deeper disagreement about matters of normative value "normative reductivism," we can articulate that claim in a strong and a weak sense:

Strong normative reductivism: Every aspect of a superficially empirical disagreement reduces *completely* to one or more disagreements about normative value. Disagreements about value explain *all* variation in belief concerning the superficially empirical disagreement.

Weak normative reductivism: Some aspects of a superficially empirical disagreement may reduce to disagreements about normative value, but the empirical component does not reduce *completely*. At least *some* variation in belief concerning the superficially empirical disagreement cannot be explained by disagreements about value.

Many superficially empirical disagreements are characterized at least by weak normative reductivism. As discussed in Part I(B)(2)(a), the distinction between "fact" and "value" is complicated by the bidirectional influence in belief formation of "ought" and "is." Individuals' beliefs concerning matters of "objective" fact can be heavily influenced by their prior normative commitments, and their normative conceptions of the good are often informed by their beliefs about the external world.

The conceptual viability of the distinction between epistemic and normative pluralism, however, depends on whether *all* superficially empirical disagreements are characterized by *strong* normative reductivism. An affirmative answer would require rejecting this Article's taxonomy of pluralisms; if individuals' normative priors completely determine their empirical beliefs in all cases, then a conceptual distinction between normative and epistemic pluralism would be spurious. There are some superficially empirical disagreements in which an explanation grounded in strong normative reductivism seems plausibly sufficient — for example, the claim that President Obama was "a gay Muslim from

Kenya working to undermine the United States,”⁸² or some pro-life activists’ arguments that developing fetuses are capable of feeling the pain during the abortion procedure earlier in the pregnancy than is recognized by the mainstream medical consensus.⁸³ But to acknowledge that strong normative reductivism explains superficial empirical disagreement in some cases does not resolve the inquiry.

At least some empirical disagreements are only weakly normatively reductive, and some are not normatively reductive at all. To take a simple example, the statement “that dog is a Boston Terrier” is an empirical one insofar as it deals with an issue of fact about the external world, and is one about which disagreement could exist, but it is unlikely that such disagreement is driven by submerged conflicts of value. Perhaps you are a subtler judge of variations among similar breeds than I; perhaps you have better recall of the relevant reference materials, or have greater experience with this particular breed. In any event, it is unlikely, even if I never accept your view as correct, that our disagreement is driven by anything deeper than divergent applications of the agreed criteria by which dog breeds are identified. But this is a simple question; it is unlikely to generate widespread dissensus across decades or generations. As inquiry becomes more general, causal relationships more attenuated, and the social or political stakes of the issue higher, the tendency toward normative reductivism increases. Nevertheless, even within the set of complex empirical questions that give rise to the problem of entrenched epistemic pluralism, some disagreements are only weakly normatively reductive.

“Strong” and “weak” normative reductivism, of course, are opposite ends of a spectrum rather than distinct principles. Figure 2 depicts them visually on a horizontal axis, with the “weak” end of normative reductivism on the left side of the axis and the “strong” side on the right. Arrayed along the line are several propositions in increasing order of normative reductivism, ranging from “That dog is a Boston Terrier” on the weak end to “Obama is a gay Muslim” on the strong end.⁸⁴ The dashed vertical line in the center represents the point at which normative reductivism predominates—that is, the point at which a superficially

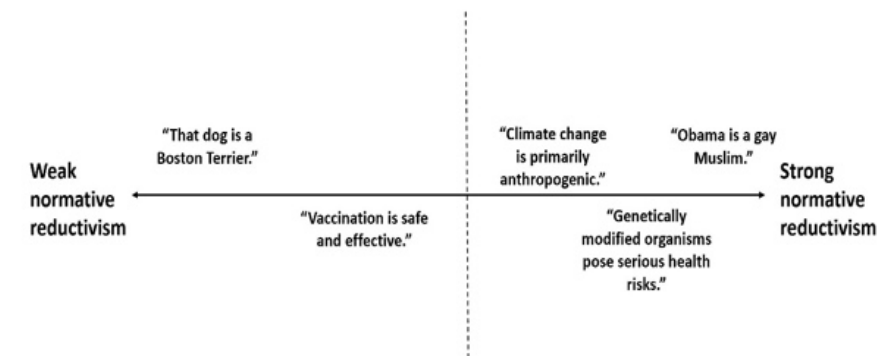
82. Stephanie McCrummen, “Finally, Someone Who Thinks Like Me,” WASH. POST (Oct. 1, 2016), https://www.washingtonpost.com/national/finally-someone-who-thinks-like-me/2016/10/01/c9b6f334-7f68-11e6-9070-5c4905bf40dc_story.html.

83. See Belluck, *supra* note 5; cf. Susan J. Lee et al., *Fetal Pain: A Systematic Multidisciplinary Review of the Evidence*, 294 J. AM. MED. ASS’N 947 (2005).

84. The placement of propositions concerning anthropogenic climate change and genetically modified organisms in Figure 2 is for illustrative purposes only. While their placement represents my best assessment of the degree of normative reductiveness of the seemingly empirical disagreements around those issues, defending those assessments is beyond the scope of this Article. Even if I am incorrect in those particulars, the conceptual illustration of partial normative reductivism would remain viable.

empirical disagreement is *mostly* explained by conflicting normative values. How can we distinguish the degree of normative reductivism in a superficially empirical disagreement? A useful heuristic is to hold moral disagreement constant—to ask whether the parties to the disagreement share the same set of fundamental normative commitments. If so, then a disagreement about empirical claims is unlikely to be reducible to a conflict of values. While the question of which debates feature a broadly shared set of normative commitments is itself an empirical one as to which we have little direct evidence, the case study selected for this Article, concerning the debate around the safety and efficacy of vaccination, falls comfortably into this category. Notwithstanding the constructed and contingent nature of any normative vision of health,⁸⁵ antivaccinationists and the mainstream medical community appear to broadly agree on what constitutes optimal health; their disagreement arises primarily with respect to the question whether the practice of immunization is causally associated with what they mutually agree constitute “better” or “worse” health outcomes.⁸⁶ If it is the case that some empirical disagreements are only weakly normatively reductive, then it is also the case that a conceptual distinction between normative and epistemic pluralism can be usefully maintained.

Figure 2: The Spectrum of Normative Reductivism



85. See generally, e.g., Stefan Timmermans & Steven Haas, *Towards a Sociology of Disease*, 30 *SOCIOLOGY OF HEALTH & ILLNESS* 659 (2008); MICHEL FOUCAULT, *ABNORMAL: LECTURES AT THE COLLÈGE DE FRANCE, 1974–1975* (2003); Phil Brown, *Naming and Framing: The Social Construction of Diagnosis and Illness*, 35 *J. HEALTH & SOC. BEHAV.* 34 (1995).

86. Proponents and opponents of vaccination largely agree that such conditions as measles, smallpox, and autism constitute sub-optimal health outcomes. As Kirkland points out, mainstream experts and antivaccination activists differ in their conception of autism as a matter of pre-birth “wiring” or environmental “injury,” but both agree that it is a departure from optimal cognitive health. ANNA KIRKLAND, *VACCINE COURT: THE LAW AND POLITICS OF INJURY* 174–76 (2016). However, the social constructedness of any conception of health is demonstrated by the “neurodiversity” movement, which contends that autism is not a “disease” to be cured but rather as a “naturally occurring cognitive variation[] with distinctive strengths.” STEVE SILBERMAN, *NEUROTribes: THE LEGACY OF AUTISM AND THE FUTURE OF NEURODIVERSITY* 16 (2015).

Psychological evidence likewise suggests that the premise of universal strong normative reductivism is false. Consider, for example, Kahan's study of politicized belief concerning anthropogenic climate change.⁸⁷ Kahan's results showed an unmistakable association between political ideology, "ordinary science intelligence," and the likelihood of giving a correct answer to the question whether climate change is primarily driven by anthropogenic factors.⁸⁸ "[T]he likelihood of a correct response sloped downward for individuals who were conservative Republicans: at a +1 [standard deviation on the ordinary science intelligence scale] score, the predicted probability of a correct answer was only 13% . . . for such individuals—as opposed to 90% for liberal Democrats."⁸⁹ Evidence of substantial normative reductivism, surely, but not of the *complete* normative reductivism that would obviate the distinction between normative and epistemic pluralism.

Other evidence suggesting that particular cognitive styles can mitigate the effects of cognitive tribalism further supports the view that at least some empirical disagreements are only weakly normatively reductive. Tetlock, for example, shows that some cognitive styles are better at applying empirical evidence to make accurate predictions, whether compatible with the individual's normative preferences or not.⁹⁰ Evaluating the ability of political experts to make accurate predictions within their own fields, Tetlock finds that

[l]ow scorers [on measures of predictive calibration and discrimination] look like hedgehogs: thinkers who "know one big thing," aggressively extend the explanatory reach of that one big thing into new domains, display bristly impatience with those who "do not get it," and express considerable confidence that they are already pretty proficient forecasters, at least in the long term. High scorers look like foxes: thinkers who know many small things (tricks of their trade), are skeptical of grand schemes, see explanation and prediction not as deductive exercises but rather as exercises in flexible "ad hocery" that require stitching together diverse sources of information, and are rather diffident about their own forecasting prowess.⁹¹

Similarly, Kahan *et al.*'s recent work explaining the virtues of "science curiosity"—"a general disposition . . . that reflects the motivation to seek out and consume scientific information for personal pleasure"—as a corrective to the polarizing effects of cognitive tribalism suggests that a

87. Kahan, *Climate-Science Communication*, *supra* note 54.

88. *Id.* at 11–12.

89. *Id.* at 12.

90. PHILIP E. TETLOCK, *EXPERT POLITICAL JUDGMENT: HOW GOOD IS IT? HOW CAN WE KNOW?* (2005).

91. *Id.* at 73–75.

genuinely epistemic component exists in many, if not all, disagreements about matters of empirical fact.⁹² We need not deny that many such questions are weakly normatively reductive in order to maintain a conceptual distinction between normative and epistemic pluralism; so long as at least *some* disagreement concerns matters of empirical fact that do not reduce to questions of value, epistemic pluralism is viable as a conceptually distinct expansion of Rawls's discussion of normative pluralism.

III. LEGAL CHALLENGES TO MANDATORY VACCINATION POLICIES: A CASE STUDY IN EPISTEMIC PLURALISM

In late December 2014 and early January 2015, the Disneyland theme park in Anaheim, California – the “happiest place on Earth” – became the site of an outbreak of measles that eventually affected 125 victims across eight states and three nations.⁹³ Nearly half (45%) of the victims of the outbreak within California were unvaccinated, including infants too young to receive the measles-mumps-rubella (“MMR”) vaccination, as well as children with medical contraindications to vaccination.⁹⁴ Sixty-seven percent of the unvaccinated victims were “intentionally unvaccinated because of personal beliefs.”⁹⁵

Although, in the end, the total number of reported cases of measles in the United States in 2015 was in line with previous years and was a significant dropoff from the spike of cases reported in 2014,⁹⁶ the

92. Kahan et al., *Science Curiosity*, *supra* note 54, at 180. The study established a scale of “science curiosity” and examined whether an individual’s degree of science curiosity affected the individual’s susceptibility to politically motivated reasoning when incorporating new information about scientific issues. Both observational and experimental data showed that subjects with high science curiosity were less susceptible to politically motivated reasoning when exposed to new scientific information. *Id.* at 186.

93. Jennifer Zipprich et al., *Measles Outbreak – California, December 2014–February 2015*, 64 MORBIDITY & MORTALITY WEEKLY REP. 153 (2015).

94. *Id.*

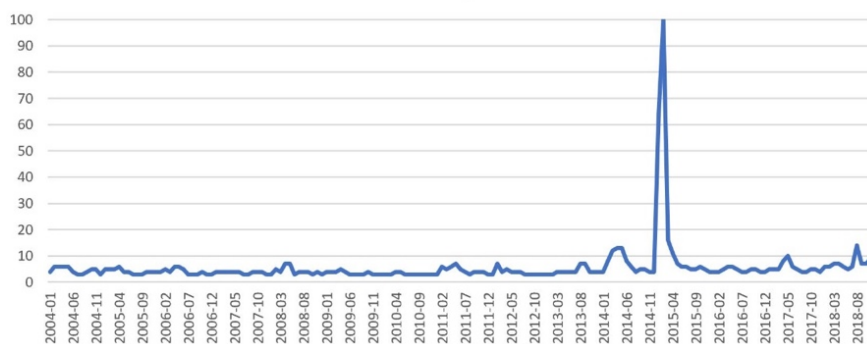
95. *Id.*

96. The Centers for Disease Control and Prevention reports the following number of measles cases in the United States for each year since 2010:

Year	Number of Cases
2010	63
2011	220
2012	55
2013	187
2014	667
2015	188
2016	86
2017	120
2018	372

Disneyland outbreak caught the public's attention as other outbreaks had not. Figure 3 illustrates trends in searches on the Google search engine for the term "measles" from 2004 through 2018. It indicates that public interest was relatively flat for nearly the entire period, with a sharp spike beginning in December 2014 and peaking in February 2015, concurrent with the Disneyland outbreak. Popular attention turned to vaccine refusal as a cause of the occurrence and longevity of the Disneyland outbreak,⁹⁷ and subsequent analysis confirmed that a lack of vaccination among the exposed population played a role in spreading the disease.⁹⁸ Although immunization rates greater than 96% are necessary to achieve "herd immunity" against measles, epidemiological analysis found that immunization rates among the exposed population were "as low as 50% and likely no higher than 86%."⁹⁹

Figure 3: Relative Frequency of Google.com Searches for "Measles" in the United States, 2004 – 2018



The public outcry in response to the Disneyland outbreak motivated the California legislature to reconsider the longstanding "personal belief" exemption to its vaccination requirement.¹⁰⁰ The legislature quickly passed S.B. 277, which repealed the state's statutory exemption to its general requirement that children obtain certain vaccines in order to attend public schools where the child's parent or guardian affirmed that

CTRS. FOR DISEASE CONTROL AND PREVENTION, *Measles Cases and Outbreaks*, (2019), <http://www.cdc.gov/measles/cases-outbreaks.html>. As of October 3, 2019, the CDC reports that 1,250 individual cases of measles have been confirmed in 31 states" in 2019." *Id.*

97. See, e.g., Jack Healy & Michael Paulson, *Vaccine Critics Turn Defensive Over Measles*, N.Y. TIMES, Jan. 30, 2015, <https://www.nytimes.com/2015/01/31/us/vaccine-critics-turn-defensive-over-measles.html>.

98. Maimuna S. Majumder et al., *Substandard Vaccination Compliance and the 2015 Measles Outbreak*, 169 JAMA PEDIATRICS 494, 494 (2015).

99. *Id.*

100. CAL. HEALTH & SAFETY CODE § 120365, *repealed by* S.B. 277, 2015 Cal. Stat. Ch. 35 (2015).

immunization was “contrary to his or her beliefs.”¹⁰¹ The bill provoked a powerful antivaccinationist response, described as “possibly the most strident outpouring of political dissent in recent memory.”¹⁰² Nevertheless, Governor Brown signed the bill on June 30, 2015, making California the third state to lack a religious exemption from its public school immunization mandate.¹⁰³

The controversy surrounding S.B. 277 was but one skirmish in a battle between the mainstream medical establishment and antivaccinationists that has raged for two hundred years. This Part examines the history of that battle as a case study in the law’s treatment of epistemic pluralism.

Mandatory vaccination requirements present an ideal case study for several reasons. The consensus of medical opinion for over two centuries has held that vaccines are effective and, although not without risk, generally safe at preventing far greater risks associated with vaccine-preventable disease. Legally mandated vaccination policies have shown great success at reducing the prevalence of such diseases as smallpox, poliomyelitis, measles, mumps, rubella, pertussis, and others, saving countless lives and dollars.¹⁰⁴ On the other hand, vaccination involves the

101. S.B. 277, 2015 Cal. Stat. Ch. 35 (2015).

102. Elizabeth Whitman, *California Vaccine Bill SB 277: Ban On Personal Exemptions Sparks Counter Movement Despite Recent Measles Outbreak*, INT’L BUS. TIMES, May 20, 2015, <https://www.ibtimes.com/california-vaccine-bill-sb-277-ban-personal-exemptions-sparks-counter-movement-1931383>.

103. See Phil Willon & Melanie Mason, *California Gov. Jerry Brown Signs New Vaccination Law, One of Nation’s Toughest*, L.A. TIMES, June 30, 2015, <https://www.latimes.com/local/political/la-me-ln-governor-signs-tough-new-vaccination-law-20150630-story.html>. The other two states were Mississippi and West Virginia. Recently, Maine and New York have also abolished their religious or personal belief exemptions. See *infra* note 240. The public controversy did not end with the enactment of S.B. 277. State authorities discovered that physicians sympathetic to the antivaccinationist cause were granting unwarranted medical exemptions to children with no medical contraindications to immunization. In September 2019, the state enacted S.B. ___, which creates a standardized medical exemption form, creates a system by which to monitor “unusually high” exemption certificates by particular physicians, and provides state health officials the authority to revoke “inappropriate or invalid” medical exemptions. S.B. 276, 2019 Cal. Stat. Ch. 278 (2019). S.B. 276 provoked sometimes violent opposition from antivaccinationist activists. In August 2019, State Senator Richard Pan, a physician and leader of the legislative movement to tighten California’s exemption laws, was accosted and physically shoved by an antivaccination activist. See Hannah Wiley, *Anti-Vaxxer Shoves California Lawmaker Who Wrote Vaccine Crackdown Bill*, SACRAMENTO BEE (Aug. 21, 2019) (noting that the same activist had filed a petition to recall Senator Pan for, among other things, “treason”), <https://www.sacbee.com/news/politics-government/capitol-alert/article234231737.html>. On September 13, 2019, another antivaccinationist protester threw a cup containing what appeared to be menstrual blood at lawmakers on the California Senate floor, stating “[t]hat’s for the dead babies.” Hannah Wiley & Sophia Bollag, *“Blood Is On Your Hands”: Anti-Vaccine Activist Who Tossed Menstrual Cup On Senators Released*, SACRAMENTO BEE (Sept. 14, 2019), <https://www.sacbee.com/news/politics-government/capitol-alert/article235084637.html>; see also Dustin Gardner, *Anti-Vaccine Protester Threw Human Blood In Menstrual Cup, California Senate Confirms*, SAN FRANCISCO CHRONICLE (Oct. 2, 2019) (confirming that the thrown substance was human blood), <https://www.sfchronicle.com/bayarea/article/Anti-vaccine-protester-threw-human-blood-14486867.php>.

104. CDC, *Impact of Vaccines Universally Recommended for Children—United States, 1900–1998*,

injection into the body of pathogenic agents.¹⁰⁵ When legally compelled against the wishes of the recipient, this practice would seem to be in tension with the values of bodily autonomy and informed consent that prevail in other areas of the law.¹⁰⁶ Many antivaccinationists have objected to compulsory immunization on religious or philosophical grounds, claiming that their beliefs forbid them to receive vaccination and that governmental policies requiring immunization violate their freedom of religion or conscience. Others, however, objected on empirical grounds.¹⁰⁷ While the specifics of antivaccinationist empirical objections have shifted over time, they have consistently rejected either the premise that vaccines are effective in preventing disease, the premise that the medical benefits of vaccines, even if effective at prevention, outweigh the risks of harm caused by vaccination, or both.

Legal authorities' responses to antivaccinationist objections to mandatory immunization requirements have closely tracked the distinction between normative and epistemic pluralism. Although never expressed in such terms, state legislatures have proven generally willing to grant exemptions to immunization requirements to individuals whose objections are grounded in normative principles, but have uniformly denied exemptions to those whose objections are grounded in empirical doubts concerning vaccines' safety or efficacy. Courts, while denying rights-based exemptions grounded in normative or epistemic pluralism, have nevertheless embraced that distinction insofar as they have become active enforcers of the lines drawn by legislatures. Courts closely examine putative claims for exemption and deny "religious" or "philosophical" objections that they determine to be pretexts for empirical objections.

A. History of Mandatory Vaccination Policies

The modern vaccination era¹⁰⁸ began in 1796 when Edward Jenner developed the first smallpox vaccine by injecting cowpox virus into the arm of a boy, James Phipps, who then exhibited immunity to smallpox.¹⁰⁹

281 J. AM. MED. ASS'N 1482 (1999); James G. Hodge, Jr. & Lawrence O. Gostin, *School Vaccination Requirements: Historical, Social, and Legal Perspectives*, 90 KY. L.J. 831, 833 (2001).

105. A vaccine is a suspension of attenuated or killed "microorganisms (bacteria, viruses, or rickettsias) or derivative antigenic (e.g., proteins or peptides)." Hodge & Gostin, *supra* note 104, at 836.

106. See *infra* note 227 and accompanying text.

107. See generally Robert M. Wolfe & Lisa K. Sharp, *Anti-Vaccinationists Past and Present*, 325 BRITISH MED. J. 430 (2002); Hodge & Gostin, *supra* note 104, at 844–45; Martin Kaufman, *The American Anti-Vaccinationists and Their Arguments*, 41 BULL. HIST. MED. 463 (1967).

108. Variolation against smallpox was practiced in Asia from the early second century. See Hodge & Gostin, *supra* note 104, at 837.

109. LAWRENCE O. GOSTIN, PUBLIC HEALTH LAW: POWER, DUTY, RESTRAINT 376 (2d ed. 2008); Hodge & Gostin, *supra* note 104, at 833, 839–40; Stefan Riedel, *Edward Jenner and the History of Smallpox and Vaccination*, 18 BAYLOR U. MED. CTR. PROCS. 21, 23 (2005); see EDWARD JENNER, AN

In the ensuing centuries, vaccination has become a key component of public health policy through both voluntary and mandatory interventions. Through the principle of “herd immunity,” in which a critical mass of immunized individuals protects the entire population by preventing disease from gaining a foothold from which to spread,¹¹⁰ vaccination is credited with eliminating or significantly reducing the incidence of such life-threatening diseases as smallpox, polio, measles, and pertussis.¹¹¹ Widespread vaccination has been widely credited with saving countless lives and was recognized by the Centers for Disease Control and Prevention as one of the ten greatest public health achievements of the twentieth century.¹¹²

In the United States, state and municipal authorities have enacted mandatory vaccination requirements in response to disease outbreaks since the early nineteenth century.¹¹³ The development of routinized immunization requirements applicable in non-epidemic circumstances came a bit later, and such policies have generally been limited to three groups: public school children, health care workers, and members of the military.¹¹⁴ Of these, mandates pertaining to public school students have been the most controversial and have generated the most significant legal challenges. The first such requirement was imposed by the city of Boston in 1827, which required public school students to provide a certificate of immunization against smallpox.¹¹⁵ Hodge and Gostin survey the spread of mandatory vaccination requirements for public school attendance during the 19th century:

The Commonwealth of Massachusetts incorporated its own school vaccination law in 1855, New York in 1862, Connecticut in 1872, and Pennsylvania in 1895. Other northeast states soon passed their own requirements. The trend toward compulsory child vaccination as a condition of school attendance eventually spread to states in the Midwest (e.g., Indiana (1881), Illinois and Wisconsin (1882), Iowa (1889)), South (e.g., Arkansas and Virginia (1882)), and West (e.g.,

INQUIRY INTO THE CAUSES AND EFFECTS OF THE VARIOLAE VACCINAE (1796).

110. GOSTIN, *supra* note 109, at 652 n.33.

111. *Id.* at 376; cf. Willem G. van Panhuis et al., *Contagious Diseases in the United States from 1888 to the Present*, 369 N. ENGL. J. MED. 2152, 2156 (2013) (estimating that “103 million cases of childhood diseases (95% of those that would otherwise have occurred) have been prevented since 1924; in the past decade alone, 26 million cases (99% of those that would otherwise have occurred) were prevented” by vaccination).

112. CDC, *supra* note 104.

113. Hodge & Gostin, *supra* note 104, at 843.

114. See GOSTIN, *supra* note 109, at 379–81; CONGRESSIONAL RESEARCH SERVICE, MANDATORY VACCINATIONS: PRECEDENT AND CURRENT LAWS (2011).

115. GOSTIN, *supra* note 109, at 379; CONGRESSIONAL RESEARCH SERVICE, *supra* note 114, at 2–3.

California (1888)), though not without considerable political debate.¹¹⁶

By 1905, approximately half of the states required proof of smallpox vaccination for public school students,¹¹⁷ and by 1942, only six states lacked a smallpox vaccination requirement for public school students.¹¹⁸ States began imposing vaccination requirements for other diseases, such as diphtheria, in the 1930s.¹¹⁹ The widespread use of immunization requirements in public schools for diseases other than smallpox began in response to measles outbreaks in the 1960s;¹²⁰ currently, all 50 states have laws mandating the immunization of public school children against a variety of diseases.¹²¹

B. Normative and Epistemic Pluralism in the Antivaccination Movement

1. Themes in Antivaccinationist Argument

Although the Jennerian method of immunization was quickly accepted by the mainstream medical establishment of the early nineteenth century, opposition soon arose among the public and alternative medical communities.¹²² Antivaccinationist sentiment has waxed and waned since then, experiencing periods of relative popularity and others in which the public largely accepted the mainstream medical community's consensus that vaccines are a safe and effective method of preventing disease.¹²³ On the whole, though, antivaccinationist sentiment for the past two centuries has been remarkably consistent in its major themes. Antivaccinationists in the nineteenth and twentieth centuries campaigned against the practice

116. Hodge & Gostin, *supra* note 104, at 851 (footnotes omitted). Willrich recounts that “[b]y the 1890s, the American regime of compulsory vaccination included federal inspection of immigrants, some provision for compulsory vaccination of public schoolchildren in most states, and universal vaccination orders issued by local health boards during epidemics.” Michael Willrich, “*The Least Vaccinated of Any Civilized Country*”: *Personal Liberty and Public Health in the Progressive Era*, 20 J. POL’Y HIST. 76, 77 (2008).

117. GOSTIN, *supra* note 109, at 379.

118. William Fowler, *Principal Provisions of Smallpox Vaccination Laws and Regulations in the United States*, 56 PUBLIC HEALTH REP. 325, 325 (1942).

119. William Fowler, *State Diphtheria Immunization Requirements*, 57 PUB. HEALTH REP. 325, 325 (1942).

120. GOSTIN, *supra* note 109, at 379.

121. *Id.* at 380; *see also* CDC, STATE VACCINATION REQUIREMENTS (2017), <https://www.cdc.gov/vaccines/imz-managers/laws/state-reqs.html>.

122. Hodge & Gostin, *supra* note 104, at 844.

123. Writing in 1967, Kaufman explained that “[w]ith the improvements in medical practice and the popular acceptance of the state and federal governments’ role in public health, the anti-vaccinationists slowly faded from view, and the movement collapsed.” Kaufman, *supra* note 107, at 478. Subsequent experience shows antivaccinationism to have been more resilient than Kaufman anticipated.

in terms that foreshadowed the claims of antivaccinationist arguments today:

[Antivaccinationists] portrayed vaccines as foreign substances, or poisons, capable of causing more harm than good The effectiveness of the vaccine itself led to a progressive, albeit apathetic, argument: since the vaccine has worked, why should individuals continue to be subjected to the harms of vaccination unless there exists an actual threat of disease in the community? Public health authorities were characterized as abusive, untrustworthy, and paternalistic. Resisting public health efforts was equated with fighting government oppression. Antivaccinationists asserted that vaccinations . . . were contrary to their sacred religious beliefs.¹²⁴

Three major categories of argument recurred in antivaccinationist opposition to the practice of immunization in the nineteenth and early twentieth centuries: (1) *Medical disagreements* consisting of (a) *empirical doubts* about the safety and efficacy of vaccines or about the severity of the diseases they purport to prevent, and (b) *competing claims to legitimacy* between the mainstream medical establishment, represented foremost by the American Medical Association (AMA), and various “alternative” medical practitioners; (2) *moral or religious disagreements* consisting of (a) appeals to *liberty* or *human rights* against mandatory vaccination, and (b) appeals to *God* or *natural law* against the introduction of “unnatural” or “unclean” matter into the body; and (3) *ad hominem attacks* on the motives of the mainstream medical establishment, generally consisting of variations on the claim that mainstream physicians intentionally perpetuate disease for the sake of financial gain.¹²⁵

Although the contemporary vaccination debate is heavily influenced by the relatively recent assertion that vaccination is causally associated with the development of childhood autism,¹²⁶ these themes guide contemporary antivaccination discourse just as they did in the nineteenth century. Details have changed, but the broad thrust of antivaccinationist rhetoric—both normative and empirical—has remained virtually unaltered for nearly 200 years. This section surveys each of the major themes in antivaccinationist argument from the earliest days through the present, while the next section focuses on recent shifts in tone brought about by Dr. Andrew Wakefield’s claim, in 1998, to have identified a causal relationship between childhood vaccination and the development of autism.

124. Hodge & Gostin, *supra* note 104, at 848–49.

125. *Id.* at 836, 844.

126. *See infra* Part II(B)(2).

a. Empirical Doubts Concerning the Safety or Efficacy of Vaccines

The principal empirical objection that antivaccinationists raise against the practice of vaccination is that it does no good; that is, vaccination fails to prevent disease as the medical establishment claims. This was a recurrent theme of antivaccinationist advocacy against the smallpox vaccine, made somewhat more plausible by the fact that the germ theory of disease remained inconclusively established in the nineteenth century. Nineteenth century antivaccinationists tended to reject the germ theory in favor of the “miasmatic” theory of disease, which held that diseases “spontaneously generated in dirt and filth,” and therefore argued that greater public sanitation would reduce the risk of smallpox epidemics more effectively than vaccination.¹²⁷

Like their nineteenth and twentieth century forebears, contemporary antivaccinationists assert that some, if not all, vaccines are ineffective at preventing disease.¹²⁸ Kata’s content analysis of antivaccinationist websites found that 88% of sites raised doubts concerning the efficacy of vaccination, including “propositions that vaccination weakens the immune system, or that immunity is ineffective because vaccinated individuals still contract diseases.”¹²⁹

A second argument that antivaccinationists commonly use is that, even if a vaccine is effective at preventing the disease in question, it also causes some worse disease or condition. Antivaccinationists in the nineteenth century attributed all sorts of unwholesome effects to the smallpox vaccine. Kaufman recounts, for example, the arguments of Dr. J.F. Banton, “who wrote that vaccination introduces into the bloodstream ‘a bioplasm, death laden—carrying with it all the vices, passions and diseases of the cow,’”¹³⁰ and Dr. H. Lindlahr, who claimed that

127. Kaufman, *supra* note 107, at 468, 476–77; Hodge and Gostin, *supra* note 104, at 846–47; Willrich, *supra* note 116, at 81.

128. See, e.g., Kelly Brogan, *A Shot Never Worth Taking: The Flu Vaccine*, GREEN MED INFO (Nov. 28, 2013, 5:45 PM), <http://www.greenmedinfo.com/blog/shot-never-worth-taking-flu-vaccine-3> (asserting that the influenza vaccine “doesn’t work”); Sherry Tenpenny, *Outbreaks Proof That Whooping Cough Vaccines Don’t Work*, NEWS WITH VIEWS (2011), <http://newswithviews.com/Tenpenny/sherri128.htm> (“Pertussis-containing vaccines seem to have little effect on the overall incidence of the infection.”); Mike Adams, *CDC Admits Flu Vaccines Don’t Work (Which is Why You Need a New One Every Year)*, NATURAL NEWS (May 29, 2011), http://www.naturalnews.com/032558_flu_shots_wear_off.html.

129. Kata, *supra* note 8, at 1712; see also Robert M. Wolfe, Lisa K. Sharp & Martin S. Lipsky, *Content and Design Attributes of Antivaccination Web Sites*, 287 J. AM. MED. ASS’N 3245, 3247 (2002) (95% of sites claimed that “vaccinations eroded or harmed the immune system,” and 81% of sites “alleged that vaccines are ineffective or produce temporary immunity”); P. Davies, S. Chapman & J. Leask, *Antivaccination Activists on the World Wide Web*, 87 ARCHIVES OF DISEASE IN CHILDHOOD 22, 24 (2002) (83% of antivaccinationist websites claimed that vaccines are ineffective, and 54% claimed that vaccines erode the immune system).

130. Kaufman, *supra* note 107, at 471 (quoting J.F. BANTON, VACCINATION REFUTED 3 (1882)).

“[v]accination dries up the mammary glands.”¹³¹ Somewhat more sophisticated was the statistical argument of antivaccinationist Henry Bergh, who correctly pointed out that “wherever vaccination is generally and rigidly enforced, the death-rate from tuberculosis is highest,” while omitting the fact that both mandatory vaccination and tuberculosis were most common in densely populated urban centers.¹³² More generally, antivaccinationists claimed “that syphilis, leprosy, polio, cancer, and a host of other diseases were inoculated into the bloodstream of innocent children” by forced immunization.¹³³

This line of argument aligns with the dominant theme of twenty-first century antivaccinationist advocacy, which maintains that vaccines cause a host of diseases and conditions far worse than the disease that the vaccine prevents. For example, Keelan *et al.*’s study of YouTube videos concerning vaccination found that substantial percentages of antivaccinationist videos stated that immunization frequently caused serious adverse events, permanent injury, or autism.¹³⁴ Kata’s content analysis of antivaccinationist websites found that “every [antivaccinationist] site claimed that vaccines are poisonous and cause idiopathic illnesses,”¹³⁵ which aligns with Wolfe *et al.*’s finding that 100% of antivaccinationist websites “included content suggesting that vaccines cause idiopathic illness.”¹³⁶

Another common antivaccinationist tactic since the nineteenth century has been to minimize the threat of vaccine preventable disease. Kaufman quotes antivaccinationist J.F. Banton, who “wrote that smallpox was a ‘disease not so much to be dreaded as we are wont to believe, leaving the system in much healthier condition than most other diseases.’”¹³⁷ Similarly, “Bernarr Macfadden wrote that the disease was possible only to those who ‘clothe heavily, bathe infrequently, eat very heartily and

As Kaufman observes, “[s]uch an argument obviously makes one wonder exactly what are the vices and passions of the cow.” *Id.*

131. *Id.* at 472 (quoting H. Lindlahr, 1 *Nature Cure Magazine* 16–17 (1908)). In a similar vein, Herbert Spencer claimed that vaccination contributed to “the wholesale syphilization of society.” *Id.* at 471.

132. *Id.* at 471–72 (quoting Henry Bergh, *The Lancet and the Law*, 134 *NORTH AM. REV.* 163 (1882)).

133. *Id.* at 472 (citations omitted).

134. Jennifer Keelan *et al.*, *YouTube as a Source of Information on Immunization: A Content Analysis*, 298 *J. AM. MED. ASS’N* 2482, 2483 (2007).

135. Kata, *supra* note 8, at 1711; *cf.* Bean, *supra* note 8, at 1877 (76% of websites in the study sample “asserted that vaccines cause illness, damage, or death,” while 80% of sites asserted that vaccines contain “poisons”); Davies, Chapman, & Leask, *supra* note 129, at 24 (93% of sites claim that vaccines cause various idiopathic illnesses; 83% claim that they are deadly).

136. Wolfe, Sharp, and Lipsky, *supra* note 129, at 3246.

137. Kaufman, *supra* note 107, at 475 (quoting J.F. BANTON, *VACCINATION REFUTED* 3 (1882)).

exercise rarely.”¹³⁸ Some antivaccinationists went so far as to claim that smallpox was not even contagious, as when Dr. Immanuel Pfieffer “agreed to visit a smallpox hospital in order to prove that the disease was not infectious.”¹³⁹

Contemporary antivaccinationists have continued this theme. Some maintain, for example, that influenza,¹⁴⁰ chicken pox,¹⁴¹ and even measles¹⁴² are relatively harmless, or that “natural” immunity resulting from infection with a disease is “better” than the immunity created by vaccination.¹⁴³ Half of the antivaccinationist websites in Kata’s sample argued that vaccine-preventable diseases are “trivial.”¹⁴⁴

b. Competing Claims to Legitimacy Among Rival Epistemic Communities

The debate over vaccination has been one front in the larger struggle for power and legitimacy between the mainstream medical community, represented by the AMA,¹⁴⁵ and adherents to various alternative schools of medical theory.¹⁴⁶ Those battle lines were drawn in the nineteenth century, when opposition to the mainstream medical community’s consensus in favor of vaccination as a safe and effective preventative measure provided “irregular” physicians with an opportunity to critique

138. *Id.* (quoting J.W. HODGE, *THE VACCINATION SUPERSTITION* 5 (1902)).

139. *Id.* at 476. Dr. Pfieffer subsequently “was discovered in the throes of a violent smallpox attack.” *Id.*

140. *See, e.g.*, Joseph Mercola, *Vaccine Alert: New Proof that Flu Shots are Unnecessary and Ineffective*, MERCOLA.COM (Nov. 1, 2010), <http://articles.mercola.com/sites/articles/archive/2010/11/01/flu-vaccine-and-its-side-effects.aspx>.

141. Joseph Mercola, *Despite Doctor’s Order, School Bans Girl for Not Getting Chickenpox Vaccine*, MERCOLA.COM (Apr. 23, 2013), <http://articles.mercola.com/sites/articles/archive/2013/04/23/chickenpox-vaccine.aspx> (describing chicken pox as “a relatively benign childhood illness”).

142. *See, e.g.*, *Think Twice, Measles*, THINKTWICE.COM, <http://thinktwice.com/measles.htm> (last visited Sept. 1, 2019) (claiming that “Prior to the 1960s, most children in the United States and Canada caught measles. Complications from the disease were unlikely”); Edda West, *What If My Child Gets the Measles?*, VACCINE CHOICE CANADA (Nov. 14, 2008), <http://vran.org/alternatives/alternatives-for-specific-infections/what-if-my-child-gets-measles/> (describing measles as “an ordinary childhood disease”).

143. *See, e.g.*, Mercola, *supra* note 141 (“Unlike the type of immunity acquired from experiencing the disease, the [chicken pox] vaccine provides only TEMPORARY immunity, and that immunity is not the same kind of superior, longer lasting immunity you get when you recover naturally from chickenpox”).

144. Kata, *supra* note 8, at 1712. Indeed, antivaccinationist websites in Kata’s sample argue that even smallpox was “harmless under proper treatment ... [a]nd not considered deadly with the use of homeopathy.” *Id.*; *see also* Davies, Chapman & Leask, *supra* note 129, at 24 (38% of antivaccinationist websites claimed that vaccine preventable diseases are “trivial”).

145. Kaufman, *supra* note 107, at 467. By the late 19th century, the AMA “had become, to the irregulars, a veritable bogey man trying to deny them the right to earn a living.” *Id.*

146. *Id.* at 474 (“Almost every anti-vaccination argument would eventually turn into an attack on the allopath and his monopoly on medical licensure.”); *see also* Willrich, *supra* note 116, at 81.

the mainstream medical establishment and to challenge its authority as the exclusive voice of medical expertise.¹⁴⁷

The political and commercial significance of the vaccination debate thus should not be overlooked. Many of the leading actors in the antivaccinationist movement of the nineteenth and early twentieth centuries had a professional interest in diminishing the credibility of the mainstream as well as a financial interest in marketing their own alternative treatments to smallpox. The public debates over vaccination became something of a proxy war between competing visions of the medical profession and divergent institutional logics, which were further associated with disagreements concerning the legitimate role of state authority in maintaining public health. Kaufman recounts, for example, a history of the American Medical Liberty League (the “League”), formed in 1918, which during the course of its existence “opposed vaccination, medical licensure, isolation of contagious diseases, pure food and drug laws, the testing of cattle with tuberculin, and a host of other public health programs.”¹⁴⁸ The vice president of the League was Eli G. Jones, “who had been a practitioner of every medical system, ‘allopathic, homeopathic, eclectic, physio-medical and biochemical medicine,’” while the treasurer was D.W. Ensign, “the owner and manager of Ensign Remedies, a patent medicine mail order house in Battle Creek, Michigan.”¹⁴⁹

In the twenty-first century, the battle for legitimacy continues to rage between the mainstream and alternative medical practitioners, and the vaccination debate continues to be a significant point of engagement in that conflict.¹⁵⁰ Modern-day irregulars, including, among others, chiropractors,¹⁵¹ homeopaths, and naturopaths,¹⁵² continue to challenge

147. Kaufman, *supra* note 107, at 466–69.

148. *Id.* at 466.

149. *Id.* at 467.

150. Outside the context of vaccination, the mainstream medical establishment continues to struggle for power and legitimacy against a variety of alternative models of medical expertise. *See, e.g.*, Katherine Beckett & Bruce Hoffman, *Challenging Medicine: Law, Resistance, and the Cultural Politics of Childbirth*, 39 L. & SOC. REV. 125 (2005).

151. *See* Dana Lawrence, *Anti-Vaccination Attitudes within the Chiropractic Profession: Implications for Public Health Ethics*, 3 TOP. INTEGR. HEALTH CARE 1 (2012); Margaret L. Russell et al., *Beliefs and Behaviours: Understanding Chiropractors and Immunization*, 23 VACCINE 372 (2004); *but see, e.g.*, Stephen M. Perle, *Vaccines and Public Health*, ACA NEWS (2013), https://www.physics.smu.edu/pseudo/AlternativeMedicine/Vaccines_and_Public_Health.txt (lamenting the fact that the chiropractic profession’s “philosophical bias toward therapeutic conservatism and naturalism has not allowed us to see that there is a time and a place for vaccination.”); Robert Cooperstein, *Vaccination Is Both Beyond and Consistent with Chiropractic Philosophy!*, 45 J. AM. CHIROP. ASSOC. 27 (2008).

152. Anne C.C. Lee & Kathi Kemper, *Homeopathy and Naturopathy: Practice Characteristics and Pediatric Care*, 154 ARCHIVE OF PEDIATRIC ADOLESCENT MED. 75, 79 (2000) (“Several reasons have been postulated for [opposition to vaccination among homeopathic and naturopathic practitioners]: a

the mainstream medical establishment's claim of exclusive medical expertise and to reject the medical establishment's consensus that vaccination is a safe and effective means of preventing disease. Contemporary antivaccinationists, like their forebears, are firmly on the side of the irregulars, as they commonly recommend methods for the prevention and cure of disease that are rejected by the mainstream medical establishment.¹⁵³ This epistemic divergence goes beyond professional boundary work to expose a pluralism of epistemological methodology; 38% of antivaccinationist websites in Kata's content analysis, for example, promoted "[s]ources of knowledge such as personal intuition ... while biomedical information was portrayed as erroneous; parents were urged to not to allow biomedical fear-mongering to overshadow their own instincts."¹⁵⁴

c. Appeals to Liberty

Opponents of mandatory vaccination policies frequently phrase their appeals in terms of physical or intellectual freedom. In the nineteenth century, antivaccinationists invoked the specter of human slavery, analogizing the state's authority over the bodies of African-American slaves to its imposition of mandatory vaccination requirements. For example, nineteenth century British antivaccinationist William Tabb lamented, upon being required to submit to shipboard vaccination while in transit to the United States, that "America was closed against the unvaccinated anti-vaccinator, and that he was fast falling into the condition of the American negro-slave who was hunted down by everybody."¹⁵⁵ J.W. Hodge echoed Tabb's sentiment while speaking before the Western New York Homeopathic Medical Society, contending that state-mandated immunization "'ranks with human slavery and religious persecution as one of the most flagrant outrages upon the rights of the human race.'"¹⁵⁶

general antipathy with conventional medicine, apprehension of detrimental side effects of immunization, and the opinion that their own practices provide better, natural protection that 'obviates the need for vaccination.'").

153. Bean, *supra* note 8, at 1877 (20% of websites "specifically mentioned homeopathy, chiropractic, or other alternatives to vaccination"); Kata, *supra* note 8, at 1712 (88% of websites "endorsed treatments such as herbalism, homeopathy, chiropractics, naturopathy, and acupuncture as superior to vaccination"); Wolfe, Sharp & Lipsky, *supra* note 129, at 3247 (70% of websites listed homeopathy as an alternative to vaccination); Davies, Chapman & Leask, *supra* note 129, at 24 (45% of websites claimed that "alternative" health is superior, and 39% claimed that a "natural" lifestyle gives immunity to vaccine preventable disease).

154. Kata, *supra* note 8, at 1713.

155. Kaufman, *supra* note 107, at 466 (quoting WILLIAM TEBB, COMPULSORY VACCINATION IN ENGLAND 47–50 (1884)).

156. *Id.* at 473 (quoting J.W. HODGE, THE VACCINATION SUPERSTITION 49 (1902)). Other

Contemporary antivaccinationists continue to invoke liberty and the right to bodily autonomy in opposition to state-mandated immunization. An online petition titled “Universal Declaration of Resistance to Mandatory Vaccinations,” for example, declares that “as Freeman & Freewomen ... [the petitioners’] bodies are sovereign territory and subject to our self-determination.”¹⁵⁷ Similarly, radio personality Alex Jones’s website identified the fact that “the government forces us to shoot our kids full of vaccines” as among the most serious threats to American liberty.¹⁵⁸ Indeed, the rhetoric of personal liberty and bodily freedom permeates throughout antivaccinationist discourse in the twenty-first century, which depicts vaccine refusal as a matter of individual liberty of conscience against an overreaching and intrusive public health apparatus.¹⁵⁹

d. Religious or Moral Arguments

Antivaccinationists from the nineteenth century to the present day have also invoked God and morality in their opposition to coerced immunization. These arguments take several forms. Some argue that disease and death represent God’s judgment or will and therefore should be accepted; others contend that the human body’s natural immune system is divinely created and is defiled by vaccination. Some religious sects oppose vaccination as a matter of formal doctrine; many antivaccinationists, however, ground their objection in personal religious principle even when the religious sect to which they adhere has no formal opposition to immunization.

Invocations of the divine plan were common to nineteenth century religious arguments. Antivaccinationists of that era contended either that

arguments appealed to libertarian first principles. Willrich, for example, quotes J.M. Peebles’s declaration that “upon the constitutional grounds of personal liberty, no vaccination doctor, lancet in one hand and calf-pox poison in the other, has a legal or moral right to enter the sacred precincts of a healthy home and scar a child’s body for life.” Willrich, *supra* note 116, at 82.

157. VACCINE RESISTANCE MOVEMENT, A UNIVERSAL DECLARATION OF RESISTANCE TO MANDATORY VACCINATIONS, <http://www.thepetitionsite.com/1/a-universal-declaration-of-resistance-to-mandatory-vaccinations>, (last visited Sept. 1, 2019).

158. Alex Jones, *12 Signs That Americans Who Love Liberty and Freedom Should Watch Their Backs*, INFOWARS.COM (Oct. 1, 2011), <http://www.infowars.com/12-signs-that-americans-who-love-liberty-and-freedom-should-watch-their-backs>.

159. Seventy-five percent of the antivaccinationist websites in Kata’s study argued that mandatory vaccination was a violation of parental rights, while 63% equated mandatory vaccination with “totalitarianism.” Kata, *supra* note 8, at 1712. Half of the websites in Kata’s study “included the notion of ‘us versus them,’ where concerned parents and vaccine objectors were portrayed as battling physicians, governments, corporations, or the scientific establishment.” *Id.* at 1713; *see also* Bean, *supra* note 8, at 1877 (44% of antivaccinationist cites referred to civil liberties); Wolfe, Sharp & Lipsky, *supra* note 129, at 3247 (77% of antivaccination sites “mentioned civil liberty concerns associated with mandated vaccination”); Davies, Chapman & Leask, *supra* note 129, at 24 (86% of sites cast antivaccinationism as a matter of free and informed choice; 79% compared mandatory vaccination to totalitarianism).

smallpox was a “social condition” with an environmental solution, or, adopting the Malthusian perspective influential on much nineteenth century social thought, argued that “the widening gap between the rich and the poor was God’s will and that diseases were mechanisms for controlling the balance between the blessed and the damned.”¹⁶⁰ Kaufman recounts one antivaccinationist tract that involved a parable of God expelling the physicians from paradise: “Only a return to nature, the Lord proclaimed, ‘will lead humanity to a more prosperous future.’”¹⁶¹

These themes persist among today’s antivaccinationists. Religious antivaccinationist Leonard Horowitz, for example, writes that “parents who elect to forego [the] risks” associated with vaccination, “in celebration to God and his blessings,” will be rewarded with a “healthy and natural immunity.”¹⁶² Others raise more specific objections, for example the use of fetal cell lines in the manufacture of some vaccines.¹⁶³ Religious and moral themes were less common among the antivaccinationist websites in Kata’s content analyses than the other themes discussed here, but 25% of the sample contained explicitly religious advocacy against vaccination, and 38% “associat[ed] vaccines with morally dubious actions.”¹⁶⁴ Even the Malthusian trappings of nineteenth-century antivaccinationism, long banished from respectability, continue to slip covertly into the antivaccinationist worldview. Reich’s qualitative study of antivaccinationist mothering practices, for example, finds that many such mothers rely on “imagined gated communities”—including the scrupulous curation of their child’s social networks to exclude “unsafe ‘outsiders’ who carry disease”—as a superior alternative to immunization.¹⁶⁵

160. Hodge & Gostin, *supra* note 104, at 847.

161. Kaufman, *supra* note 107, at 474 (quoting C. C. SCHIEFFERDECKER, DR. C. G. G. NITTINGER’S EVILS OF VACCINATION 86–88 (1856)).

162. Leonard Horowitz, *Vaccination: The UnGodly Practice*, VACINFO.ORG, <http://www.vacinfo.org/uploads/7/9/8/5/79856028/vaccination.pdf>; see also Megan Heimer, *God Does Not Support Vaccines*, LIVINGWHOLE.ORG (July 7, 2014), <http://www.livingwhole.org/god-does-not-support-vaccines>.

163. See, e.g., Donald J. Henz, *Infant Immunization: The Catholic Parents’ Guide*, CHILDREN OF GOD FOR LIFE, <https://cogforlife.org/catholicguide.pdf> (distinguishing “ethical” from “unethical” vaccines based on the use of human fetal cells in their preparation).

164. Kata, *supra* note 8, at 1713; see also Wolfe, Sharp & Lipsky, *supra* note 129, at 3247 (32% of antivaccinationist websites “raised the fact that viruses grown from cell cultures of aborted fetuses . . . are used in” several vaccines). On the other hand, a later content analysis found no reference to explicitly religious themes among its sample of antivaccinationist websites. Bean, *supra* note 8, at 1877. The relative rarity of religious arguments in comparison to empirical or liberty-based objections to vaccination is striking insofar as, as discussed below, most state statutory exemption schemes require a *religious* objection to qualify for exemption from vaccination in the absence of medical contraindication. See *infra* Part II(D).

165. Jennifer A. Reich, *Neoliberal Mothering and Vaccine Refusal: Imagined Gated Communities and the Privilege of Choice*, 20 GEND. & SOC. 1, 17 (2014).

e. Conspiracy Theories and Ad Hominem Arguments

As noted above, the vaccination debate can be understood in part as one battlefield in the larger struggle for legitimacy between the mainstream and alternative medical communities. It is therefore unsurprising that one strand of antivaccinationist argument moves beyond the empirical assessment of vaccines' safety and medical efficacy to attack the motives and intentions of vaccination proponents. This line of argument depicts proponents of vaccination whether physicians who recommend immunization or pharmaceutical companies that manufacture and sell vaccines, as not merely factually mistaken about the safety and utility of vaccination, but as engaged in a conspiracy against public health for the sake of their own financial interests.¹⁶⁶ As Kaufman notes, such arguments were common in the nineteenth and early twentieth centuries:

The Pittsburgh Health Club, for example, which had become a center of anti-vaccination and anti-allopathic sentiment, published a pamphlet which stated that in 1924 the local physicians had amassed more than three million dollars by vaccinating the poor, and to add to their crime, they caused an epidemic of smallpox to strike the steel city. An American Medical Liberty League leaflet noted similarly that the vaccinators in Kansas City had "raked in over half a million dollars" in 1922, and the author commented that "considering the profits, why should not all medical doctors advocate vaccination?" Anti-vaccinationists constantly accused allopaths of starting what they called "vaccination rings," monopolies of the regular doctors formed in order to reap the financial benefits of compulsory vaccinations.¹⁶⁷

Contemporary antivaccinationists continue to employ ad hominem arguments and conspiracy theories alleging that mainstream practitioners and "Big Pharma" knowingly exaggerate the effectiveness and understate the risks of vaccines in order to maximize their own wealth.¹⁶⁸ Also common is the allegation of conflict of interest against researchers whose work on the safety or efficacy of vaccination is funded in part by pharmaceutical companies. These arguments at times veer into broader conspiracy theories concerning government control and the intentional infringement of individual liberties through mandatory immunization requirements. Dr. Joseph Mercola, for example, decries "Big Pharma[']s]

^{166.} See Willrich, *supra* note 116, at 81.

^{167.} Kaufman, *supra* note 107, at 474 (internal citations omitted). Kaufman further quotes Frank Blue, the secretary of the Anti-Vaccination Society of America, who claimed that "there is nothing so welcome to the health board of any town as a few cases of smallpox. There is no possible disease that can be turned into such ready cash; and that yields such perennial returns." *Id.* at 475.

^{168.} See, e.g., Markus Heinze, *How Pharmaceutical Companies Hide the Dangers of Vaccines from Parents*, VACTRUTH.COM (Sept. 26, 2013), <http://vactruth.com/2013/09/26/how-pharmaceutical-hide-dangers>.

... lucrative monopoly on health care in America,” through which it has “managed to steal basic human Constitutional liberties from you, especially your right to choose what is best for yourself and your children when it comes to drugs and vaccines.”¹⁶⁹ Kata’s study included websites “staging ad hominem attacks against [Louis] Pasteur, claiming that he plagiarized [germ] theory,” and lamenting that “[t]oday’s ‘science’ seems to be much less scrupulous than in earlier times.”¹⁷⁰ More broadly, 75% of the antivaccinationist websites in Kata’s sample asserted that “vaccination is motivated solely by a quest for profit,” while 63% of the sites alleged collusion between vaccine manufacturers and physicians, who profit from vaccines’ harmful side effects.¹⁷¹ Finally, some antivaccinationists claim that the government itself is conspiring against their interests. Kirkland, for instance, notes that after their general causation arguments were soundly rejected in the Omnibus Autism Proceeding, “losing petitioners and their advocates transformed their overwhelming loss on the credibility of the science into a case that the institutional power of government immunization was hopelessly stacked against them.”¹⁷²

2. The Autism Controversy: 1998 – Present

The anti-vaccination movement entered its current phase on February 28, 1998, with the publication of a study by Andrew Wakefield *et al.* in *The Lancet*.¹⁷³ The Wakefield Study purported to identify an association between receipt of the measles, mumps, and rubella (“MMR”) vaccination and the development of intestinal inflammation and autism in

169. Joseph Mercola, *How Many More of these “Unavoidably Unsafe” Drugs Will Become Mandatory?*, MERCOLA.COM (Nov. 5, 2011), <http://articles.mercola.com/sites/articles/archive/2011/11/05/health-liberty-and-forced-vaccination.aspx>.

170. Kata, *supra* note 8, at 1712; *see also* Wolfe, Sharp, and Lipsky, *supra* note 129, at 3247 (noting that “[s]ites advocating homeopathy were often associated with statements attacking Pasteur and the germ theory of disease”).

171. *Id.* at 1713; Kata, *supra* note 8, at 1713; *cf.* Bean, *supra* note 8, at 1877 (52% of websites contained “[a]llegations of vaccination being conducted solely for financial gain or that vaccinations were promoted by those with conflicts of interest”); Wolfe, Sharp, and Lipsky, *supra* note 129, at 3247 (91% of antivaccination sites asserted that “vaccine policy is motivated by profit ... which influences universal vaccination recommendations and promotes the cover-up of vaccine adverse effects”); Davies, Chapman, and Leask, *supra* note 129, at 24 (88% of antivaccination sites alleged a “cover up” of the true facts, and 62% alleged that vaccination policy was motivated by an “unholy alliance for profit”).

172. KIRKLAND, *supra* note 86, at 194; *see infra* notes 196 to 204 (discussing Omnibus Autism Proceeding).

173. Andrew Wakefield *et al.*, *Ileal-lymphoid-nodular Hyperplasia, Non-Specific Colitis, and Pervasive Developmental Disorder in Children*, 351 THE LANCET 637 (1998) (retracted Feb. 6, 2010) [hereinafter the “Wakefield Study”]. Dr. Wakefield was also an author in a second study published in 2002, which purported to identify a correlation between autism diagnosis and the presence of the measles virus genome in intestinal biopsy tissue. V. Uhlmann *et al.*, *Potential Viral Pathogenic Mechanism for New Variant Inflammatory Bowel Disease*, 55 MOL. PATHOL. 84 (2002).

children. In a time of rising and unexplained autism diagnosis,¹⁷⁴ the study claimed that parents and the medical establishment were inflicting neurological disorder upon infants by injecting them with pathogens and “toxins” in vaccines. This claim preyed upon parents’ anxieties for their children’s health and the public’s fears about the obscure and at times sinister-sounding contents of some vaccines, particularly MMR.

While the Wakefield Study immediately captured the attention of the public and the popular press, the mainstream medical community was skeptical that childhood vaccination was a causal agent in the development of autism. Subsequent studies called Wakefield’s conclusions into question,¹⁷⁵ and 10 of the study’s 12 co-authors disavowed its claimed causal association between MMR and autism.¹⁷⁶ Numerous studies failed to replicate the finding of an association between immunization and autism.¹⁷⁷ Taken together, these replication studies establish almost conclusively that childhood vaccination does *not* cause autism.

As the medical community directed its initial criticism toward the Wakefield Study’s flawed methodology and the irreproducibility of its results, allegations of fraud and conflicts of interest against Wakefield personally began to surface in the mainstream press. Beginning in 2004 and continuing through 2012, the *London Times* ran a series of articles identifying a number of ethical conflicts and lapses in the conduct and reporting of the Wakefield Study.¹⁷⁸ The investigation discovered, for example, that Wakefield failed to disclose that the study was funded by lawyers representing a group of parents who believed their children’s autism had been caused by the MMR vaccine or that Wakefield himself was in the process of patenting a separate measles vaccine that would compete with MMR.¹⁷⁹ Contrary to his assurances to the research oversight board, Wakefield ordered a number of tests—including

174. See Irva Hertz-Picciotto & Lora Delwiche, *The Rise in Autism and the Role of Age at Diagnosis*, 20 EPIDEMIOLOGY 84 (2009).

175. See, e.g., L. Dales et al., *Time Trends in Autism and in MMR Immunization Coverage in California*; 285 J. AM. MED. ASS’N 1183 (2001); B. Taylor et al., *Autism and Measles, Mumps, and Rubella Vaccine: No Epidemiological Evidence for a Causal Association*, 353 THE LANCET 2026 (1999).

176. S.H. Murch et al., *Retraction of an Interpretation*, 363 THE LANCET 750 (2004).

177. See Luke E. Taylor, Amy L. Swerdfeger & Guy D. Eslick, *Vaccines are not Associated with Autism: An Evidence-Based Meta-Analysis of Case-Control and Cohort Studies*, 32 VACCINE 3623 (2014); D.A. Gust et al., *Underimmunization Among Children: Effects of Vaccine Safety Concerns on Immunization Status*, 114 PEDIATRICS 16 (2004); see generally *Vaccines & Autism*, SCIENCE-BASED MEDICINE, <https://sciencebasedmedicine.org/reference/vaccines-and-autism> (last visited Sept. 1, 2019) (summarizing key research).

178. See generally Brian Deer, *Andrew Wakefield – the Fraud Investigation*, BRIANDEER.COM, <http://briandeer.com/mmr-lancet.htm> (last visited Sept. 1, 2019) (providing links to all articles and overview of underlying research).

179. Brian Deer, *How Lawyers Paid for Vaccine Research*, BRIANDEER.COM, <http://briandeer.com/wakefield/wakefield-deal.htm>.

colonoscopies and lumbar punctures (*i.e.*, spinal taps)—on child test subjects that were not medically necessary.¹⁸⁰ *The Lancet* formally retracted the Wakefield Study in 2010, writing that “it has become clear that several elements of the 1998 paper by Wakefield et al. are incorrect.”¹⁸¹ The *Times* investigation’s revelations eventually led the British General Medical Council (“GMC”) to hold a 217-day “Fitness to Practise” hearing regarding allegations of unethical practices undertaken in connection with the Wakefield Study, which concluded with the revocation of Wakefield’s license to practice medicine in the United Kingdom.¹⁸² The GMC wrote that it “is profoundly concerned that Dr Wakefield repeatedly breached fundamental principles of research medicine.”¹⁸³ At the same time the GMC hearing was proceeding, the *Sunday Times* and the *British Medical Journal* published additional allegations of fraud against the Wakefield Study.¹⁸⁴ Wakefield eventually relocated to Texas and filed a number of libel suits against the journalists who had reported the fraud, all of which were eventually dismissed.¹⁸⁵

Notwithstanding the scientific community’s rejection of the Wakefield Study’s hypothesized connection between MMR vaccination and autism, the claim was widely adopted by the antivaccination movement and worked its way into popular consciousness.¹⁸⁶ Since 1998, that claim has been repeated in blog posts,¹⁸⁷ television reporting, and alternative

180. GENERAL MEDICAL COUNCIL, DETERMINATION ON SERIOUS PROFESSIONAL MISCONDUCT (SPM) AND SANCTION 4 (May 24, 2010), https://web.archive.org/web/20110809092833/http://www.gmc-uk.org/Wakefield_SPM_and_SANCTION.pdf_32595267.pdf.

181. The Editors of *The Lancet*, *Retraction—Ileal-lymphoid-nodular Hyperplasia, Non-specific Colitis, and Pervasive Developmental Disorder in Children*, 375 *THE LANCET* 445 (2010) [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(10\)60175-4/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(10)60175-4/fulltext) (footnote omitted).

182. GENERAL MEDICAL COUNCIL, *supra* note 180, at 4.

183. *Id.*

184. See, e.g., Brian Deer, *Wakefield’s “Autistic Enterocolitis” under the Microscope*, 340 *BRITISH MED. J.* 340 (2010); Brian Deer, *MMR Doctor Fixed Data on Autism*, *SUNDAY TIMES*, Feb. 8, 2009; see generally Brian Deer, *The Award-Winning Sunday Times and BMJ Reports*, *BRIANDEER.COM*, <http://briandeer.com/mmr/st-mmr-reports.htm> (last visited Sept. 1, 2019) (chronology of *Sunday Times* and *British Medical Journal* articles); see also F. Godlee, J. Smith & H. Marcovitch, *Wakefield’s Article Linking MMR Vaccine and Autism Was Fraudulent*, 342 *BRITISH MED. J.* 7452 (2011) (describing the Wakefield Study as “fraudulent”).

185. *Wakefield v. Channel Four Television Corp.*, [2005] EWHC 2410 (QB) (2005); *Wakefield v. British Med. J. Pub. Group, Ltd.*, 449 S.W.3d 172, 189 (Tex. App. 2014) (affirming dismissal for lack of personal jurisdiction).

186. See Allison Kennedy et al., *Confidence about Vaccines in the United States: Understanding Parents’ Perceptions*, 30 *HEALTH AFFAIRS* 1151 (2011).

187. See, e.g., David Kirby, *THE AUTISM-VACCINE DEBATE: WHY IT WON’T GO AWAY*, *HUFFINGTON POST* (2011), http://www.huffingtonpost.com/david-kirby/autism-vaccine-_b_817879.html; Leo Rebello, *Vaccines: Untested, Unsafe and Unnecessary*, *HPATHY.COM* (Nov. 17, 2008), <http://hpathy.com/homeopathy-papers/vaccines-untested-unsafe-and-unnecessary> (asserting that “doctors watched perfectly normal children turn into grotesque zombies after receiving the [MMR]

medical news sources.¹⁸⁸ Although the mainstream press has generally rejected the claims of antivaccinationists,¹⁸⁹ the contemporary antivaccination movement has enjoyed considerable public support from

vaccines . . .”).

188. See, e.g., Sarah Pope, *Two Autistic Children Awarded Millions by Vaccine Court*, THE HEALTHY HOME ECONOMIST (Jan. 16, 2013), <http://experimentalvaccines.blogspot.com/2013/04/two-autistic-children-awarded-millions.html>; Sarah Pope, *Baby Dies after Routine Vaccination for Hep B, Polio, and DPT*, THE HEALTHY HOME ECONOMIST (March 19, 2013), <https://www.sagaciousnewsnetwork.com/baby-dies-after-routine-vaccination-for-hep-b-polio-and-dpt/>; Jonathan Benson, *Breaking: Courts Discreetly Confirm MMR Vaccine Causes Autism*, NATURAL NEWS (Sept. 3, 2013), http://www.naturalnews.com/041897_MMR_vaccines_autism_court_ruling.html; Arjun Walla, *Scientific Evidence Suggests The Vaccine-Autism Link Can No Longer Be Ignored*, COLLECTIVE EVOLUTION (Sept. 12, 2013), <http://www.collective-evolution.com/2013/09/12/22-medical-studies-that-show-vaccines-can-cause-autism>.

189. See, e.g., Yamiche Alcindor, *Anti-Vaccine Movement is Giving Diseases a 2nd Life*, USA TODAY, Apr. 8, 2014; Richard Conniff, *A Forgotten Pioneer of Vaccines*, N.Y. TIMES, May 6, 2013, at D1; Seth Berkley, Opinion, *Stick With the Science*, INT’L HERALD TRIBUNE (Jan. 17, 2013), <https://www.nytimes.com/2013/01/18/opinion/global/a-blanket-mercury-bank-would-block-needed-vaccinations.html>; Liz Szabo, *Full Vaccine Schedule Safe for Kids, No Link to Autism*, USA TODAY, Mar. 29, 2013), <https://www.usatoday.com/story/news/nation/2013/03/29/vaccine-schedule-autism/2026617/>; Sabrina Tavernise, *Vaccine Rule Is Said to Hurt Health Efforts*, N.Y. TIMES, Dec. 17, 2012, at A4; Sandra G. Boodman, *Inside the Vaccine-Autism Scare*, WASH. POST, Jan. 16, 2011, at B01; Editorial, *The Autism Vaccine Hoax; A Tragic Scare Campaign is Exposed as “Fraud,”* WALL ST. J., Jan. 8, 2011, at A12; Editorial, *Vaccines Exonerated on Autism*, N.Y. TIMES, Feb. 13, 2009, at A30.

entertainment celebrities,¹⁹⁰ talk show hosts,¹⁹¹ and politicians.¹⁹²

190. Prominent celebrity antivaccinationists include Jim Carrey, Rob Schneider, and Dr. Mayim Bialik. See, e.g., *Rob Schneider Speaks Out on Vaccination Rights in Canadian Mag*, AGE OF AUTISM (May 7, 2013), <http://www.ageofautism.com/2013/05/rob-schneider-speaks-out-on-vaccination-rights-in-canadian-mag.html>; Jim Carrey, *The Judgment on Vaccines Is In???*, HUFFINGTON POST (Nov. 17, 2011), http://www.huffingtonpost.com/jim-carrey/the-judgment-on-vaccines_b_189777.html; Kristin Cavallari, *Mayim Bialik Talks Attachment Parenting with CBB*, PEOPLE.COM (June 4, 2009), <http://celebritybabies.people.com/2009/06/04/mayim-bialik-talks-attachment-parenting-with-cbb>. In 2016, Robert De Niro stirred controversy by agreeing to screen, and subsequently withdrawing, the pro-Wakefield documentary film *Vaxxed* at the 2016 TriBeCa Film Festival. See Melena Ryzik, *Anti-Vaccine Film, Pulled From Tribeca Film Festival, Draws Crowd at Showing*, N.Y. TIMES, Apr. 2, 2016, at A14. Perhaps most outspoken among celebrity antivaccinationists has been Jenny McCarthy, whose son was diagnosed with autism in 2005. See Jenny McCarthy, *The Day I Heard My Son Had Autism*, CNN.COM (Sept. 24, 2007), <http://www.cnn.com/2007/US/09/24/jenny.autism>. McCarthy became a prominent spokesperson for the antivaccination movement, authoring several books promoting her belief that her son's autism was caused by the MMR vaccine and that his condition was "cured" by natural remedies. See ANDREW J. WAKEFIELD & JENNY MCCARTHY, CALLOUS DISREGARD: AUTISM AND VACCINES—THE TRUTH BEHIND A TRAGEDY (2011); JENNY MCCARTHY & JERRY KARTZINEL, HEALING AND PREVENTING AUTISM: A COMPLETE GUIDE (2010); JENNY MCCARTHY, MOTHER WARRIORS: A NATION OF PARENTS HEALING AUTISM AGAINST ALL ODDS (2008) [hereinafter "MOTHER WARRIORS"]; JENNY MCCARTHY, LOUDER THAN WORDS: A MOTHER'S JOURNEY IN HEALING AUTISM (2007).

191. See, e.g., Bill Maher, *Vaccination: A Conversation Worth Having*, HUFFINGTON POST (Nov. 17, 2011), http://www.huffingtonpost.com/bill-maher/vaccination-a-conversatio_b_358578.html. Similarly, activist Robert Kennedy, Jr., asserted in a 2005 article that the government had conspired with the pharmaceutical industry to conceal the risks of thimerosal, a mercury-containing preservative that had been used in vaccines since the 1930s. See Robert Kennedy, Jr., *Deadly Immunity*, ROLLING STONE, July 14, 2005; see also ROBERT F. KENNEDY, JR., THIMEROSAL: LET THE SCIENCE SPEAK (revised ed. 2015); but see Seth Mnookin, *How Robert F. Kennedy, Jr., Distorted Vaccine Science*, SCI. AM. (Jan. 11, 2017), <https://www.scientificamerican.com/article/how-robert-f-kennedy-jr-distorted-vaccine-science1>.

192. In a September 2015 debate between candidates for the Republican presidential nomination, Donald Trump suggested that vaccination causes autism. Amanda Marcotte, *Donald Trump Uses GOP Debate to Push Anti-Vaccination Myths*, SLATE (Sept. 16, 2015), http://www.slate.com/blogs/xx_factor/2015/09/16/donald_trump_suggested_vaccines_cause_autism_during_the_cnn_gop_debate_he.html; see also CNN Political Unit, *Trump Weighs in on Vaccine-Autism Controversy*, POLITICAL TICKER (Mar. 28, 2014), <http://politicalticker.blogs.cnn.com/2014/03/28/trump-weighs-in-on-vaccine-autism-controversy> (quoting Donald Trump's statement on Twitter that "[i]f I were President I would push for proper vaccinations but would not allow one time massive shots that a small child cannot take – AUTISM"). In 2017, Robert Kennedy, Jr., claimed that President-elect Trump intended to appoint him to chair a presidential commission on the relationship between vaccination and autism. Abby Philip, Lena H. Sun & Lenny Bernstein, *Vaccine Skeptic Robert Kennedy Jr. Says Trump Asked Him to Lead Commission on 'Vaccine Safety'*, WASH. POST (Jan. 10, 2017), https://www.washingtonpost.com/politics/trump-to-meet-with-proponent-of-debunked-tie-between-vaccines-and-autism/2017/01/10/4a5d03c0-d752-11e6-9f9f-5cdb4b7f8dd7_story.html. Trump's spokesperson denied that any decision had been made, and no such commission has yet been created. Amber Jamieson, *Trump Team Denies New Vaccination Commission after Kennedy Claims Post*, THE GUARDIAN (Jan. 11, 2017), <https://www.theguardian.com/us-news/2017/jan/10/vaccination-safety-robert-kennedy-jr-chair-commission-trump>; see David Smith, *Trump Appears to Abandon Vaccine Sceptic Group Denounced by Scientists*, THE GUARDIAN (Feb. 21, 2018), <https://www.theguardian.com/us-news/2018/feb/21/trump-vaccination-safety-commission-robert-kennedy-autism>. President Trump has subsequently encouraged parents to comply with vaccination requirements. See Nathaniel Weixel, *Health Officials Warn Measles Could Regain Foothold If Record Outbreaks Are Not Contained*, THE HILL (Apr. 29, 2019 11:20 AM) (quoting President Trump as stating that children "have to get their [MMR] shots"), <https://thehill.com/policy/healthcare/441140-health-officials-warn-measles-could-regain-foothold-if-record-outbreaks-are>. Democratic presidential candidate

For all their popular appeal, claims of a causal connection between vaccination and autism have been soundly rejected by the federal courts. Under the National Vaccine Injury Compensation Program as established by the National Childhood Vaccine Injury Act of 1986,¹⁹³ claims of vaccine injury are heard by special masters in the U.S. Court of Federal Claims, popularly known as the “Vaccine Court.”¹⁹⁴ Successful claims of vaccine injury are paid from a fund established by excise taxes on every vaccine purchase, rather than directly from vaccine manufacturers.¹⁹⁵ In the years after the Wakefield Study was published, over 5,000 petitioners filed claims of vaccine-caused autism with the Vaccine Court. In 2002, the Vaccine Court consolidated those claims into a single proceeding known as the Omnibus Autism Proceeding (“OAP”).¹⁹⁶

Throughout the OAP litigation, the petitioners asserted two theories of general causation: first, that the combination of the MMR vaccine and other vaccines containing thimerosal, a mercury-based preservative that at the time was used in some vaccines (but not MMR),¹⁹⁷ compromised the immune systems of some children such that the measles virus present in MMR was able to survive in their bodies, causing autism (the “Phase 1” theory); second, that thimerosal-containing vaccines alone caused

Marianne Williamson has described mandatory vaccination as “draconian” and “Orwellian,” but subsequently apologized for having “misspoke[n].” Matt Stieb, *Where Does Marianne Williamson Actually Stand on Vaccines?*, NEW YORK (Aug. 4, 2019), <http://nymag.com/intelligencer/2019/08/where-does-marianne-williamson-actually-stand-on-vaccines.html>. Dan Burton (R-IN) was a vocal advocate of the link between vaccination and autism during his tenure in Congress. See, e.g., Gardiner Harris & Anahad O’Connor, *On Autism’s Cause, It’s Parents vs. Research*, N.Y. TIMES, June 25, 2005, at A2, <http://www.nytimes.com/2005/06/25/science/25autism.html>; Philip J. Hilts, *House Panel Asks for Study of a Vaccine*, N.Y. TIMES, Apr. 7, 2000, at A4, <http://www.nytimes.com/2000/04/07/us/house-panel-asks-for-study-of-a-vaccine.html>. Representative Michele Bachmann (R-MN) similarly suggested that the human papillomavirus (HPV) vaccine may cause intellectual disability. See e.g., Rachel Weiner, *Bachmann Claims HPV Vaccine Might Cause “Mental Retardation,”* WASH. POST, (Sept. 13, 2011), http://www.washingtonpost.com/blogs/the-fix/post/michele-bachmann-continues-perry-attack-claims-hpv-vaccine-might-cause-mental-retardation/2011/09/13/gIQAAbJBcPK_blog.html; Denise Grady, *Remark on HPV Vaccine Could Ripple for Years*, N.Y. TIMES (Sept. 19, 2011), <http://www.nytimes.com/2011/09/20/health/20hpv.html>. Carolyn Maloney (D-NY) introduced legislation to direct the CDC to study the vaccine-autism link, before ultimately concluding in 2018 that vaccines do not cause autism. See Carl Campanile, *Maloney Backs Away from Questioning If Vaccines Cause Autism*, N.Y. POST (Mar. 18, 2018), <https://nypost.com/2018/03/11/maloney-no-longer-believes-vaccines-cause-autism>; Curtis Brainerd, *Sticking with the Truth*, COLUM. JOURNALISM REV. (2013), https://archives.cjr.org/feature/sticking_with_the_truth.php (describing Maloney’s proposed legislation).

193. Pub. L. 99-660, 100 Stat. 3755 (codified as amended at 42 U.S.C. §§ 300aa-1–300aa-34).

194. See generally KIRKLAND, *supra* note 86.

195. *Id.* at 65–96.

196. *Id.* at 172–98.

197. Thimerosal was eliminated from all vaccines used in the United States as of 2001. Its elimination did not affect the rate of autism diagnosis. See Robert Schechter & Judith K. Grether, *Continuing Increases in Autism Reported to California’s Developmental Services System: Mercury in Retrograde*, 65 ARCH. GEN. PSYCH. 19 (2008), <https://jamanetwork.com/journals/jamapsychiatry/fullarticle/482546>.

autism by causing neuroinflammation (the “Phase 2” theory).¹⁹⁸ Petitioners’ counsel identified three test cases for each theory, and trials in those cases were held on the issue of general causation, with the agreement that the results of those trials would have issue preclusive effect on the other pending claims.¹⁹⁹ After multi-day hearings in the test cases, both of petitioners’ theories of general causation were soundly rejected. The special master in *Cedillo* wrote that the government’s experts were “far better qualified, far more experienced, and far more persuasive than petitioners’ experts concerning most of the key points,” and that the petitioners “failed to demonstrate that [Michelle Cedillo’s] vaccinations played any role at all in causing [her autism and other medical problems].”²⁰⁰ Having failed to establish general causation in the test cases, the remaining OAP petitioners’ claims were dismissed.²⁰¹

The OAP litigation settled the question of vaccines and autism for legal purposes, but the debate rages on in the public sphere. Antivaccinationist advocacy appears to have influenced public opinion to a significant degree.²⁰² A 2009 survey showed that 25% of parents surveyed believed that “[s]ome vaccines cause autism in healthy children.”²⁰³ Increased concern about the safety and efficacy of vaccination within some segments of the public has led to substantial declines in immunization uptake among children,²⁰⁴ which are believed to have contributed to

198. KIRKLAND, *supra* note 86, at 174–75, 180–85.

199. *Id.* at 173–74; *see Cedillo v. HHS*, No. 98-916v (Fed. Cl. 2009) (Phase 1); *Hazlehurst v. HHS*, No. 03-654V, (Fed. Cl. filed Mar. 26, 2003) (Phase 1); *Snyder v. HHS*, No. 01-162V (Fed. Cl. filed Mar. 22, 2001) (Phase 1); *Mead v. HHS*, No. 03-215V (Fed. Cl. filed Jan. 29, 2003) (Phase 2); *King ex rel. King v. HHS*, No. 03-584V (Fed. Cl. filed Mar. 14, 2003) (Phase 2); *Dwyer v. HHS*, No. 03-1202V (Fed. Cl. filed May. 14, 2003) (Phase 2).

200. *Cedillo v. HHS*, No. 98-916V, 89 Fed. Cl. 158, 164 (Fed. Cl. 2009); *see also King v. HHS*, No. 03-584V, 2010 U.S. Claims LEXIS 88, at *3 (Fed. Cl. Mar. 12, 2010) (reaching the same conclusions as to the Phase 2 theory of causation).

201. KIRKLAND, *supra* note 86, at 193–95.

202. L. Mercer et al., *Parental Perspectives on the Causes of an Autism Spectrum Disorder in Their Children*, 15 J. GENETIC COUNSELING 41 (2006).

203. Gary L. Freed et al., *Parental Vaccine Safety Concerns in 2009*, 1962 PEDIATRICS 656 (2010). More recent data regarding public opinion on the autism question specifically do not appear to exist. However, recent data on general public opinion concerning the safety and efficacy of vaccines are consistent with Freed et al.’s results. A 2017 Pew Research Center study for that 66% of Americans rated the risk of vaccine side effects as “low,” and 82% agreed that “healthy children should be required to be vaccinated.” PEW RESEARCH CENTER, VAST MAJORITY OF AMERICANS SAY BENEFITS OF VACCINES OUTWEIGH RISKS 4 (2017). These general statistics obscure a more complicated story with respect to parents of young children, however. Only 52% of parents of children aged 0-4 rated the risk of vaccine side effects as “low,” and 22% of such parents said that “parents should be able to decide not to vaccinate their children, even if that may create health risks for others.” *Id.* at 5.

204. *See* Jason M. Glanz et al., *A Population-Based Cohort Study of Undervaccination in 8 Managed Care Organizations Across the United States*, 167 JAMA PEDIATRICS 274, 278–80 (2013) (49% of a sample drawn from 2004-2008 birth cohorts was undervaccinated, at least 13% of whom were undervaccinated due to parental choice; trend of undervaccination is increasing); Saad B. Omer et al., *Vaccination Policies and Rates of Exemption from Immunization, 2005–2011*, 367 NEW ENGL. J. MED.

recent resurgences in vaccine-preventable diseases.²⁰⁵ In 2019, the World Health Organization named “vaccine hesitancy” as one of the top ten global health threats, writing that “[v]accination is one of the most cost-effective ways of avoiding disease – it currently prevents 2-3 million deaths a year, and a further 1.5 million could be avoided if global coverage of vaccinations improved.”²⁰⁶

C. Judicial Responses to Legal Challenges to Mandatory Vaccination Policies

Mandatory vaccination policies proved controversial from an early stage, and lawsuits challenging vaccination requirements on constitutional and common-law grounds have been a feature of public health law since the nineteenth century.²⁰⁷ The most significant feature of the body of law addressing these claims is that courts—state and federal, regardless of time or place—have uniformly upheld the government’s right to impose vaccination requirements in the name of public health, and have generally rejected claims of constitutional or other rights against compliance with such policies, whether grounded in normative or epistemic pluralism.

A survey of judicial responses to legal challenges to mandatory vaccination policies over the twentieth century reveals two themes that recur frequently in courts’ adjudication of individual rights-based objections to mandatory vaccination policies. The first of these is an emphasis, somewhat at odds with the dominant strain of libertarian individualism in American politics,²⁰⁸ on the authority of the state to impose obligations on individuals to achieve some communal benefit. Second, courts almost uniformly defer to legislative or municipal expertise and consistently refuse to entertain challenges to the empirical

1170, 1171 (2012) (concluding that “nonmedical exemptions have continued to increase, and the rate of increase has accelerated”); Saad B. Omer et al., *Nonmedical Exemptions to School Immunization Requirements: Secular Trends and Association of State Policies with Pertussis Incidence*, 296 J. AM. MED. ASS’N 1757 (2006).

205. Varun K. Phadke et al., *Association Between Vaccine Refusal and Vaccine-Preventable Diseases in the United States: A Review of Measles and Pertussis*, 315 J. AM. MED. ASS’N 1149 (2016) (ascribing outbreaks of measles and pertussis to antivaccinationism); van Panhuis et al., *supra* note 111, at 2157 (linking outbreaks of vaccine-preventable disease to low vaccination rates).

206. World Health Organization, *Ten Threats to Global Health in 2019*, <https://www.who.int/emergencies/ten-threats-to-global-health-in-2019> (last visited Sept. 2, 2019).

207. The first recorded case challenging a municipal vaccination policy was *Hazen v. Strong*, 2 Vt. 427 (1830), in which the Vermont Supreme Court upheld a municipality’s authority to impose an assessment to support smallpox vaccination even in the absence of reported cases of smallpox. The earliest case addressing a challenge to a mandatory vaccination policy appears to be *Abeel v. Clark*, 84 Cal. 226 (1890), which held a state statute excluding unvaccinated children from public schools to be a constitutional exercise of the state police power.

208. *See generally* LOUIS HARTZ, *THE LIBERAL TRADITION IN AMERICA* (1955).

bases of a mandatory vaccination policy. Empirical disagreements are consistently resolved in favor of the state and its designated public health experts; individuals' rejection of those experts' consensus that vaccines are safe and effective at preventing disease is typically regarded by courts as irrational and illegitimate, or at least undeserving of judicial validation.

This section will explore both of these themes in the body of judicial decisions addressing challenges to mandatory vaccination policies in the twentieth century, beginning with the Supreme Court's landmark decision in *Jacobson v. Massachusetts*.²⁰⁹ While it was neither the first nor the last case to address a constitutional challenge to mandatory vaccination, *Jacobson* set the tone for the next century of litigation on this issue by articulating a broad view of the state's power to preserve public health through mandatory immunization.

The *Jacobson* case began with a smallpox outbreak in Cambridge, Massachusetts, in 1902. On February 27 of that year, the city's board of health adopted a resolution requiring all residents "who have not been successfully vaccinated since March 1st, 1897, to be vaccinated or revaccinated."²¹⁰ The statute delegating authority to the board of health to adopt a vaccination requirement also prescribed a fine of five dollars for refusal to comply.²¹¹ One such refusal was by the Reverend Henning Jacobson, a Swedish immigrant and pastor of a Lutheran church in Cambridge.²¹² Jacobson, who claimed to have suffered a severe illness from a previous vaccination and to have witnessed a similar reaction in his son,²¹³ refused to comply with the vaccination ordinance and was charged with violating the applicable statute. At trial, Jacobson made 14 offers of proof, seeking to introduce facts pertaining to the purported lack of safety or effectiveness of the smallpox vaccine generally as well as his and his son's prior adverse reactions to vaccination.²¹⁴ The trial court rejected each of Jacobson's offers of proof, and Jacobson was convicted and sentenced to pay the \$5 fine.²¹⁵ On appeal, the Massachusetts Supreme Judicial Court affirmed Jacobson's conviction and rejected his constitutional challenges the statute empowering the board of health to impose the requirement.²¹⁶

Jacobson appealed to the Supreme Court, asserting a number of constitutional objections. Most significantly, he claimed that the

209. *Jacobson v. Massachusetts*, 197 U.S. 11 (1905).

210. *Id.* at 13.

211. *Id.* at 12.

212. JAMES KEITH COLGROVE, *STATE OF IMMUNITY: THE POLITICS OF VACCINATION IN TWENTIETH-CENTURY AMERICA* 38–39 (2006).

213. *Id.* at 40; see also Willrich, *supra* note 116, at 88.

214. COLGROVE, *supra* note 212, at 40.

215. *Id.*

216. *Massachusetts v. Jacobson*, 183 Mass. 242 (1903); see COLGROVE, *supra* note 212, at 38–39.

mandatory vaccination requirement constituted “an assault upon his person” in violation of the “right of every freeman to care for his own body and health in such way as to him seems best,” as guaranteed by the Fourteenth Amendment’s Privileges and Immunities, Due Process, and Equal Protection Clauses.²¹⁷ In a 7-2 decision, the Court rejected Jacobson’s constitutional claims and affirmed that the state’s police power included the authority to impose vaccination requirements in the name of public health.

Particularly in light of the historical moment in which it was decided,²¹⁸ *Jacobson*’s vision of the state’s authority to regulate private behavior for the sake of a public benefit is striking. The decision does not so much deny the existence of a right of “every freeman” to bodily autonomy as simply state that any such right, if it exists, is subordinate to the right of the community to protect itself against threats to public health. In a jurisprudential era best remembered as hostile to governmental regulation of private conduct,²¹⁹ the Court’s language in *Jacobson* is remarkable for its conception of the broad power of the state to impose immunization obligations for the purpose of preserving public health and safety, without regard to the rights-based objections of individual dissenters.²²⁰ The Court presented this sublimation of individual liberty claims to common interest as a practical necessity of governance and a bulwark against anarchy:

There are manifold restraints to which every person is necessarily subject for the common good. On any other basis organized society could not exist with safety to its members. Society based on the rule that each one is a law unto himself would soon be confronted with disaster and anarchy. Real liberty for all could not exist under the operation of a principle which recognizes the right of each individual person to use his own, whether in respect of his person or his property, regardless of the injury that may be

217. *Jacobson*, 197 U.S. at 26.

218. The Court’s decision in *Jacobson* was issued about two months before its decision in *Lochner v. New York*, 198 U.S. 45 (1905), which invalidated a New York state law limiting the number of hours that bakers were permitted to work. The distribution of votes in *Jacobson* and *Lochner* illustrates the tension between the two decisions’ visions of the scope of the state police power to enact regulations in furtherance of public health and welfare. Justice Peckham, one of the two dissenters in *Jacobson*, was the author of the Court’s decision in *Lochner*, in which Justice Brewer, the other *Jacobson* dissenter, joined. Justices Harlan and Holmes, both members of the majority in *Jacobson*, dissented separately in *Lochner*, each citing *Jacobson* in support of his argument that *Lochner* was wrongly decided. 198 U.S. at 75 (Holmes, J., dissenting), 78 (Harlan, J., dissenting).

219. See, e.g., *Carter v. Carter Coal Co.*, 298 U.S. 238 (1936); *Hammer v. Dagenhart*, 247 U.S. 251 (1918); see generally Larry D. Kramer, *Putting the Politics Back into the Political Safeguards of Federalism*, 100 COLUM. L. REV. 215 (2000); Edward S. Corwin, *The Passing of Dual Federalism*, 36 VA. L. REV. 1 (1950).

220. The Court noted, for example, that “it was the duty of the constituted authorities primarily to keep in view the welfare, comfort, and safety of the many, and not permit the interests of the many to be subordinated to the wishes or convenience of the few.” *Jacobson*, 197 U.S. at 29.

done to others.²²¹

The Court's response to the petitioner's challenge to the prevailing medical consensus is a model of deference to expert consensus over individual dissent. The Court rejected the petitioner's offers of proof that some medical professionals doubted the safety or efficacy of the smallpox vaccine, observing that "an opposite theory accords with the common belief, and is maintained by high medical authority."²²² Choosing between competing theories of epidemiology, the Court concluded, was a matter for legislative rather than judicial expertise.²²³

Jacobson's prioritization of communal welfare over individual rights claims has remained a consistent theme of judicial analyses of mandatory vaccination requirements even as rights-based notions of bodily autonomy and informed consent²²⁴ gained broader influence during the 20th century.²²⁵ This theme of judicial deference to legislative expertise on disputed empirical questions concerning the safety or efficacy of vaccinations is nearly universal throughout the body of case law concerning legal challenges to mandatory vaccination policies.²²⁶ Although the petitioner in *Jacobson* did not present a Free Exercise claim or rely significantly on religious or philosophical objections in support of

221. *Id.* at 26.

222. *Id.* at 30.

223. *Id.* ("It is no part of the function of a court or a jury to determine which one of two modes was likely to be the most effective for the protection of the public against disease. That was for the legislative department to determine in the light of all the information it had or could obtain.").

224. See, e.g., Michael H. Shapiro, *Updating Constitutional Doctrine: An Extended Response to the Critique of Compulsory Vaccination*, 12 YALE J. HEALTH POL'Y L. & ETHICS 87 (2012); Kristine M. Severyn, *Jacobson v. Massachusetts: Impact on Informed Consent and Vaccine Policy*, 5 J. PHARM. L. 249, 255–56 (1995).

225. We should not gloss over the fact that the coercive medical invasion of the body authorized by *Jacobson* raises vexing problems of bioethics and individual bodily autonomy. Justice Holmes's flippant statement that "[t]hree generations of imbeciles are enough," in the context of affirming the constitutionality of coercive sterilization of the "unfit," is rightly held among the more infamous utterances of twentieth-century jurisprudence. *Buck v. Bell*, 274 U.S. 200, 207 (1927); see ADAM COHEN, *IMBECILES: THE SUPREME COURT, AMERICAN EUGENICS, AND THE STERILIZATION OF CARRIE BUCK* (2016) (noting that neither Carrie Buck nor her mother or daughter met the then-prevailing medical definition of "imbecile"). Less widely quoted is the sentence immediately preceding that pronouncement: "The principle that sustains compulsory vaccination is broad enough to cover cutting the Fallopian tubes." *Buck*, 274 U.S. at 207 (citing *Jacobson*, 197 U.S. at 25).

226. See, e.g., *Rempfer v. Von Eschenbach*, 535 F. Supp. 2d 99 (D.D.C. 2008) (deferring to FDA's determination that the vaccine in question was effective for immunization against anthrax); *Mosier v. Barren County Bd. of Health*, 308 Ky. 829 (1948) (deferring to "health authorities[]" expertise over the "whims of laymen"); *In re Whitmore*, 47 N.Y.S.2d 143, 145 (1944) ("In a democracy laws are not made to meet the predilections of individuals, nor to feed mistaken views which an individual might hold, when that view is detrimental to the people as a whole."); *Vonnegut v. Baun*, 206 Ind. 172 (1934) (conclusion of board of health that epidemic existed is binding absent fraud or bad faith); *Cram v. School Board of Manchester*, 82 N.H. 495, 497 (1927) (noting that it is "not for the court to inquire into the wisdom or unwisdom of" a mandatory vaccination requirement); *Viemeister v. White*, 179 N.Y. 235 (1904) (upholding statute requiring vaccination for public school attendance).

his claim for a constitutional exemption, such claims have fared no better before other courts than did the empirical objections in *Jacobson*.²²⁷ In short, courts have generally recognized neither normative nor empirical objections to vaccination as establishing individual rights, constitutional or otherwise, against mandatory immunizations, and have deferred to legislative and, later, agency expertise in crafting public health policies including mandatory vaccinations.²²⁸

The expansion of constitutional theories in the post-*Jacobson* era has made no difference in the prospects of antivaccinationist plaintiffs—courts routinely uphold mandatory vaccination requirements as constitutional exercises of the state police power, often explicitly invoking a principle of epistemic deference to legislative factfinding.²²⁹ The Second Circuit’s decision in *Phillips v. City of New York* is illustrative of the modern era of vaccine litigation.²³⁰ In a consolidated action, the plaintiffs challenged the state’s statutory and regulatory vaccination requirements on several constitutional grounds—most notably the Free Exercise Clause, the substantive component of the Fourteenth Amendment’s Due Process Clause, and the Equal Protection Clause. The Second Circuit affirmed the lower court’s judgments in favor of the defendants, holding the vaccination requirements constitutional under all theories. The court invoked *Jacobson* to deny the plaintiffs’ substantive due process claim, including, crucially, *Jacobson*’s principle of judicial epistemic deference. Though the plaintiffs argued that “a

227. See, e.g., *Workman v. Mingo County Bd. of Educ.*, 419 F. App’x 348 (4th Cir. 2011) (rejecting Free Exercise challenge to immunization requirement for public school attendance); *U.S. v. Chadwell*, 36 C.M.R. 741 (1965) (upholding mandatory troop vaccination against religious objections); see also *Prince v. United States*, 321 U.S. 158, 166–67 (1957) (“The right to practice religion freely does not include liberty to expose the community or the child to communicable disease or the latter to ill health or death.”).

228. See, e.g., *Caviezel v. Great Neck Pub. Sch.*, 500 F. App’x 16 (2d Cir. 2012) (summary order) (denying substantive due process challenge to mandatory vaccination requirement). Litigants challenging mandatory immunization requirements have succeeded only in the narrow class of cases in which courts have held that the agency that enacted the challenged provision lacked statutory authority to do so. See *Burroughs v. Mortenson*, 312 Ill. 163 (1924) (board of education lacked authority to adopt mandatory vaccination requirement); *Rhea v. Bd. of Educ. of Devils Lake Sp. Sch. Dist.*, 41 N.D. 449 (1919) (same); cf. *Pierce v. Board of Educ. of City of Fulton*, 30 Misc.2d 1039 (N.Y. Sup. 1961) (school board had authority to adopt requirement); *State ex rel. Dunham v. Board of Educ. of City School Dist. of Cincinnati*, 154 Ohio St. 469 (1951) (same).

229. In addition to the cases cited *supra* notes 226–228, litigation against California’s S.B. 277 has been a significant locus of antivaccinationist effort in recent years. The law has been uniformly upheld against state and federal constitutional attack by every court to consider the issue. See *Love v. Dep’t of Educ.*, No. C086030, 2018 WL 6382089, at *2 (Cal. Ct. App. Dec. 6, 2018) (slip op.) (upholding S.B. 277 under state constitution); *Brown v. Smith*, 24 Cal. App. 5th 1135 (2d Dist. 2018) (same); *Middleton v. Pan*, No. CV 16–5224–SVW (AGR), 2017 WL 7053936 (Dec. 18, 2017) (Rosenberg, Mag.), *adopted*, 2018 WL 582324 (Jan. 25, 2018) (dismissing claims against several state official defendants arising from enactment and enforcement of S.B. 277); *Whitlow v. California*, 203 F. Supp. 3d 1079 (S.D. Cal. 2016) (denying motion for a preliminary injunction against enforcement of S.B. 277).

230. 775 F.3d 538 (2d Cir. 2015).

growing body of scientific evidence demonstrates that vaccines cause more harm to society than good,” the court held that “that is a determination for the legislature, not the individual objectors.”²³¹ Turning to the Free Exercise issue, the Second Circuit acknowledged that *Jacobson* did not directly address the question, but applied the logic of *Jacobson* and the Court’s dicta in *Prince* to hold that “mandatory vaccination as a condition for admission to school does not violate the Free Exercise Clause.”²³² The court then briefly addressed the plaintiffs’ Equal Protection arguments, finding no basis for a claim that the state vaccination regime discriminated against Catholics or that any plaintiff was treated differently than similarly situated parents.²³³

D. Legislative Accommodation of Normative Pluralism

While courts have resoundingly rejected their claims for exemptions grounded in legal right, antivaccinationists have enjoyed a greater measure of success before state legislatures. Such success, however, has been completely restricted to objections grounded in normative rather than epistemic pluralism.²³⁴ Antivaccination advocates have had significant success in obtaining exemptions grounded in religious or philosophical objections to immunization.²³⁵ Forty-five states allow religious exceptions to mandatory vaccination policies,²³⁶ and 15 states allow exceptions for non-religious “philosophical” objections.²³⁷ No state, however, provides exemptions from mandatory vaccination policies on the grounds of empirical disagreement with the medical or scientific

231. *Id.* at 542 (citing *Jacobson*, 197 U.S. at 37–38).

232. *Id.* at 543 (citing *Prince v. New York*, 321 U.S. 158, 166–67); see *supra* note 230.

233. *Phillips*, 775 F.3d at 543–44.

234. Every state provides exemptions for medical contraindication, which reflect accommodation of neither normative nor epistemic pluralism.

235. See Linda E. LeFever, *Religious Exemptions from School Immunization: A Sincere Belief or a Legal Loophole?*, 110 PENN ST. L. REV. 1047 (2006).

236. The exceptions are West Virginia, Mississippi, California, New York, and Maine. West Virginia has never had a religious or philosophical exemption. In Mississippi, the state supreme court struck down a religious exemption on the ground that it violated the equal protection clause of the state constitution in *Brown v. Stone*, 378 So. 2d 218 (Miss. 1979). California repealed its religious exemption following the Disneyland outbreak. See *supra* notes 97–103. New York and Maine repealed their exemptions in 2019. An Act To Protect Maine Children and Students from Preventable Diseases by Repealing Certain Exemptions from the Laws Governing Immunization Requirements, ch. 154, 2019 Me. Laws; An Act to Repeal Subdivision 9 of Section 2164 of the Public Health Law, Relating to Exemption from Vaccination Due to Religious Beliefs, 2019 Sess. Law News of N.Y. Ch. 35 (A. 2371-A) (McKinney’s).

237. GOSTIN, *supra* note 109, at 380, 654 n.54; see also NATIONAL CONFERENCE OF STATE LEGISLATURES, STATES WITH RELIGIOUS AND PHILOSOPHICAL EXEMPTIONS FROM SCHOOL IMMUNIZATION REQUIREMENTS (Dec. 20, 2017), <http://www.ncsl.org/research/health/school-immunization-exemption-state-laws.aspx>.

consensus concerning the safety or efficacy of vaccines.

Courts have generally upheld statutory religious and philosophical exemptions as constitutional, subject to some caveats. Most notably, several courts have overturned requirements that religious objectors be members of an organized religious group, or that opposition to immunization be a part of the objector's church's official doctrine.²³⁸ In *McCarthy v. Boozman*,²³⁹ for example, the district court invalidated Arkansas's religious exemption, which allowed exemption only to individuals whose objections were grounded in "the religious tenets and practices of a recognized church or religious denomination of which the parent . . . is an adherent or member."²⁴⁰ The court held that the statutory religious exemption violated the Establishment and Free Exercise Clauses of the First Amendment as well as the Equal Protection Clause of the Fourteenth Amendment insofar as it "benefit[ed] only those who are members or adherents of a church or religious denomination recognized by the State."²⁴¹ Similarly, courts have ruled that states may, but need not, require that a religious belief be sincerely held in order to qualify for the exemption; where the statute does not impose a sincerity requirement, some courts have held that state authorities may not inquire into the sincerity of the objector's asserted religious belief.²⁴²

238. See, e.g., *Sherr v. Northport-East Northport Union Free School Dist.*, 672 F. Supp. 81 (E.D.N.Y. 1987) (pantheistic objector entitled to religious exemption); *Dalli v. Board of Educ.*, 358 Mass. 753 (1971); *Davis v. Maryland*, 294 Md. 370 (1982) (requirement of membership in recognized religion violated Establishment Clause); *Kolbeck v. Kramer*, 84 N.J. Super. 569 (1964); *Maier v. Besser*, 73 Misc. 2d 241 (N.Y. Sup. 1972) (membership in a recognized group not required).

239. 212 F. Supp. 2d 945 (W.D. Ark. 2002).

240. *Id.* at 947 (quoting ARK. CODE § 6-18-702(d)(2)).

241. *Id.*

242. Compare *NM v. Hebrew Acad. Long Beach*, 155 F. Supp. 3d 247, 258 (E.D.N.Y. 2016) (religious exemption unavailable where mother's antivaccinationist beliefs "were formed with a primary view toward the children's health, and not their religion"); *Friedman v. Clarkstown Cent. School Dist.*, 75 F. App'x 815 (2d Cir. 2003) (mother failed to demonstrate sincerity of religious objection); *Turner v. Liverpool Cent. School* 186 F. Supp. 2d 187 (N.D.N.Y. 2002) (no exemption where mother's religious belief was not sincere); *Maier v. Besser*, 73 Misc. 2d 241 (N.Y. Sup. 1972) (religious exemption applies for sincerely held belief) with *LePage v. Dep't of Health*, 18 P.3d 1177 (Wy. 2001) (Department of Health exceeded its statutory authority by inquiring into sincerity of mother's religious beliefs). Similarly, in *Fallon v. Mercy Catholic Med. Ctr. of Se. Pennsylvania*, the Third Circuit held that an employer's vaccination mandate for health care workers did not violate Title VII of the Civil Rights Act of 1964's provisions on religious discrimination where the plaintiff's objection was grounded in the belief that "one should not harm their own body and... that the flu vaccine may do more harm than good." 877 F.3d 487, 492 (3d Cir. 2017); see also *Prewitt v. Walgreens Co.*, No. CIV.A. 11-02393, 2012 WL 4364660, at *8 (E.D. Pa. Sept. 25, 2012) (no Title VII violation where "[p]laintiff advised Walgreens' management that he was opposed to administering flu vaccination shots... because he had a very close friend who died from Guillain-Barre Syndrome from a flu vaccine"). At least one court, and the United States Equal Employment Opportunity Commission, however, have found termination for failure to comply with a workplace vaccination mandate to raise a triable issue of religious discrimination under Title VII. See *Equal Employment Opportunity Comm'n v. Mission Hosp., Inc.*, No. 1:16-cv-00118-MOC-DLH, 2017 WL 3392783, at *1 (W.D.N.C. Aug. 7, 2017).

Courts have played a secondary but essential role in maintaining this line between normative and epistemic pluralism in legal exemptions to vaccination policy by enforcing statutory requirements that an objection be grounded in normative opposition to vaccination rather than empirical doubts about the procedure's safety or efficacy.²⁴³ In *Galinsky v. Board of Education of New York*, for example, the Second Circuit affirmed the denial of a religious exemption based on the district court's determination that the parents' "opposition to immunization is not motivated by religious beliefs, but rather, by plaintiffs' personal fears for their daughters' well-being."²⁴⁴ In so doing, courts have reinforced the normative/epistemic divide in the structure of statutory exemptions and further entrenched the law's tacit commitment to accommodation of objections to generally applicable legal requirements grounded in normative principle and concomitant lack of accommodation to objections grounded in epistemic pluralism.

IV. RATIONALIZING THE NORMATIVE/EPISTEMIC DIVIDE IN LAW AND THEORY: TOWARD A PRINCIPLE OF EPISTEMIC PUBLIC REASON

If Rawls is correct that the coercive imposition of comprehensive viewpoints upon reasonable dissenters constitutes a violation of the duty of reciprocity and undermines the democratic legitimacy of state policy, then we may ask whether the same problem arises when the state imposes policies grounded in the empirical views of the majority. Liberal society is characterized by widespread popular disagreement concerning questions of empirical fact, and epistemic pluralism is driven by the same freedom of conscience and free institutions that Rawls identified as a source of persistent normative pluralism.²⁴⁵ Rawls's omission of epistemic pluralism is therefore a curious oversight.

The state of the law concerning mandatory vaccination places this problem in a concrete context: does empirical disagreement regarding the safety and efficacy of vaccinations challenge the legitimacy of state policies requiring immunization? Can a meaningful distinction be drawn between the imposition upon a dissenting citizen of policies grounded in normative commitments that the citizen rejects and the same imposition

243. See, e.g., *Mason v. General Brown Cent. School Dist.*, 851 F.2d 47 (2d Cir. 1988) (parents' belief that immunization was contrary to "genetic blueprint" was not religious belief for purposes of religious exemption); *Farina v. Board of Educ. of City of New York*, 116 F. Supp. 2d 503 (S.D.N.Y. 2000) (religious exemption does not apply to moral, scientific, or philosophical objections); *Berg v. Glen Cove City School Dist.*, 853 F. Supp. 651 (E.D.N.Y. 1994) (noting that medical, scientific, or philosophical objections are insufficient); *In re Christine M.*, 157 Misc. 2d 4 (N.Y. Fam. Ct. 1992) (objections grounded in scientific or medical doubt do not qualify for religious exemption).

244. *Galinsky v. Bd. of Educ. of New York*, 213 F.3d 636, 2000 WL 562423 (2d. Cir. 2000) (Table).

245. See *supra* Part I(B)(2).

grounded in empirical conclusions that the citizen may deny with equal vehemence? Why, in other words, does the state exceed the scope of democratic legitimacy in, for example, forbidding access to abortion because the Christian majority deems it sinful, but not in requiring citizens to expose their children to a medical procedure that they sincerely believe poses unwarranted health risks? This section will develop a principle of epistemic public reason. It will examine both the content of an epistemic overlapping consensus and identify a criterion by which unreasonable epistemic viewpoints—at least those concerning a specific type of empirical question classified as “scientific”—can be identified.

Rationalizing the distinction between moral and epistemic pluralism on which the vaccination exemption scheme rests requires adapting Rawls’s account of public reason to the context of epistemic pluralism. This requires particular attention to Rawls’s distinction between *reasonable* comprehensive views, which collectively comprise the overlapping consensus, and *unreasonable* views, which exist outside the overlapping consensus and thus beyond the scope of the duties of reciprocity and civility.²⁴⁶ Rawls’s concept of reasonableness has been criticized as both circular and arbitrary,²⁴⁷ but it has at least the virtue of establishing a line beyond which the existence of normative pluralism ceases to present a problem of legitimacy. Under Rawls’s theory, the state need not concern itself with the full range of normative pluralism, but only with pluralism among groups whose fundamental moral commitments are compatible with the state’s own.

Two aspects of Rawls’s criterion of reasonableness are of particular salience. First, it is explicitly *constructivist*, in that it defines the “reasonable” comprehensive view not in terms of moral truth, but rather in terms of its compatibility with the values of the overlapping consensus.²⁴⁸ Indeed, Rawls maintains that political constructivism does

246. In defending his view that public policies should be grounded in public reason, Rawls concedes that “[t]hose who reject constitutional democracy... will of course reject the very idea of public reason,” but quickly dismisses this objection, noting that “[p]olitical liberalism does not engage those who think this way.” Rawls, *supra* note 14, at 574.

247. See, e.g., Marilyn Friedman, *John Rawls and the Political Coercion of Unreasonable People*, in *THE IDEA OF POLITICAL LIBERALISM: ESSAYS ON RAWLS* 16 (Victoria Davion & Clark Wolf eds. 1999); Stephen Mulhall & Adam Swift, *Rawls and Communitarianism*, in *THE CAMBRIDGE COMPANION TO RAWLS* 483 (Samuel Richard Freeman ed. 1997) (“By defining ‘the reasonable’ as including a commitment to a politically liberal vision of society, Rawls defines anyone who queries or rejects that vision as ‘unreasonable’, but he offers no independent reason for accepting that morally driven and question-begging definition.”).

248. RAWLS, *supra* note 7, at 90 (“The reason that [a constructivist political conception] may be the focus of an overlapping consensus of comprehensive doctrines is that it develops the principles of justice from public and shared ideas of society as a fair system of cooperation and of citizens as free and equal by using the principles of their common practical reason.”).

not rely on a notion of truth at all.²⁴⁹ We are the tribe of the Liberal Democrats, he argues, and our political values and traditions have value not because they are *true*, but because they are *ours*. Second, at the same time, Rawls's conception of reasonableness is fundamentally *normative*; it is a criterion of demarcation by which to identify *which* comprehensive viewpoints are morally entitled to reciprocity and civility. Even if that criterion of demarcation asserts constructivism rather than truth as justification, it nevertheless carries an implicit *ought*—as any normative criterion must.²⁵⁰

A viable principle of epistemic reasonableness cannot perform an analogous function in the context of epistemic pluralism if excised from its normative component. It must define the reasonable as encompassing a set of epistemological methodologies identified not for their veridical tendencies, but rather by virtue of their compatibility with an overlapping social consensus concerning the construction of cognizable knowledge. It also must account for the fact that the epistemically unreasonable act *wrongly*—and thus forfeit any claim to reciprocity—in forming their empirical beliefs. Thus, a principle of epistemic public reason must draw upon concepts of *virtue epistemology*, including the central undertaking of that field to “extend the range of moral concepts to include the normative dimension of cognitive activity.”²⁵¹

As in the case of normative views, the comprehensive epistemological viewpoints—holistic methodologies for the construction of empirical knowledge—by which individuals form empirical beliefs can be distinguished from an overlapping consensus of reasonable epistemological views—the set of epistemic principles that have been recognized as legitimate by broad consensus in liberal society. For example, comprehensive epistemological methodologies rely on such sources of empirical knowledge, among others, as local or cultural tradition, religious or other received dogma, faith (in a broader, not

249. *Id.* at 93 (“[W]ithin itself the political conception does without the concept of truth.... [I]t is up to each comprehensive doctrine to say how its idea of the reasonable connects with its concept of truth, should it have one.”); Jody S. Kraus, *Political Liberalism and Truth*, 5 LEG. THEORY 45, 53 (1999) (“[W]hile mathematical constructivism [denies] that there is a mind-independent mathematical reality, political constructivism refuses to affirm or deny a mind-independent moral reality.”).

250. In distinguishing the overlapping consensus from “mere” *modus vivendi*, Rawls explains that: the object of consensus, the political conception of justice, is itself a moral conception.... [I]t is affirmed on moral grounds, that is, it includes conceptions of society and of citizens as persons, as well as principles of justice.... The fact that people affirm the same political conception on [the grounds of their individual comprehensive viewpoints] does not make their affirming it any less religious, philosophical, or moral... since the grounds sincerely held determined the nature of their affirmation.

RAWLS, *supra* note 7, at 147.

251. LINDA TRINKAUS ZAGZEBSKI, *VIRTUES OF THE MIND: AN INQUIRY INTO THE NATURE OF VIRTUE AND THE ETHICAL FOUNDATIONS OF KNOWLEDGE* xv (1996).

specifically religious sense of axiomatic belief), personal experience, or anecdote. These are at times legitimate and even necessary methods of belief formation—knowledge transmitted by folk wisdom or superstition may well contain valuable truths, and ultimately all knowledge must be acquired through personal experience of a sort, notwithstanding the substantial limitations on the individual perspective.²⁵² The epistemological background culture involves competition among comprehensive epistemological views for influence, with different comprehensive methodologies offering distinct knowledge-constructive methods.

In order to articulate a principle of epistemic public reason, we must first identify a criterion, or set of criteria, by which the overlapping consensus of *reasonable* epistemic pluralism is defined. Is there an epistemic *sine qua non*, carrying both normative force and constructivist legitimacy, by which epistemic methodologies that are entitled to reciprocity may be distinguished from those that are not? This is a multifaceted question. As in the case of normative pluralism, it is likely that the outer bounds of epistemic reasonableness are to be defined by a combination of epistemic virtues. But with respect to the type of empirical question at issue here—the existence (or not) of regular, observable, measurable associations between discrete classes of events, which I will refer to as “scientific” questions—the reasonableness of an epistemic viewpoint is to be measured by a single overriding criterion: the compatibility of that viewpoint with the methods of scientific empiricism. While acknowledging that a precise solution to the problem of demarcation distinguishing “science” from non-science is a vexing one that is beyond the scope of this Article, we may nevertheless see that the scientific “method”—a catch-all term referring broadly to the construction of knowledge via inductive inference from controlled empirical observation, often involving experimentation, repetition, and a system of institutionalized skepticism, conducted against a background assumption of methodological naturalism²⁵³ has emerged as the dominant process by which scientific knowledge has been constructed.²⁵⁴

252. See generally THOMAS NAGEL, THE VIEW FROM NOWHERE (1986); Hardwig, *supra* note 65.

253. See JUTTA SCHICKORE, ABOUT METHOD: EXPERIMENTERS, SNAKE VENOM, AND THE HISTORY OF WRITING SCIENTIFICALLY 213–27 (2017); ROBERT K. MERTON, THE SOCIOLOGY OF SCIENCE 270–78 (Norman W. Storer ed. 1973) (identifying “universalism, communism, disinterestedness, and organized skepticism” as the “four sets of institutional imperatives... taken to comprise the ethos of modern science”).

254. This is not to say that empiricism or rationalism have ever enjoyed unrivaled hegemony at any moment in liberal intellectual history; that tradition has been challenged and subverted from within by strains of antirationalist Romanticism. See generally DARRIN MCMAHON, ENEMIES OF THE ENLIGHTENMENT (2001); Isaiah Berlin, *The Counter-Enlightenment*, in THE PROPER STUDY OF MANKIND: AN ANTHOLOGY OF ESSAYS (Henry Hardy & Roger Hausheer eds., 1997).

Alternatives exist in the epistemic background culture—one could envision consulting a Ouija board for cancer treatment, or accepting insights into the nature of fundamental physics gained from a dream or while under the influence of psychedelics. But just as in the case of those whose comprehensive normative views are incompatible with the commitments of the overlapping consensus, however, “[p]olitical liberalism does not engage those who think this way.”²⁵⁵ Thus we reach the first principle of epistemic reasonableness with respect to scientific questions:

[1] An epistemic viewpoint is reasonable if and only if it accepts the privileged status of scientific empiricism in the construction of knowledge concerning scientific questions.

An epistemic viewpoint that rejects scientific empiricism is unreasonable in the direct, or first-order, sense.

Identifying compatibility with scientific empiricism as the criterion of reasonableness as to scientific questions does not get us very far. The near-universality of consensus by which scientific empiricism is recognized as the criterion of epistemic reasonableness also means that most disputes about scientific questions at least rhetorically occur *within* the paradigm of scientific empiricism rather than outside it. This is surely true, at least in large part, in the case of antivaccinationism. While we might characterize, for example, the claim that “mother’s intuition” is a better method of constructing knowledge concerning complex questions of causal relations between vaccination and health outcomes than peer-reviewed medical research as epistemically unreasonable in the first-order sense, antivaccinationists often adopt at least the rhetorical form of scientific discourse. Thus, to say that recognition of the privileged status of scientific empiricism in the construction of scientific knowledge comprises the fundamental criterion of epistemic reasonableness with respect to scientific questions is simply to raise the further question of *who* is to decide, in the context of a specific dispute, *what* the prevailing scientific conclusions on the matter are.²⁵⁶

As to this second-order question, we are compelled to rely on the professional judgment of scientists in the field to identify the scope and contours of expert consensus.²⁵⁷ Scientific laypersons, by definition, lack

255. Rawls, *supra* note 14, at 574.

256. Cf. David Winickoff, *Epistemic Jurisdictions: Science and Courts in Regulatory (De)centralization*, in KNOWLEDGE, TECHNOLOGY AND LAW, 175 (Emilie Cloatre & Martyn Pickersgill eds., 2014) (defining “epistemic jurisdiction” as “the power to produce, interpret or warrant technical knowledge for a given political community, topical arena, or geographical territory”).

257. To the extent this deference relies on a notion of truth, it is merely a second-order epistemic authority of a practicing professional in matters concerning the substance of her vocation. The first-order justification for scientific empiricism as the criterion of demarcation between reasonable and unreasonable

access to the full body of information on which the expert consensus is based and, as such, lack an epistemically valid basis on which to dispute the content that consensus with members of the epistemic community of experts.²⁵⁸ These observations suggest a measure of the scope of reasonable epistemic pluralism: where the relevant experts lack a clear consensus on a particular point, the room for reasonable disagreement is comparatively broad, so long as the position is supported by good-faith application of the methods of scientific empiricism.²⁵⁹ On the other hand, where the relevant experts share a general consensus with respect to an empirical question—whether the age of the Earth is closer to 4 billion or 10 thousand years, for example—that consensus constrains the scope of epistemic reasonableness such that the views of epistemic dissenters may legitimately be disregarded as unreasonable.²⁶⁰

This leads us to the second principle of epistemic reasonableness with respect to scientific questions:

[2] An epistemic viewpoint satisfying principle (1) is reasonable if and only if it accepts knowledge constructed by scientific empiricism as articulated by the consensus of scientists with epistemic authority in the relevant scientific domain.

An epistemic viewpoint that satisfies principle (1) but violates principle (2) is epistemically unreasonable indirectly, or in the second-order. We may observe that principles (1) and (2) reflect the distinction between “non-science” and “pseudoscience,” respectively.

Having defined the principles of epistemic reasonableness, we can now articulate a principle of epistemic public reason analogous to Rawls’s

epistemic pluralism in matters concerning scientific questions remains the constructivist rationale discussed above.

258. See generally HARRY COLLINS & ROBERT EVANS, *RETHINKING EXPERTISE* (2007) (calling for a “third wave” of science studies to reconcile the deconstructivist insights of postmodern critiques with the existence of genuine epistemic authority); Scott Brewer, *Scientific Expert Testimony and Intellectual Due Process*, 107 YALE L.J. 1535 (1997) (discussing the problem of “epistemic competence” in judicial engagement with scientific expertise).

259. This approach is complicated by the fact that, unlike normative viewpoints, empirical views formed via the inductive method of scientific empiricism are necessarily probabilistic; thus, the state must respond to the *risk* of a range of empirical outcomes on the basis of necessarily imperfect and incomplete information. How it does so—the degree of risk-aversion that the state’s policymaking apparatus adopts and the probability threshold at which risk is considered actionable—are political questions with inextricably normative components. I leave the “mixed” question of how the state should address pluralism in risk tolerance to future work, since the relative risks involved in vaccination and the level of certainty around the medical consensus is quite high in comparison to many other politically controversial manifestations of epistemic pluralism.

260. Of course, who the relevant experts are and how much agreement establishes a “consensus” are sometimes difficult questions in themselves. See James R. Dillon, *Expertise on Trial*, 19 COLUM. SCI. & TECH. L. REV. 247, 260–61 (2018) (discussing the problems of defining the relevant epistemic community and the threshold for consensus in the context of the legal standard for the admissibility of expert witness testimony under *U.S. v. Frye*, 293 F. 1013 (D.C. Cir. 1923)).

principle of normative public reason. The ideal of epistemic public reason is realized whenever citizens and public officials act from and advocate for public policies grounded in what they believe to be the most reasonable application of scientific empiricism to scientific questions of public significance.²⁶¹ In so doing, the principle of reciprocity is respected because all reasonable members of the political community, including dissenters, can accept the epistemic methods by which policy-relevant scientific facts were determined as reasonable, even if they disagree with the ultimate conclusions. But the duty of reciprocity only extends as far as the epistemic overlapping consensus—that is, to persons who accept the principles of epistemic reasonableness. Beyond that point—with respect to agents whose empirical beliefs on some policy-relevant scientific question were formed by non-scientific or pseudoscientific methods—the state and its officials are under no obligation to provide reasons acceptable to the epistemic outlier.

Applying the principle of epistemic public reason, the legitimacy question as applied to mandatory vaccination policies is rather simple given the overwhelming weight of scientific consensus supporting the (relative) safety and efficacy of vaccination. For over two hundred years, medical experts have shared a broad consensus regarding the safety and efficacy of vaccination as a preventative intervention. That consensus has grown even stronger in the years following publication of the Wakefield Study, as repeated studies have debunked any causal relationship between childhood vaccination and the development of autism. Thus, reasons for mandatory vaccination policies grounded in the established safety and efficacy of vaccination are epistemic public reasons and can be accepted by all epistemically reasonable citizens. This includes epistemically reasonable vaccine skeptics—those who accept the principles of epistemic reasonableness yet nevertheless doubt the specific empirical conclusions on which policies of mandatory vaccination are grounded.²⁶²

Most empirical antivaccinationist arguments are not epistemically reasonable.²⁶³ Such arguments have come in two broad forms: claims concerning the superiority of alternative epistemological methods, such as maternal intuition, to discovering empirical truths about vaccine safety;

261. Cf. Rawls, *supra* note 14, at 576.

262. Kirkland discusses a small group of epistemically reasonable vaccine skeptics—scientists at mainstream institutions who were proponents of a causal link between mercury exposure and the development of autism, but were unwilling to go beyond the scientific evidence. KIRKLAND, *supra* note 86 at 186–87. Such individuals, by definition, can accept the reasons grounded in the scientific consensus even when they disagree with the state's conclusions.

263. Not all antivaccinationist arguments are empirical, though as noted above, professed religious or philosophical objections at least sometimes cover legally unpalatable empirical objections to vaccination. See *supra* Part II(C)(1). Genuine religious or philosophical objections fall within the realm of normative pluralism and as such are beyond the scope of this Article.

and arguments purporting to apply the methods of scientific empiricism while rejecting the *content* of the mainstream scientific consensus. The first form is epistemically unreasonable in the direct or first-order insofar as it rejects the privileged position of scientific empiricism in the construction of scientific knowledge. The second form is epistemically unreasonable indirectly, or in the second-order, insofar as it adheres to the form of scientific empiricism but implicitly rejects that methodology by rejecting the scientific consensus regarding the safety and efficacy of vaccination. It is, in other words, pseudoscientific.²⁶⁴ Thus, empirical objections to vaccination mandates grounded in claims that vaccines are unsafe or ineffective are epistemically unreasonable, and the state may disregard them in establishing public policy.

V. CONCLUSION: EPISTEMIC PUBLIC REASON AS A RATIONALIZING LEGAL PRINCIPLE

The aim of this Article has been twofold: first, to focus attention on the distinct sphere of epistemic pluralism as an omission from Rawls's account of "reasonable" pluralism; and second, to assess whether the inevitable fact of epistemic pluralism in a liberal society characterized by free institutions creates the same challenges for the legitimacy of the democratic state as does normative pluralism, and if so, whether it is amenable to a solution analogous to that of Rawls's principle of public reason. The examination of legal challenges to mandatory vaccination requirements provides a useful perspective on these questions for several reasons. First, the question of the safety or efficacy of vaccines is one on which the epistemic battle lines have been, subject to minor variations with the changing times, relatively stable for two centuries. During that time, the pro-vaccination side has enjoyed the support of the mainstream medical community as well as the imprimatur of the state in the form of recommended or, frequently, mandatory vaccination requirements. The medical establishment and state authorities have enjoyed almost complete deference from the courts, which have uniformly upheld the imposition of vaccination requirements as a legitimate exercise of states' police power and have rejected any claims to constitutional exemption from vaccination requirements on the grounds of religious freedom or otherwise. Yet the epistemic dissensus has persisted in the face of such opposition, at times attracting a substantial minority of public sentiment and occasionally erupting into civil disobedience or even violent opposition to state-mandated immunization policies.

264. See, e.g., KIRKLAND, *supra* note 86 at 193 (noting that the petitioners' evidence in the OAP "came to be seen as scientifically suspect because it did not hold itself out for the kind of scrutiny that characterizes the most prestigious science: testing and retesting, transparency, and replication").

My goal in conclusion is to consider the implications of the principle of epistemic public reason on other legal discussions. Perhaps most obviously, epistemic public reason provides a principled basis to distinguish normative from epistemic pluralism in applications of the First Amendment's religion clauses, either in lawsuits seeking accommodations for religious belief under the Free Exercise Clause or those challenging some state policy under the Establishment Clause. It could, for example, serve to rationalize the holdings in *Epperson v. Arkansas*,²⁶⁵ *Edwards v. Aguillard*,²⁶⁶ *Kitzmiller v. Dover Area School District*,²⁶⁷ and similar cases in which the courts have invalidated statutes prohibiting the teaching of biological evolution via natural selection in public classrooms or requiring or permitting teaching the theory of creationism/"intelligent design"²⁶⁸ alongside evolution. Similar to Stephen Jay Gould's concept of "non-overlapping magisteria,"²⁶⁹ the principle of epistemic public reason would support a constitutional principle of deference to scientific expertise on empirical matters such as the evolution of life and the age of Earth; in such matters, demands of religious objectors to accommodation in the name of pluralism would be unjustified and therefore could legitimately be denied without violating the principle of religious tolerance. At the same time, matters pertaining to normative rather than epistemic pluralism—for example, whether religious institutions must comply with state anti-discrimination laws in hiring support staff²⁷⁰—might be subjected to a "reasonableness" test under the Free Exercise Clause to determine whether such principles are broadly consistent with the fundamental normative commitments of the

265. 393 U.S. 97 (1968).

266. 482 U.S. 578 (1987).

267. 400 F. Supp. 2d 707 (M.D. Pa. 2005).

268. *Kitzmiller* held on the basis of substantial evidence introduced at trial that "Intelligent Design" theory is "nothing less than the progeny of creationism." *Id.* at 721.

269. STEPHEN JAY GOULD, ROCKS OF AGES: SCIENCE AND RELIGION IN THE FULLNESS OF LIFE 65 (1999). Gould's conceptual framework has been criticized for its failure to acknowledge that religious claims often include empirical assertions; creationism is a classic example of a religious claim with a predominantly empirical component. The principle of epistemic public reason avoids that criticism by distinguishing between propositions that are primarily normative and those that are primarily empirical, regardless of whether the proposition can be classified as "religious."

270. See *Hosanna-Tabor Evangelical Lutheran Church & Sch. v. E.E.O.C.*, 132 S. Ct. 694, 705 (2012) (citing *Natal v. Christian and Missionary Alliance*, 878 F.2d 1575, 1578 (1st Cir. 1989); *Rweyemamu v. Cote*, 520 F.3d 198, 204–09 (2d Cir. 2008); *Petruska v. Gannon Univ.*, 462 F.3d 294, 303–07 (3d Cir. 2006); *EEOC v. Roman Catholic Diocese*, 213 F.3d 795, 800–01 (4th Cir. 2000); *Combs v. Central Tex. Annual Conference*, 173 F.3d 343, 345–50 (5th Cir. 1999); *Hollins v. Methodist Healthcare, Inc.*, 474 F.3d 223, 225–27 (6th Cir. 2007); *Schleicher v. Salvation Army*, 518 F.3d 472, 475 (7th Cir. 2008); *Scharon v. St. Luke's Episcopal Presbyterian Hosp.*, 929 F.2d 360, 362–63 (8th Cir. 1991); *Werft v. Desert Southwest Annual Conf.*, 377 F.3d 1099, 1100–04 (9th Cir. 2004); *Bryce v. Episcopal Church*, 289 F.3d 648, 655–57 (10th Cir. 2002); *Gellington v. Christian Methodist Episcopal Church, Inc.*, 203 F.3d 1299, 1301–04 (11th Cir. 2000); *EEOC v. Catholic Univ.*, 83 F.3d 455, 460–63 (D.C. Cir. 1996)).

overlapping consensus of reasonable comprehensive viewpoints; if so, accommodation should generally be granted.

The Supreme Court's decision in *Burwell v. Hobby Lobby Stores, Inc.*²⁷¹ illustrates the doctrinal confusion introduced by the failure to recognize the distinction between normative and epistemic public reason. In that case, the Court held that closely held for-profit corporations may be entitled to an exemption under the Religious Freedom Restoration Act of 1993²⁷² from compliance with the regulations promulgated under the Patient Protection and Affordable Care Act of 2010²⁷³ that would require them to provide their employees with health insurance covering access to "abortifacient" technologies where the provision of such technologies violated the corporations' religious objections to abortion.²⁷⁴ The technologies to which the respondents objected included "two forms of emergency contraception commonly called 'morning after' pills and two forms of intrauterine devices [IUDs]."²⁷⁵ The Court stated that these technologies "may have the effect of preventing an already fertilized egg from developing any further by inhibiting its attachment to the uterus,"²⁷⁶ and because the *Hobby Lobby* respondents held a "sincere Christian belief that life begins at conception," they deemed this prevention of implantation to be a form of abortion.²⁷⁷ In fact, however, this account of the technologies' function departs in two ways from the mainstream medical community's current understanding. First, the medical community defines pregnancy as commencing with the implantation of a fertilized egg in the uterus, not the moment of fertilization.²⁷⁸ Even *if* the technologies at issue operate to prevent the implantation of a fertilized egg as the *Hobby Lobby* respondents believed, they still would not terminate a "pregnancy" and thus would be properly labeled contraceptives rather than abortifacients. Second, and more fundamentally, the Court's (and *Hobby Lobby*'s) account of how the contraceptive devices at issue function is likely factually incorrect. Although there is, as evidenced by the Court's use of the word "may,"

271. 574 U.S. 682 (2014).

272. Pub. L. No. 103-141, § 1, 107 Stat. 1488 (codified at 42 U.S.C. § 2000bb *et seq.*).

273. Pub. L. No. 111-148, § 1, 124 Stat. 119.

274. 574 U.S. at 687.

275. *Id.* at 692–93.

276. *Id.* at 697–98.

277. *Id.* at 683.

278. *See, e.g.*, AMERICAN COLLEGE OF OBSTETRICIANS & GYNECOLOGISTS, FACTS ARE IMPORTANT: EMERGENCY CONTRACEPTION (EC) AND INTRAUTERINE DEVICES (IUDs) ARE NOT ABORTIFACIENTS (2014) (pregnancy "[i]s established only at the conclusion of implantation of a fertilized egg"), available at <http://www.acog.org/-/media/Departments/Government-Relations-and-Outreach/FactsAreImportantEC.pdf>. The law also conceives of pregnancy as commencing at implantation rather than fertilization. *See, e.g.*, 45 C.F.R. § 46.202(f) ("Pregnancy encompasses the period of time from implantation until delivery.").

some uncertainty on the matter, the most current understanding holds that these devices do *not* prevent the implantation of a fertilized egg, but either, in the case of the morning after pills, inhibit ovulation, or, in the case of IUDs, prevent sperm from reaching the egg.²⁷⁹ In light of current medical understanding, therefore, the Hobby Lobby respondents were simply incorrect in their belief that the contraceptive technologies at issue cause the “death” of a fertilized egg.

The *Hobby Lobby* majority’s opinion glossed over the respondents’ factual errors by characterizing their objection as a “religious” one and thus entitled to accommodation under RFRA. The Court wrote that “[t]he [respondents] believe that providing the coverage demanded by the HHS regulations is connected to the destruction of an embryo in a way that is sufficient to make it immoral for them to provide the coverage,” and criticized the HHS and the principal dissent for purporting to tell the respondents that their beliefs concerning this “religious and philosophical question . . . are flawed.”²⁸⁰

By conflating the epistemic issues with the normative one, the Court in *Hobby Lobby* ignored the distinction between normative and epistemic pluralism. By the Court’s logic, antivaccinationists’ opposition to mandatory vaccination policies could easily be recast as a “religious” objection to injecting children with a substance that “may” cause autism. Should the mainstream medical community respond that the best available evidence strongly indicates that vaccines do *not* cause autism, the *Hobby Lobby* Court would contend that “the federal courts have no business addressing whether the religious belief asserted in a RFRA case

279. See Brief of *Amici Curiae* Physicians for Reproductive Health, American College of Obstetricians and Gynecologists, American Society for Emergency Contraception, Association of Reproductive Health Professionals, American Society for Reproductive Medicine, Society for Adolescent Health and Medicine, American Medical Women's Association, National Association of Nurse Practitioners in Women's Health, Society of Family Planning, International Association of Forensic Nurses, American College of Nurse-Midwives, James Trussell, Susan F. Wood, Don Downing And Kathleen Besinque in Support of Petitioners, *Sebelius v. Hobby Lobby Stores, Inc.*, No. 13-354, 2013 WL 5740263, at *17–19 (Oct. 21, 2013) [hereinafter *PRH Amicus*]; see also Brief of *Amici Curiae* American College of Obstetricians and Gynecologists, Physicians for Reproductive Health, American Academy of Pediatrics, American Nurses Association, et al. in Support of the Government, *Sebelius v. Hobby Lobby Stores, Inc.*, Nos. 13-354, 13-356, 2014 WL 333893, at *25 n.5 (U.S. Jan. 28, 2014) (“None of the FDA-approved emergency contraceptives or IUDs cause abortion; rather, they prevent unintended pregnancy from occurring and thereby prevent situations in which a woman may consider abortion.”). The *PRH Amicus* explains that “[t]here is no scientific evidence showing that either [of the two ‘morning after pills’ at issue] are able to prevent implantation of a fertilized egg.” 2013 WL 5740263, at *17; see *id.* at *16 (noting that earlier indications that the morning after pill “may inhibit implantation (by altering the endometrium)... does not reflect the most current research” (emphasis omitted)). Rather, both pills likely function by “preventing or disrupting ovulation.” *Id.* at *15–16. The same is true for the two types of IUD to which the *Hobby Lobby* respondents objected. The hormonal IUD “works primarily by thickening the cervical mucus, thereby preventing sperm from reaching the egg.” *Id.* at *18 (citing studies). The copper IUD “affects the motility and viability of sperm and impairs their fertilizing capability.” *Id.* at *19.

280. 573 U.S. at 724.

is reasonable.”²⁸¹ Lest the principle of normative deference under RFRA and the Establishment Clause collapse into one of epistemic nihilism by which rational governance is impossible, it is essential to maintain the distinction between empirical and normative questions in addressing claims to religious accommodation. The law, for the most part, has maintained that distinction in most contexts, including in response to legal challenges to mandatory vaccination policies; the *Hobby Lobby* Court’s failure to do so highlights the need for a more explicit articulation of the distinct criteria by which the principles of normative and epistemic public reason define reasonableness.

In sum, an examination of epistemic pluralism from a Rawlsian perspective reveals a glaring omission from Rawls’s account of “reasonable” pluralism, an omission that suggests an overlooked challenge to the legitimacy of state policymaking. This Article represents a first effort at defining a principle of epistemic public reason that acknowledges entrenched disagreement around matters of empirical fact arising from the burdens of empirical judgment and operation of free institutions in a liberal society, and attempts to resolve legitimacy concerns arising from the state’s imposition of policies grounded in contested empirical views by defining the scope of an overlapping consensus of reasonable epistemic views. The principle of epistemic public reason articulated herein no doubt will require further elaboration and refinement, but in this era of “fake news” and fraying public trust in the epistemic authority of gatekeeping institutions such as the mainstream press and the scientific establishment, it is essential to address more clearly the problem of state policymaking in a society characterized by deepening rifts in our shared conception of reality.

VI. POST SCRIPT: A NOTE OF CAUTION

This is an Article about law, and thus about violence and coercion.²⁸² My thesis has been that the phenomenon of epistemic pluralism—entrenched disagreement about matters of empirical fact—poses similar problems of legitimacy under a Rawlsian analysis as does the phenomenon of normative pluralism, and that the principle of epistemic public reason defines the distinction between reasonable and unreasonable epistemic viewpoints. Empirical antivaccinationist arguments are epistemically unreasonable; thus, the state is free to apply the coercive force of law to impose vaccination policies grounded in the consensus of mainstream medical science. In the case of vaccine refusal,

281. *Id.* (parentheses omitted).

282. See Robert M. Cover, *Violence and the Word*, 95 YALE L.J. 1601 (1985) (“Legal interpretation takes place on a field of pain and death.”).

there may be good reasons to apply that force. Antivaccinationists expose their own children, the children of others, and the community at large to serious risks of vaccine-preventable disease. Centuries of experience with vaccination have shown the procedure to be an extraordinarily effective means of controlling the spread of disease, and the medical community has long since resolved any reasonable doubts concerning vaccines' safety relative to the medical benefits the procedure creates. The benefits of imposing a vaccination requirement with only a narrow medical exception would thus appear to easily outweigh the harm of compelling parents against their will to submit their children to a beneficial medical procedure.

Nevertheless, I end on a note of caution. Before advocating a policy of legal coercion—however legitimate that policy may be from Rawls's rather abstract perspective—it is wise to consider the practical effects of that policy. Who, demographically speaking, *are* the unvaccinated, and what consequences might a more rigid immunization policy produce? Empirical studies show a division between the “non-vaccinated,” whose mothers reject vaccination entirely on ideological grounds, and the “under-vaccinated,” who have received some but not all recommended immunizations.²⁸³ Under-vaccinated children are more likely to be African American, to live in a central city, and to have a mother who is young, unmarried, lacks a college degree, and has an annual household income at or near the poverty line.²⁸⁴ In contrast, mothers of the non-vaccinated are more likely to be white, married, college-educated, and with an annual household income over \$75,000.²⁸⁵ Under-vaccination is, at least to a considerable degree, a problem of inaccessible health care infrastructure rather than ideological opposition.²⁸⁶

The affluent non-vaccinated—the true antivaccinationists—are motivated by a different set of concerns. Jennifer Reich's study of mostly white, affluent mothers who reject the recommended vaccination schedule found three broad areas of shared belief: (1) that the mothers themselves are more capable of assessing the risks and benefits of

283. See Jennifer A. Reich, *Neoliberal Mothering and Vaccine Refusal: Imagined Gated Communities and the Privilege of Choice*, 20 GEND. & SOC. 1 (2014); Philip J. Smith, Susan Y. Chu & Lawrence E. Barker, *Children Who Have Received No Vaccines: Who Are They and Where Do They Live?*, 114 PEDIATRICS 187 (2004). I use the word “mothers” advisedly, as these studies indicate that decisions concerning childhood health care are predominantly the province of the female parent. Reich, 20 GEND. & SOC. at 7; ALINA SALGANICOFF, USHA R. RANJ & ROBERTA WYN, WOMEN AND HEALTH CARE: A NATIONAL PROFILE 40 (2005).

284. Reich, *supra* note 165, at 2; Smith, Chu, and Barker, *supra* note 284, at 187.

285. Reich, *supra* note 165, at 2; Smith, Chu, and Barker, *supra* note 284, at 187.

286. See, e.g., Lauren M. Whaley, *Majority at Some LAUSD Kindergartens are Under-Vaccinated*, L.A. DAILY NEWS (Jan. 30, 2015), <http://www.dailynews.com/health/20150130/majority-at-some-laUSD-kindergartens-are-under-vaccinated>.

vaccines than experts such as medical professionals and state agencies;²⁸⁷ (2) that alternative resource- and time-intensive mothering practices, particularly involving breastfeeding and “organic” diets, will maintain their children’s health without the need for vaccination;²⁸⁸ and (3) that risk of infection can be effectively managed through what Reich calls “imagined gated communities”—careful and active management of their children’s social networks to exclude perceived vectors of disease.²⁸⁹ One might readily expect, then, that these mothers—ideologically opposed to vaccination and with abundant time and resources to invest in the pursuit of what they believe to be the best interests of their children—will find more effective means of evasion than the mothers of under-vaccinated children on whom the burden of punitive enforcement would fall most heavily.²⁹⁰

This post-script should not be read as advocating against narrowing the scope of vaccination exemptions, or in favor of accommodation of epistemic outliers when public health is at stake. My purpose here is simply to point out that the abstract question of legitimacy in the Rawlsian sense does not fully exhaust the question of whether legal coercion in a particular context is advisable, wise, or even intuitively “fair.” It is also to remind us of the unintended consequences that can arise in the familiar gap between “law on the books” and “law in action.”²⁹¹ Where a coercive vaccination policy is justified on the basis of the health benefits accruing to the entire community from a vaccination rate sufficient to establish herd immunity, it is imperative that we ensure compliance not only with the threat of punitive sanctions, but also by providing resources sufficient to enable meaningful access. As vaccination is a matter of communal health, it is essential that the community take the necessary steps to ensure that all members may avail themselves of its benefits.

287. This belief resembles the “mommy instinct” to which Jenny McCarthy refers in defense of her own antivaccinationism. McCarthy, *MOTHER WARRIORS*, *supra* note 190, at 93; *see also* Emily Chivers Yochim & Vesta T. Silva, *Everyday Expertise, Autism, and “Good” Mothering in the Media Discourse of Jenny McCarthy*, 10 *COMM. & CRITICAL/CULTURAL STUD.* 406 (2013).

288. Yochim & Silva, *supra* note 288, at 14–16.

289. *Id.* at 17–20.

290. Reich notes that the affluent mothers of her study sample “feel entitled to address experts as consultants and refuse their advice without fear of reprisal, choices less readily available to less privileged families, whose rejection of expert advice more easily results in state intervention.” Reich, *supra* note 165, at 12. The current vaccination regime is, of course, neither the first nor the most brutal in its application of coercive force to achieve compliance, particularly against the underprivileged. *See* Willrich, *supra* note 116, at 77 (during smallpox outbreaks in the late nineteenth and early twentieth centuries, “the vaccinator’s lancet and the policeman’s club were fast friends”).

291. *See* Roscoe Pound, *Law in Books and Law in Action*, 44 *AM. L. REV.* 36 (1910).