Political Newtonianism: The Cosmic Model of Politics in Europe and America

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FOR a long time, one of the principal paradigms used to interpret the politics of the founding fathers of the United States was political Newtonianism. This body of thought, developed in the eighteenth century, put ideas and metaphors of Enlightened science to use in constructing political mechanisms and rationalizing political order. In recent years, this interpretation has been neglected in favor of a variety of emphases drawn from other discrete traditions of political ideology.[1] But the conflicts and irresolutions of these competing paradigms open the way for a fresh consideration of Newtonian concepts that were formative and fundamental in the political consciousness of the men who created the state and federal systems of the new republic.

Several years ago, Isaac Kramnick dissented from interpretations of America's founding period that emphasize a search for "one exclusive or even hegemonic paradigm" of political culture. After considering four paradigms—

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[1] The literature on this paradigm is considerable, as is its influence upon 20th-century interpretations of American politics. See Woodrow Wilson, *Constitutional Government* (New York, 1908), 54–56; Walter Lippmann, *A Preface to Politics* (New York, 1933; orig. pub. 1913), 14; William Bennett Munro, *The Makers of the Unwritten Constitution* (New York, 1930), 119; Richard Hofstadter, *The American Political Tradition and the Men Who Made It* (New York, 1948), 8; Henry Steele Commager, *The American Mind: An Interpretation of American Thought and Character since the 1880's* (New Haven, 1950), 312–13; Richard D. Mosier, *The American Temper: Patterns of Our Intellectual Heritage* (Berkeley, 1952), 131; Clinton Rossiter, *Seedtime of the Republic: The Origin of the American Tradition of Political Liberty* (New York, 1953), 133–34; Arthur O. Lovejoy, *Reflections on Human Nature* (Baltimore, 1961), 37–65; Edward Handler, *America and Europe in the Political Thought of John Adams* (Cambridge, Mass., 1964), 27; Arthur M. Schlesinger, Jr., *The Imperial Presidency* (Boston, 1973), vii; Henry F. May, *The Enlightenment in America* (New York, 1976), 89; Garry Wills, *Inventing America: Jefferson's Declaration of Independence* (New York, 1978), 93–97, 288–89; Michael Kammen, *A Machine That Would Go of Itself: The Constitution in American Culture* (New York, 1986), 17–18, 62, 189, 209, 278, 399; and Michael Foley, *Laws, Men and Machines: Modern American Government and the Appeal of Newtonian Mechanics* (New York, 1990). J. A. Robinson dissents from this interpretive formation in "Newtonianism and the Constitution," *Midwest Journal of Political Science,* 1 (1957), 252–66. Martin Landau rebuts Robinson in *Political Theory and Political Science: Studies in the Methodology of Political Inquiry* (New York, 1972), 87 n. 14. For cultural analysis of clockwork universe imagery see Samuel L. Macey, *Clocks and the Cosmos: Time in Western Life and Thought* (Hamden, Conn., 1980).

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classical republicanism, Lockean liberalism, work-ethic Protestantism, and state-centered theories of power and sovereignty—and acknowledging the existence of others, such as the language of jurisprudence, scientific whiggism, and the moral sentiment school of the Scottish Enlightenment, Kramnick argued that none of these "discernible idioms of politics" really "dominated the field" and that the "use of one was compatible with the use of another by the very same writer or speaker."[2]

Newtonian political language had broad appeal, and it was used by men of dramatically different political persuasions. Although its imagery attracted political leaders and theorists who shared a devotion to some of the unifying clichés of the period—harmony, order, balance, natural law, and a mechanistic universe—the very same individuals frequently argued about the practical applications of such flexible concepts. Above all, Newtonian imagery was used not only by people who were susceptible to visions of an automatic social balance but also by those for whom the cosmic metaphors underscored suspicions that society's machinery could not be made automatic and that the best results of political or constitutional engineering would still require steady vigilance and even modification by watchful citizens and statesmen.

Study of the internal tensions of political Newtonianism using the history-of-ideas approach can reveal significant philosophic and temperamental differences among the founders of the United States, differences that validate a pluralistic understanding of the intellectual history of the period and emphasize the importance of broad political idioms that shaped a common political discourse but also lent themselves to divergent sensibilities, doctrines, and practical applications.

The world of Newtonian political theory included both explicit formulations of philosophers and notions that were simply "in the air," elements of the climate of opinion that historians working in the French *Annales* tradition assign to the broad category of *mentalité*. The Newtonian paradigm may at times be traced through intellectual biography as well as through source analysis for establishing doctrinal provenance. But it must also be inferred from a long-vanished netherworld of dinner parties at which no Boswell served as recording angel, from continuing chatter through which ideas might be picked up at third and fourth hand and become absorbed into the ruminative life of individuals.[3]

The climate of opinion in which the Newtonian paradigm developed had several characteristics. First, it was transatlantic: the European gestation of ideas had American ramifications at the same time that the New World that Europeans beheld in America encouraged the sense of new possibilities that leavened European thought. Second, writers such as Francis Hutcheson, Alexander Pope, and Charles de Secondat, baron de Montesquieu, had a

[2] Kramnick, "The 'Great National Discussion': The Discourse of Politics in 1787," *William and Mary Quarterly*, 3d Ser., 45 (1988), 4 n. 2.

[3] See Forrest McDonald, *Novus Ordo Seclorum: The Intellectual Origins of the Constitution* (Lawrence, Kans.: 1985), ix-x.

cumulative impact upon their own countrymen, Europe, and America. Lastly, the world of Newtonian political theory was one in which theorists engaged in metaphysical speculation pertaining to the ultimate realities that might exist behind the façade of appearances and physical phenomena. Such metaphysics helped shape the formulations of Newtonian politics. Theological issues continued to be closely intertwined with theories of society and politics—notwithstanding secularizing tendencies in Enlightenment culture.[4] Even when they rejected theological answers, Enlightened thinkers often tried to create secular equivalents for the theological structures they were leaving behind. Metaphysical issues were integral to the Newtonian paradigm, as one of the founders of the history-of-ideas subdiscipline, Arthur O. Lovejoy, pointed out.

Lovejoy characterized the Newtonian paradigm as a theory or method of "counterpoise." This term was pervasive in the eighteenth century; it appears recurrently, for example, in the Federalist. Lovejoy set forth the general presuppositions of "counterpoise theory" as follows:

> Although philosophers of the seventeenth and eighteenth centuries, when discoursing on the divine government of the world, often declared it to be axiomatic that the Creator always accomplishes his ends by the simplest and most direct means, they also tended to assume that he is frequently under the necessity of employing what may be called the method of counterpoise—accomplishing desirable results by balancing harmful things against one another.

From this, said Lovejoy, emerged the conviction "that it is entirely possible to construct an ideal political society out of bad human materials."[5]

This conviction was influential in eighteenth-century moralizing. The doggerel of Bernard Mandeville in his *Fable of the Bees* made clever sport with the theme:

> This was the State's Craft, that maintain'd
> The Whole of which each Part complain'd:
> This, as in Musick Harmony,
> Made Jarrings in the main agree.

Alexander Pope's *Essay on Man* became a standard source of such imagery in Europe and America:

> Each individual seeks a sev'ral goal;
> But HEAV'N's great view is One, and that the Whole:
> That counter-works each folly and caprice;
> That disappoints th' effect of ev'ry vice.[6]

[4] See esp. May, *Enlightenment in America.*
[5] Lovejoy, *Reflections on Human Nature,* 38, 38–39.
[6] Mandeville, *The Fable of the Bees: Or, Private Vices, Publick Benefits* (1714), ed. F. B. Kaye

Just as Newtonian laws established a balance of forces in nature, so the natural estates and interests of society, according to the theory of counterpoise, required balance. The theme was made explicit in 1729 by the English opposition poet J. T. Desaguliers in his poem *The Newtonian System of the World, the Best Model of Government,* which exhorted the political philosopher to "boldly let thy perfect model be / NEWTON's (the only true) Philosophy" and found the remedy for most political ills encoded in celestial mechanics. Simply build a political system that was crafted to mirror the Newtonian heavens and all would be well: the wisdom of the "all-wise and almighty architect of the universe," said the poet in his preface, offered the perfect system for establishing moral equilibrium on earth.[7]

The popularity of cosmic political metaphors attested to widespread longings for a scientific certitude that was fully compatible with continuing spiritual and religious concerns. Newtonian enthusiasts such as Desaguliers made the connection between constitutional balance and the architect of the universe vividly apparent.

Scholars of eighteenth-century thought generally agree about the pervasiveness of Newtonian social and political imagery. According to John Passmore, it was "a poor-spirited moral and social theorist" who did not seek recognition as the "Newton of the social sciences." The result was a Newtonian idiom of social and political theory. In 1733, Lord Bolingbroke, discussing the evolving English constitution in his *Dissertation upon Parties,* declared that the monarch "can move no longer in another orbit from his people, and, like some superior planet, attract, repel, influence, and direct their motions by his own. He and they are parts of the same system, intimately joined and co-operating together, acting and acted upon." A few years earlier, Francis Hutcheson's *Inquiry into the Original of Our Ideas of Beauty and Virtue* discussed the dynamics of attraction and repulsion in the social sphere. Hutcheson compared the overall force of social cohesion—"universal benevolence"—to "that Principle of *Gravitation,* which perhaps extends to all Bodys in the Universe."[8]

(Oxford, 1924), I, 24; Pope, *An Essay on Man* (1733), in John Butt, ed., *The Poems of Alexander Pope* (New Haven, 1963), 523 (lines 237–40). For a sweeping pronouncement on the international—and, more particularly, the American—influence of Pope's poetry see Lovejoy's *Reflections on Human Nature,* esp. 42. Lovejoy's assertion that "every well-educated Englishman of the period, in Britain and America, was acquainted with the *Essay on Man,* and many of them doubtless knew its most famous lines by heart" has been supported by a wealth of scholarship. For a general survey of Pope's early popularity in America see Agnes Marie Sibley, *Alexander Pope's Prestige in America, 1725–1835* (New York, 1949).

[7] Desaguliers, *The Newtonian System of the World, the Best Model of Government: An Allegorical Poem, with a Plain and Intelligible Account of the System of the World, by Way of Annotations, to Which Is Added, Cambria's Complaint against the Intercalary Day in the Leap-Year* (London, 1728), iv, 32 (lines 175–76).

[8] Passmore, "Perfectibility of Man," *Dictionary of the History of Ideas: Studies of Selected Pivotal Ideas,* III (New York, 1973), 471; Henry St. John, Viscount Bolingbroke, "A Dissertation upon Parties" (1733–1734), *The Works of Lord Bolingbroke* (Philadelphia, 1841), II, 85; Hutcheson, *Inquiry into the Original of Our Ideas of Beauty and Virtue* (1726), 4th ed. (New York, 1971, facsimile), 221.

Newtonian metaphors thus became a pervasive form of intellectual discourse in eighteenth-century thought. The sense of intellectual illumination attending the Newtonian epoch prompted the frequently remarked-upon Enlightenment confidence in human reason as the basis for similar breakthroughs in social and political relationships. Yet conclusions varied widely. Recommendations for achieving social balance might entail political action (the crafting of checks and balances) or political laissez-faire (allowing balances latent in society or the economy to emerge). They might entail a vision of forces that repel one another—the "Jarrings" in Mandeville's formulation and the "counter-workings" in Pope's *Essay on Man*—or an emphasis on gravitational attraction, as in Desaguliers's poem and the "moral sense" theory of Hutcheson.

Hidden in the vision of humanity perfecting its institutions by copying patterns of celestial balance were several troubling contradictions and tensions. These focused in cosmological and epistemological issues that sooner or later became linked to political applications. Since a cogent scheme of Newtonian politics demanded a clear understanding of the cosmic model itself, cosmological issues necessarily prefigured the political metaphysics. Before turning to explicitly political issues, therefore, it is necessary to examine tensions within the Newtonian paradigm relating to the universal model for social reform.

The most fundamental tension involved the connection between the cosmos and society. The old theological argument from design, inferring from the cosmos the hand of a divine creator, was reemerging as a way of affirming the compatibility of reason and religious faith. In America, the argument was developed most clearly by Cotton Mather in the *Christian Philosopher.* In Mather's time, the metaphysical implications of the new cosmology continued to be matters of urgent concern. And in this milieu, any doctrine of cosmic political balance hung upon the question of whether the vision of a clockwork universe—essentially a vision of static equilibrium—permitted any concept of fundamental changes in the human condition. Enlightened thought inclined to the proposition that the universe already had been built to perfection as an all-inclusive, balanced system. In the workings of its laws certain fluctuations occurred, but these were simply the ticking of the universal clock—regular and rhythmic. The derivative social-metaphysical problem was stated by Carl L. Becker: "If nature be the work of God, and man the product of nature, then all that man does and thinks, all that he has ever done or thought, must be natural too." This idea was simplified by Pope in the *Essay on Man:* "Whatever IS, is RIGHT."[9] But if that were so, what need for human exertions to achieve a more adequate political balance? How, if everything is right, could eighteenth-century meliorists reflect upon the errors of past ages or seek to rectify them?

[9] Mather, *The Christian Philosopher* (1721), ed. Winton U. Solberg (Urbana, Ill., 1994); Becker, *The Heavenly City of the Eighteenth-Century Philosophers* (New Haven, 1932), 66; Pope, *Essay on Man,* in Butt, ed., *Poems of Alexander Pope,* 515 (line 294).

The theme of progress persisted and flourished, of course, and slogans like Pope's could be plausibly ascribed to poetic license. Indeed, the Age of Enlightenment's self-conceit depended on the concept of progress that was implicit in Pope's celebrated epitaph for Newton: "Nature, and Nature's Laws lay hid in Night. / God said, *Let Newton be!* and All was *Light.*"[10]

The problem of accounting for progressive and dynamic improvement in the workings of a clockwork universe was not to be quickly resolved. It was, moreover, part of a larger conceptual dilemma. For even if a method could be found to account for the possibility of substantive change in a universal clockwork mechanism, how could one assume that changes in the connection between the cosmos and society would necessarily be salutary rather than harmful?

God's providence had permitted the destruction of Edenic existence. One could hardly presume that the post-Edenic universe would be any safer from the follies of Adam and Eve's descendants. Just as changes in cosmic balance might conceivably threaten humanity, alterations in human affairs might effectively undermine the cosmic order, at least in theory. The notion that changes in the human condition might disrupt cosmic balance figured in Pope's *Essay on Man,* with its warnings against human restlessness and human blindness to the cosmic method. "Whatever IS, is RIGHT," Pope said, at least in the *existing* order of the universe. But what if the status quo—however "whatever IS" might be defined—should prove essential to the overall scheme of things? One could infer the issue in prominent passages of Pope's *Essay on Man:*

> So Man, who here seems principal alone,
> Perhaps acts second to some sphere unknown,
> Touches some wheel, or verges to some goal;
> 'Tis but a part we see, and not a whole. . . .
> Then say not Man's imperfect, Heav'n in fault;
> Say rather, Man's as perfect as he ought.

And, if man were truly "as perfect as he ought," might not any further degrees of "perfection" in the human condition change humanity and "leave a void, / Where, one step broken, the great scale's dest[r]oy'd"? If the present condition of humanity served, in Pope's phrase, to "touch some wheel" in the cosmic clockwork, was it not conceivable that new and ostensibly perfecting changes might throw the cosmic works out of order? Pope bade his readers reflect upon the desolation attributable to creatures who would not, in a balanced cosmos, submit to be "as perfect as they ought":

> Let Earth unbalanc'd from her orbit fly,
> Planets and Suns run lawless thro' the sky,
> Let ruling Angels from their spheres be hurl'd,

[10] Pope, *Epitaph, Intended for Sir Isaac Newton, in Westminster-Abbey,* in Butt, ed., *Poems of Alexander Pope,* 808.

Being on being wreck'd, and world on world,
Heav'n's whole foundations to their centre nod,
And Nature tremble to the throne of God:
All this dread ORDER break—for whom? for thee?
Vile worm!—oh Madness, Pride, Impiety![11]

Christian theology was replete with assurances of God's providential care, but up-to-date theorists who sought to understand the linking of the cosmic with the social could also turn to the philosophic literature of the late seventeenth and early eighteenth centuries. This literature provided divergent answers to the metaphysical questions inherent in the Newtonian paradigm.

The preeminent work of epistemology during the early eighteenth century, John Locke's *Essay Concerning Human Understanding,* offered little reassurance that humanity could gain clear knowledge of the cosmic system. Human perceptions, according to Locke, provided nothing more than ideas of the secondary qualities of physical things: humanity could never know the true inner "substance" of physical things or the full and essential details of cosmic interactions. "We are so far from being admitted into the secrets of nature," he warned, "that we scarce so much as ever approach the first entrance towards them." Notwithstanding the insights provided by Newtonian physics, Locke was skeptical regarding humanity's power to learn the ultimate workings of the cosmos:

> We see and perceive some of the motions and grosser operations of things here about us; but whence the streams come that keep all these curious machines in motion and repair, how conveyed and modified, is beyond our notice and apprehension: and the great parts and wheels . . . of this stupendous structure of the universe, may, for aught we know, have such a connexion and dependence in their influences and operations one upon another, that perhaps things in this our mansion would put on quite another face . . . if some one of the stars or great bodies incomprehensibly remote from us, should cease to be or move as it does.

According to Locke, "it is easy to perceive what a darkness we are involved in, how little it is of Being . . . that we are capable to know."[12]

[11] Pope, *Essay on Man,* ibid., 506 (lines 57–60), 507 (lines 69–70), 513 (lines 243–44), 513–14 (lines 251–58). Pope was intermittently fascinated by visions of cosmic disaster. The baleful conclusion of his *Dunciad* (especially the final version of 1743) is perhaps the most lurid example of this. Yet the visions of cosmic catastrophe in the *Essay on Man* were balanced in other parts of the poem by soothing reassurances of universal safety and God's omnipotence. More than one observer has concluded that Pope's didactic poetry (however influential and revered) was fraught with fundamental contradictions. See Lovejoy's reference to the *Essay on Man* as a "highly confused poem" in *Reflections on Human Nature,* 44 n. 10. See also A. R. Humphreys, "Pope, God, and Man," in Peter Dixon, ed., *Writers and Their Background: Alexander Pope* (London, 1972), 60–100; J. M. Cameron, "Doctrinal to an Age: Notes towards a Revaluation of Pope's *Essay on Man,*" in Maynard Mack, ed., *Essential Articles for the Study of Alexander Pope* (Hamden, Conn., 1964), 329–345; and Richard Striner, "The Inverted World: Cosmic Visions in the Poetry of Pope," *The CEA Critic,* 51 (1989), 11–30.

[12] Locke, *An Essay Concerning Human Understanding* (1690), ed. Alexander Campbell Fraser

This side of Locke's teachings had bleak implications for theorists who hoped that cosmic patterns would constitute a model for social reforms. Locke explicitly denied that human knowledge could penetrate the metaphysical "substance" of things, and he enjoined the "busy mind of man" to be "more cautious in meddling with things exceeding its comprehension."[13]

On the other hand, Locke was optimistic regarding other forms of human knowledge. He believed that humanity's logical reflections on the philosophic problems of theology and ethics could lead to absolute certitude. "The precise real essence of the things moral words stand for may be perfectly known," Locke claimed, "in which consists perfect knowledge." Indeed, religious reflections could lead to moral certitudes approaching mathematical precision. Hence Locke believed that "men have reason to be well satisfied with what God hath thought fit for them" and that "they have light enough to lead them to the knowledge of their Maker, and the sight of their own duties."[14] And yet he appeared to deny the proposition—essential to the Newtonian paradigm—that a perfect model for reforming society could be found within the cosmic patterns, since the cosmic patterns, in Locke's opinion, could never be definitely known.

The implications of Lockean epistemology were countered by the doctrines of Locke's great contemporary (and friendly intellectual rival) Gottfried Wilhelm von Leibniz. Although Leibniz quarreled not only with Locke but also with details of Newtonian science, his overall metaphysical system was based on the belief that cosmic patterns, including the general nature and modes of "substance"—the innermost identity of things-in-themselves—could be known by rational minds. Leibniz affirmed that it was possible for human activities to mirror the patterns of the cosmos. Indeed, he insisted that the cosmic process reflected automatically at the microcosmic level throughout existence. The key was the metaphysical role of mind in the cosmic system.[15]

Leibniz's philosophy rested on the premise of a preestablished harmony that guaranteed perfect universal order in the best of all possible worlds. The innermost attribute of substance or created existence in the best of all possible worlds was the presence of percipient psyche or mind in the elements composing the universe. According to Leibniz, the fundamental units of cre-

(Oxford, 1894), II, 222, 260, 262. For discussion of the tremendous influence of Locke's *Essay* in America see May, *Enlightenment in America,* 7–10, 33, and Morton White, *The Philosophy of the American Revolution* (New York, 1978), 16, 28, 36, 41, 54–56, 59, 66, 173–75, 277, 285.

[13] Locke, *Essay Concerning Human Understanding,* I, 28.

[14] Ibid., I, 29, II, 156, 208.

[15] For Leibnizian philosophy's ascent to international fame see Ernst Cassirer, *The Philosophy of the Enlightenment,* trans. Fritz C. A. Koelln and James P. Pettegrove (Princeton, 1951), 33–36. Leibniz had some influence in the colonies, and the American dissemination of Leibnizian ideas was furthered in the mid- to late 18th century by the French Enlightenment. Although less familiar to Americans than the doctrines of Montesquieu, David Hume, or Hutcheson, Leibniz's thought had been encountered by a number of the founding fathers, either through Denis Diderot's essay on Leibniz in *L'Encyclopédie* (1751–1780) or through British curricular influences in colonial colleges.

ated existence were indivisible centers of perceptive force. Leibniz called these entities "monads." He believed that the monads experienced perceptions, and he asserted (anticipating modern psychology) that perception could occur below the level of consciousness.

Leibniz explained in his essay "La Monadologie" that the nature of every monad was to "reflect" all the others from its own particular vantage point and through its own passing states of perception—to exist, in its way, as a "perpetual living mirror of the universe." In other words, within the perceptions of all monads there were microcosmic reflections of the universal system. Moreover, Leibniz believed that with improvements in sensibilities—"organized beings being evolved . . . according to a preconceived plan"—monads were destined to increase and progressively to clarify their universal reflections. This theoretical thrust implied that the power of mind was destined to achieve ever greater awareness and assimilation of the cosmic method insofar as the highest monads, according to Leibniz, were "able to know the system of the universe and to imitate something of it by architectonic samples."[16]

Leibniz's assertion that the cosmic process is mirrored to some degree everywhere—his teaching that cosmic patterns are reflected in whatever exists—contained serious implications for Enlightenment social theory. Specifically, the themes of immanence, automatism, and progress in Leibnizian philosophy provided a major metaphysical grounding for subsequent theories of laissez-faire. If cosmic balance is reflected everywhere, it must be latent in society. Accordingly, a policy of minimal or noninterference in socioeconomic matters might best assure progressive development of natural forces.

Jacob Viner has observed laissez-faire ideology assuming its definitive form in the writings of the French Physiocrats. Inasmuch as the Physiocrats believed that "there was a providential harmonious and self-operating physical order of nature, which, under appropriate social organization and sound intellectual perception, could be matched in its providential character, in its automatism, and in its beneficence, in the *social* order of nature . . . through proper education this would become 'evident' (in a special sense of the word) to all men." If "sound intellectual perception," emerging from progressive educational development, resulted in appropriate social policies, the rhythms of society would mirror the harmony that physical nature made evi-

[16] Leibniz, "On Nature in Itself; or on the Force Residing in Created Things, and Their Actions" (De ipsa natura sive de vi insita creaturarum [1698]), in Philip P. Wiener, ed., *Leibniz Selections* (New York, 1951), 139; Leibniz, "The Monadology" (La monadologie [1714]), ibid., 550, 544. For interpretations of Leibniz's theory of the monadic relationship to matter see Robert Latta, ed., *Leibniz: The Monadology and Other Philosophical Writings* (London, 1898), 93–101; Ivor Leclerc, "Leibniz and the Analysis of Matter and Motion," in Leclerc, ed., *The Philosophy of Leibniz and the Modern World* (Nashville, Tenn., 1973), 127–28; Nicholas Rescher, *Leibniz: An Introduction to His Philosophy* (Totowa, N.J., 1979), 80–82; and Catherine Wilson, *Leibniz's Metaphysics: A Historical and Comparative Study* (Princeton, 1990), 190–96. For a discussion of the evolutionistic elements in Leibniz's theory of monadic development see Lovejoy, *The Great Chain of Being: A Study of the History of an Idea* (Cambridge, Mass., 1964), 256–59.

dent. The affinity here to Leibnizian thought is not surprising since the Physiocratic school took shape at a time when Leibniz's reputation was ascendant in France.[17] The Physiocrat François Quesnay was familiar with Leibniz, and Denis Diderot's chapter on Leibniz in *L'Encyclopédie* credited the German philosopher with achievements on the order of Plato and Aristotle.

The idea of natural laws that were latent in things had great appeal to such men as Adam Smith, Thomas Paine, and their many followers, whose vision of an automatic social providence made the doctrine of laissez-faire an important variation of the Newtonian paradigm. The objective was to perceive the immanence of social balance and persuade those vested with policy making to interfere as little as possible so that the cosmic rhythms in society could proceed to work by themselves. The ultimate automatism of the socioeconomic machine was described by Anne-Robert-Jacques Turgot—a social theorist influenced by the Physiocrats—in a 1767 letter to David Hume. "A kind of equilibrium establishes itself" in the economy, Turgot asserted, and the tendency is so resilient that even "if you change one of the weights, a movement cannot but result from it in the whole of the machine which tends to restore the old equilibrium." The restoration might be gradual, Turgot admitted, but it was absolutely inevitable: social balances were automatic.[18]

Yet for many Enlightened thinkers, social organization was a product of human responsibility. In this view, policy makers were obligated to guide the flow of political and social interactions. Among theorists who remained unpersuaded by laissez-faire arguments, the exploration of Newtonian politics implied the never-ending challenge—and the never-ending hard work—of attempting to see, to balance, and to improve society in general terms while realizing that such efforts might never fully succeed. This theme was essential to the work of Montesquieu, whose doctrines—tremendously influential among the American founding generation—directly pertained to the goal of establishing greater balance and stability, based upon the patterns of natural and universal law, in the realm of statecraft.

The physical universe, said Montesquieu, is governed and balanced by invariable physical laws. But the ideal laws of justice and order in society, although equally preestablished and eternal, must proceed through the power of mind. They are latent and potential laws, which the mind must choose to

[17] Viner, *The Intellectual History of Laissez-Faire* (Chicago, 1961), 59. For documentation of the exposure of the influential Quesnay to Leibnizian philosophy see Elizabeth Fox-Genovese, *The Origins of Physiocracy: Economic Revolution and Social Order in Eighteenth-Century France* (Ithaca, 1976), 77, 83. In a 19th-century study of Physiocracy, *The Physiocrats: Six Lectures on the French* Economistes *of the 18th Century* (Hamden, Conn., 1963; orig. pub. 1897), 69–70, Henry Higgs traced connections between the thought of the Physiocrat Mercier de la Rivière and Newtonian social theory: "The question addressed to the Physiocrats was, 'If your system says "Hands Off!" to the state, and begs it to "let things alone," what do you consider the functions of the state to be?' Mercier de la Rivière attempts to create a philosophy of the state. Newton and others had discovered great laws governing the harmonious order of the physical world. There were surely similar laws governing the moral order of the social world." Rivière advocated a minimal scope for governmental action in the social and moral order.

[18] Turgot to Hume, Mar. 25, 1767, in Turgot, *Reflections on the Formation and the Distribution of Riches* (1770), ed. W. J. Ashley (New York, 1898), 108.

obey—must activate and trigger, in a sense—once it has perceived and articulated them. In his *Spirit of Laws* Montesquieu compared this choice to the drawing of a circle whose radii are metaphysically existent before the artist has delineated the circle's circumference.[19] In the case of society, a potential for stability—and, with it, the greater potential for justice through the golden mean of moderation—preexisted if philosopher-statesmen chose to delineate and implement the principles of natural law.

Montesquieu believed that certain fortunate constitutional monarchies (he regarded Great Britain as the finest example) could achieve a close approximation to ideal natural law. The higher law that "power should be a check to power" could be embodied by such societies in a counterpoise of social estates. At the same time, while the mutual checks created by the counterpoise of king, lords, and commons in Britain "should naturally form a state of repose or inaction . . . there is still a necessity for movement in human affairs" wherefore "they are forced to move, but still in concert." The propulsion for the system derived from the principle of honor seeking, which was endemic in monarchies: "It is with this kind of government as with the system of the universe, in which there is a power that constantly repels all bodies from the centre, and a power of gravitation that attracts them to it. Honor sets all the parts of the body politic in motion, and by its very action connects them; thus each individual advances the public good, while he only thinks of promoting his own interest."[20]

This idealized version of the British polity was complicated by the elements of irony that Montesquieu brought to his work and by his denial that the balance of the system could be made permanent. Having praised the British constitution, Montesquieu observed that "as all human things have an end, the state we are speaking of will lose its liberty, will perish" and suggested that this fall from grace would come "when the legislative power shall be more corrupt than the executive." Only constant oversight could keep a balanced state in existence for very long. To "combine the several powers" of a balanced and "moderate government"—to "give . . . ballast to one, in order to enable it to counterpoise the other"—is "a masterpiece of legislation, rarely produced by hazard, and seldom attained by prudence."[21] The fact that Montesquieu could argue on both sides of the question, holding out hope for a well-engineered social balance but stressing its dependence on the acumen and skill of individuals and groups, contributed to the American popularity of his political Newtonianism.

The need to oversee political balance was developed more fully by Montesquieu's contemporary, Etienne Bonnot, abbé de Condillac. In his *Treatise on Systems,* Condillac restated the Newtonian vision of a social

[19] Montesquieu, *The Spirit of Laws* (1748), trans. Thomas Nugent (Franklin Center, Pa., 1984), 4. Montesquieu's *Spirit of Laws* exerted a tremendous influence upon American political thought. See esp. Paul Merrill Spurlin, *Montesquieu in America, 1760–1801* (Baton Rouge, La., 1940).

[20] Montesquieu, *Spirit of Laws,* trans. Nugent, 27, 162.

[21] Ibid., 64, 163–64.

machine that could be built to operate in equilibrium. But "it is up to the magistrate," he cautioned, "watching out for its survival to maintain harmony and strength in all its members," to ensure that the balance of the system would be maintained. "He is the mechanic who must restore the springs and wind up the whole machine as often as circumstances require." Balance could not be made automatic: "It is obvious that a system created by following these rules is absolutely relative to the situation. When this situation changes, the system will have to undergo a similar change" in order to continue.[22]

European versions of Newtonian social theory were thus broadly divided by the mid-eighteenth century into visions of automatic social balance and programs of balance maintained through vigilance. These were the conceptual poles between which American Newtonian discourse would move and develop in the Revolutionary and post-Revolutionary periods.

Applications of Newtonian dynamics to social and political theory in the later decades of the eighteenth century continued to be fraught with metaphysical problems, as evidenced by the intellectual struggles of Smith, Edmund Burke, Hume, Paine, and others. In many instances, the issues these public thinkers addressed had been influentially defined by Hutcheson as early as the 1720s. Although it was easy to advocate the principle of balance in society and government, the formulae for achieving balance would prove difficult to think out. To develop a science of statesmanship, Enlightened thinkers believed it essential to analyze and delineate the interplay of forces in the polity. This paramount task entailed definitions and descriptive models explicating the flow of political motion and the workings of political mechanics.

At first consideration, the task of defining the formulae for balance in the state might appear to have been nothing more than the search for the sources of imbalance. Riotousness was a characteristic pejorative image of excess political power in eighteenth-century culture.[23] There were some theorists, however, who believed that political balance involved a great deal more than just the interplay of rival assertions. Pernicious inaction—the cowardly failure to assert one's rights or to do one's duty—might also produce imbalance. At its worst, inaction could sink to the level of slavish obedience. Balance could indeed degenerate through tumult, but it could also succumb to a fatal narcosis and lapse into insensibility. Thus, in 1770, Burke, in his "Thoughts on the Cause of the Present Discontents," warned that political contingencies in Britain might deteriorate "until they are hurried into all the rage of civil violence, or until they sink into the dead repose of despotism."[24]

[22] Condillac, *A Treatise on Systems* (1746), in *Philosophical Writings of Etienne Bonnot, Abbé de Condillac,* trans. Franklin Philip and Harlan Lane (Hillsdale, N.J., 1982), 140–41.

[23] Pauline Maier, *From Resistance to Revolution: Colonial Radicals and the Development of American Opposition to Britain, 1765–1776* (New York, 1972), 20, passim.

[24] Burke, "Thoughts on the Cause of the Present Discontents" (1770), *The Works of the Right Honorable Edmund Burke* (Boston, 1877), I, 537. The analogous cosmic issue had figured in a

This point was extremely significant to would-be artificers of the balanced state, and so was the metaphysical question it implied: How was the principle of balance to be construed? Were balance and equilibrium to be understood as fully synonymous terms—or should balance contain an element of disequilibrium to keep the political process in motion and prevent the polity from sinking into inanition?

In the 1720s, Hutcheson had won international attention by attempting to render the dynamics of moral interaction in the form of computational formulae. His purpose was to delineate moral give-and-take—the interplay of self-interest and public spirit in society and in the individual. The passions of self-love and benevolence were "ballanced against each other," said Hutcheson, but the balance was unstable. The problem for moral philosophy was to figure out the proper calibration of balance-in-motion for particular occasions. Static equilibrium would stop the flow of moral actions; Hutcheson's principles for cosmic social dynamics postulated that, if social "Gravitation" were "equal in all Distances," it would, "by the Contrariety of such multitudes of equal Forces, put an end to all Regularity of Motion and perhaps stop it altogether."[25] This was analogous to Burke's "dead repose," a condition of complacency and stupefaction in which citizens neglected their duty, the result being civic entropy. At the same time, a great many counterpoise theorists used equilibrium and balance as interchangeable concepts. This lack of agreement was a serious matter for Newtonian politics. How could the draftsmen and engineers of Enlightenment social theory develop plans for the machinery of state if the elementary flow of political power and motion could not be charted with precision?

These conceptual problems were compounded by the moral and psychological issues that pervaded the Newtonian paradigm. Perception of the proper balance of power was inherently linked to limitations of human fallibility, as eighteenth-century moralists were eager to observe. Notwithstanding the optimistic tone of his "moral sense" theory, Hutcheson acknowledged that "there are few Tempers to be found, wherein these Sensations of the several Passions are in such a Ballance, as in all Cases to leave the Mind in a proper State, for considering the Importance of every Action or Event."[26]

Because the human mind could not be wholly trusted, tension existed about its role in promoting sociopolitical counterpoise. A fully balanced state of mind might lack the vigilance necessary to maintain the overall balance of society. There was danger, too, in the tranquilizing experience that

famous dispute between Samuel Clarke and Leibniz in 1715–1716 as to whether the divine watchmaker would have to rewind the mechanism of the clockwork universe from time to time.

[25] Hutcheson, *An Essay on the Nature and Conduct of the Passions and Affections, with Illustrations on the Moral Sense,* 3d ed. (London, 1742; facsimile ed., 1969; orig. pub. 1728), 220. Hutchesonian influences on American thought are confirmed by a large body of scholarship. Wills's thesis in *Inventing America* is criticized by Ronald Hamowy, "Jefferson and the Scottish Enlightenment: A Critique of Garry Wills's *Inventing America: Jefferson's Declaration of Independence,*" *WMQ,* 3d Ser., 36 (1979), 503–23.

[26] Hutcheson, *Essay on the Nature and Conduct of the Passions and Affections,* 56.

could result from the thoughtful contemplation of the beauty of God's cosmic method. Smith argued in the *Theory of Moral Sentiments* that nothing was more "sublime" than "the idea of that divine Being, whose benevolence and wisdom have, from all eternity, contrived and conducted the immense machine of the universe, so as at all times to produce the greatest possible quantity of happiness." Universal benevolence—Hutcheson's social "Gravitation"—prompted virtuous men to begin their moral contemplations at the highest level, for benevolence "can be the source of no solid happiness to any man who is not thoroughly convinced that all the inhabitants of the universe . . . are under the immediate care and protection" of the "all-wise Being, who directs the movements of nature." But this machine of nature, Smith warned, was the providential "business of God and not of man," who should not let reverential thoughts of cosmic harmony divert him from his central duty, "the care of his own happiness, of that of his family, his friends, his country: that he is occupied in contemplating the more sublime, can never be an excuse for neglecting the more humble department." Smith offered this warning despite his faith in the "wise and virtuous man" who was "at all times willing that his own private interest should be sacrificed to the public interest of his own particular order or society" and even "to the greater interest of the universe, to the interest of that great society of all sensible and intelligent beings, of which God himself is the immediate administrator and director."[27]

So how should one strike the proper balance in these multiple levels of counterpoise? Vigorous pursuit of one's interest—along with loyalty to the interests of family, friends, and country—was clearly imperative, and yet contention on behalf of one's family, friends, or country might become so unintentionally factious as to usher in chaos. The dangers of faction were acknowledged pervasively in eighteenth-century political thought. Hutcheson insisted upon the necessity of "checking any Passion which grows so violent, as to be inconsistent with the publick Good." He pleaded for "a vigorous Use of our Reason, to discern what Actions really tend to the publick Good in the *whole,* that we may not do *that* upon a partial View of Good, which afterwards, upon a fuller Examination, we shall condemn and abhor ourselves for." Even though Hutcheson wanted to believe that things would work out for the best, the existence of an automatic providence was more than he presumed. Even altruistic souls could go astray, he warned: "Upon *mistaken or partial Views* of publick Good," the "Desire of Virtue may often lead Men into very pernicious Actions."[28]

Consequently, theories of counterpoise could lead to a painful dilemma wherein well-intentioned efforts to uphold social balance might ironically disrupt it. If the failure to act could undermine balance, so too could exces-

[27] Smith, *The Theory of Moral Sentiments* (1759), The Glasgow Edition of the Works and Correspondence of Adam Smith, ed. D. D. Raphael and A. L. Macfie (London, 1976), I, 235, 236–37, 237.

[28] Hutcheson, *Essay on the Nature and Conduct of the Passions and Affections,* 55, 98, 106–07, 285.

sive action. How was the conscientious practitioner of counterpoise to know whether judgments reached in the heat of action were compatible with balanced politics?

Because of these concerns, the Newtonian paradigm was put to ambiguous use by "moral sense" theorists in Britain: by mid-century, writers like Hutcheson and Smith regularly employed Newtonian imagery while nonetheless cautioning about the extent of its social applicability. In the sphere of political reform and constitution framing—as opposed to the immanent forces of the marketplace—Smith was anxious to dampen excessive optimism, and his distaste for governmental mechanisms was apparent already in the *Theory of Moral Sentiments.* He was chary of "a certain spirit of system . . . a certain love of art and contrivance," a compulsion to devise a system wherein "all the several wheels of the machine of government be made to move with more harmony and smoothness." How easy it is, Smith warned, for would-be social engineers to become dangerously "intoxicated with the imaginary beauty of this ideal system, of which they have no experience, but which has been represented to them in all the most dazzling colours in which the eloquence of their leaders could paint it." Such individuals could be readily persuaded by a "plausible plan" to "new-model the constitution, and to alter, in some of its most essential parts, that system of government under which the subjects of a great empire have enjoyed . . . peace, security, and even glory." In the face of such proposals, said Smith, it often requires "the highest effort of political wisdom to determine when a real patriot ought to support and endeavour to re-establish the authority of the old system, and when he ought to give way to the more daring, but often dangerous, spirit of innovation."[29]

While pondering the perils of innovation, British observers were also troubled by the fragility of their existing social and political balance. Amid the tensions of 1770, Burke expressed this concern clearly: "Our constitution stands on a nice equipoise with steep precipices and deep waters on all sides of it. In removing it from a dangerous leaning to one side, there may be a risk of oversetting it on the other." Hume had cautioned in his essay "The Idea of a Perfect Commonwealth" that even worthy political systems could degenerate with changing circumstances; "rust," he observed, "may grow to the springs of the most accurate political machine, and disorder its motions."[30]

Related to this was a subtler and even more disturbing problem in the metaphysics of counterpoise theory. The dynamics of the social and political process might at times become hidden and hard to perceive: imbalance might gradually undermine the polity with citizens none the wiser. Participants in social dynamics might not be fully aware of the effects of their actions or their failures to act. The possibility of unintentional action

[29] Smith, *Theory of Moral Sentiments,* 185, 186, 231–32, 232.

[30] Burke, "Thoughts on the Cause of the Present Discontents," in *Works of the Right Honorable Edmund Burke,* 520; Hume, "The Idea of a Perfect Commonwealth" (1752), in *Essays and Treatises on Several Subjects* . . . (London, 1784), I, 540.

further complicated the metaphysics of balance, and the issue of self-deceit was by no means irrelevant to eighteenth-century moralizing. Hutcheson had warned that "where there is a . . . weak Understanding, private Advantage . . . may make Actions appear innocent, which are not; and then the moral Sense gives no Opposition." As the Christian tradition was steeped in the imagery of drowsy hearts that required awakening by conversion to expose the inner process of sin to human awareness, so the maintenance of political virtue required the insight that harmful excess in political behavior might from time to time be unconscious, though still deserving of correction. In Newtonian terms, this issue resolved into the relativity of "motion": in the same way that the terrain underneath us feels motionless even as our planet hurtles through space, an assertion of force in the political counterpoise could be insidious and hard to detect. Perception, said Hume, can never reveal all the crucial secrets of existence, some of which may very well change in a manner that we will fail to ascertain: "In vain do you pretend to have learned the nature of bodies from your past experience. Their secret nature, and consequently all their effects and influence, may change without any change in their sensible qualities."[31]

In some ways, this problem corresponded to the claim of American radicals during the 1760s that a secret malevolent intent had developed in British imperial policy and that the signs of this malevolence could not be discerned to the same degree by all subjects within the empire. American radicals asserted that imperial threats to English liberty emanated from a small ministerial cabal that could only maintain its pressure against America by lulling Parliament and the British people through corrupting luxury—a tyrannical (though narcotically pleasant) form of "dead repose." In this view, the average Briton had little or no idea of the insidious effects on America or of the stealthy way in which incipient despots had fostered complacency in British life. Was it not America's duty to assert its resistance through counterpoised force—to administer a jolt that would rouse Britons to a true realization of their own political condition (lest they wake up enslaved), to stimulate, in short, Britain's process of self-perception?[32] If properly stirred by American

[31] Hutcheson, *Essay on the Nature and Conduct of the Passions and Affections,* 135; Hume, *An Enquiry Concerning Human Understanding* (1777), ed. Eugene Freeman (LaSalle, Ill., 1966), 39.

[32] Counterpoise imagery was frequently used to describe the dynamics of the international balance of power. Emmerich de Vattel urged "recourse to the method" of alliances that tend to make "principal powers . . . act as a mutual check upon each other"; *The Law of Nations, or the Principles of Natural Law Applied to the Conduct and to the Affairs of Nations and Sovereigns* (1758), trans. Charles G. Fenwick (New York, 1964), 251. Explicitly Newtonian metaphors were also used to describe international and imperial relations. In *Common Sense,* Paine proclaimed that "in no instance hath nature made the satellite larger than its primary planet; and as England and America, with respect to each other, reverse the common order of nature, it is evident that they belong to different systems"; *The Complete Writings of Thomas Paine,* ed. Philip S. Foner (New York, 1945), I, 24. See also Francis Hopkinson's playful "Literary Christmas Gambol" to Thomas Jefferson, Jan. 4, 1784: "This great Philosopher has represented the Court of Great Britain by the Sun and that of France by a Comet. France in the Excentricity of her political movements hath at length struck forcibly against Britain and, by the Collision, struck off a Part of her Body, which, being ballanced by the counteracti[ng] Powers of centrifugal and

actions, the British people "would see, they would feel, the oppressions we groan under, and exert themselves to procure us redress," George Mason wrote to George Washington in 1769.[33] The American radicals, indeed, watched for signs that they had triggered agitation that would restore Britain's internal balance, and they rejoiced when—in the case of the Wilkes mobs and subsequent manifestations of popular resistance to imperial policy—they believed they detected such signs.[34]

One of the most acute interpreters of these issues—and one who saw, from residual Puritan sensibilities, as much importance in the secret nature of social and psychological identity as Hume perceived in the secret nature of bodies—was also one of the most ardent proponents of balanced government in eighteenth-century America. "We are so extremely prone," John Adams warned in 1763, to mistake the impulses of vice "for the dictates of our consciences,—that the greatest genius . . . will find it hard to hearken to the voice of reason, or even to be certain of the purity of his own intentions." Years later, pursuing his own ideals of balance, both personal and political, Adams mused that "power always thinks it has a great Soul, and vast Views, beyond the Comprehension of the Weak; and that it is doing God Service, when it is violating all his Laws. Our Passions, Ambition, Avarice, Love, Resentment etc possess so much metaphysical Subtilty and so much overpowering Eloquence, that they insinuate themselves into the Understanding and the Conscience and convert both to their Party."[35] Self-deceit, in Adams's view, was a major reason why republican governments required checks and balances. The human mind, for all of its undoubtedly sublime qualities, was as much a labyrinth of rationalizations and vices as jaded traditional moralists had always claimed.

The immediate problems of the 1760s were encountered by Americans who had to determine what role to play in the effort to uphold political balance. Adams, for example, was forced to wrestle with his conscience throughout the decade as he confronted the proposition that violent efforts to reestablish political balance might result in pernicious imbalance. It was only with the greatest intellectual struggle that he pursued the defense of liberty against both the policies of Parliament and crown and the excesses of the mob. For those like Adams who viewed the task of maintaining political balance with intellectual seriousness, the danger of getting things wrong—through misguided action or through the failure to take sufficient action—prompted deep soul-searching.

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centripetal Force, hath found an Orbit of it's own, and rolls a new Planet in the System, called the American Empire"; Julian P. Boyd et al., eds., *The Papers of Thomas Jefferson* (Princeton, 1950–), VI, 443.

[33] Mason to Washington, Apr. 5, 1769, in Kate Mason Rowland, *The Life of George Mason, 1725–1792* (New York, 1892), I, 142.

[34] Maier, *From Resistance to Revolution,* 247–53.

[35] Adams, "On Self-Delusion," *Boston Gazette,* Aug. 29, 1763, in Charles Francis Adams, ed., *The Works of John Adams* . . . (Boston, 1850–1856), III, 435; Adams to Jefferson, Feb. 2, 1816, in Lester J. Cappon, ed., *The Adams-Jefferson Letters: The Complete Correspondence between Thomas Jefferson and Abigail and John Adams* (Chapel Hill, 1959), II, 463.

The moral uncertainties infusing attempts to calculate or to readjust political balances brought comment from the pulpit. Daniel Shute, a Congregational minister in Hingham, Massachusetts, averred in 1768 that in the case of the "rights of one society being invaded by the superior power of another . . . it is morally fit they should rescue themselves whenever it is in their power." Shute admonished his listeners, however, that "it may be as fit to use caution" in the assessment of available force, lest any miscalculation in the interplay of forces propel events out of control and into "a state of anarchy." On a deeper spiritual level, John Tucker, pastor of the First Church in Newbury, Massachusetts, observed in 1771 that the "love of liberty" was a passion designed by "the great and wise Author of our being . . . for excellent purposes" as "the great animating spring of useful and salutary operations" within society "while in its full vigor, and under proper regulation." Yet it was also a passion that could be "injurious to the public, or to individuals, when, thro' misapprehension of things, or by being overballanced by self-love, it takes a wrong direction."[36]

Scientific politics seemed to depend on the power of the human mind to reflect the essentials of the cosmic method and then apply that method to political and social dynamics. But the quest for Newtonian formulae could lead to uncertainty and paradox—to a labyrinth of mirrors in which, in Adams's worried words, "the greatest genius . . . will find it hard to hearken to the voice of reason" and the secret relativities of motion would make it possible for "power" to believe that it was "doing God Service when it is violating all His Laws." Was belief in a decently balanced society dependent, therefore, on an act of intellectual faith? Could such faith be in any way consistent with a politics of reason?

The concept of balance had encompassed, from the outset, two fundamentally divergent attitudes: a hope for perfectibility in human institutions and a deep skepticism, rooted in centuries of moralist tradition, regarding the efficacy of human reforms beyond conditional adaptations to ever shifting morphologies of evil. In some political circles of the eighteenth century—among the Radical Whigs especially—elements of both views coexisted. As Lovejoy has argued, a compelling intellectual synthesis was often achieved in which counterpoise theory was offered as a perfect or ideal political system *precisely because* it was grounded in the interplay of vices. The worldly-wise argument of James Madison in *Federalist* No. 10 and No. 51 was that "ambition must be made to counteract ambition" in a well-conceived machinery of state and that beyond the apparatus of government society should encompass the widest array of competing groups in order to

[36] Shute, *A Sermon Preached before His Excellency Francis Bernard, Esq.; Governor, His Honor Thomas Hutchinson, Esq.; Lieutenant-Governor, the Honourable His Majesty's Council, and the Honourable House of Representatives, of the Province of the Massachusetts-Bay in New-England, May 25th, 1768* . . . (Boston, 1768), 11; Tucker, *A Sermon Preached at Cambridge, before His Excellency Thomas Hutchinson, Esq.; Governor: His Honor Andrew Oliver, Esq.; Lieutenant-Governor, the Honorable His Majesty's Council, and the Honorable House of Representatives, of the Province of the Massachusetts-Bay in New-England, May 29th, 1771* . . . (Boston, 1771), 5–6.

best effectuate "the policy of supplying by opposite and rival interests, the defects of better motives." No less than Mandeville in 1714 was Madison willing to invoke the seeming paradox that "the private interest of every individual may be sentinel over the public rights."[37]

The American founders, charged with designing a republican government and inventing a federal system, could not take automatic sociopolitical balances for granted. The problems they addressed were new to the extent that their society differed from those of Europe in the weights, values, and relations of its parts. The differences called Newtonian politics into question or, at least, required revaluation of its terms. Not surprisingly, facing the manifold challenges of reconstituting government, the founders sought the comfort of Newtonian models, with which they were well acquainted, and at the same time found those models dauntingly difficult to apply.

Adams, one of the most vivid enunciators of Newtonian metaphors and counterpoise formulations in eighteenth-century America, found both inspiration and problems in the Newtonian vision. His worries of the 1760s regarding the moral and psychological impediments to social balance yielded in the 1770s to a conviction that the American Revolution provided a perfect opportunity for nation-building craftsmanship. He exulted in 1776 that the Revolutionary generation had "been sent into life, at a time when the greatest law-givers of antiquity would have wished to have lived." At what time, he asked, before "the present epocha, had three millions of people full power and a fair opportunity to form and establish the wisest and happiest government that human wisdom can contrive?"[38] In rising to this challenge, Adams made plentiful use of celestial and mechanical analogies in advocating balanced politics. "Upon my word, Sir," he wrote to James Sullivan in 1776, just as an army is "a piece of clock-work, and to be governed only by principles and maxims, as fixed as any in mechanics," so "by all that I have read in the history of mankind . . . I am much inclined to think a government must manage a society in the same manner; and that this is machinery too."[39] On the eve of the decision to assert colonial independence, Adams referred to "the Management of so complicated and mighty a Machine, as the United Colonies" and observed that "forced attempts to accellerate their Motions, would have been attended with Discontent and perhaps Convulsions."[40]

But, although the possibility of success in such a venture of political-social engineering could intoxicate in 1776, Adams's sense of human fallibility did not long remain quiescent. The Newtonian paradigm engendered both certitude and doubt in his mind as well as in the minds of other Revolutionaries. Paine, for example, while exhorting Americans to believe that "we have it in our power to begin the world over again" and rejoicing that "the birthday of

[37] *Federalist* No. 51, in *The Federalist: A Commentary on the Constitution of the United States . . . from the Original Text of Alexander Hamilton, John Jay, James Madison* (New York, 1937), 337.

[38] Adams, "Thoughts on Government" (Apr. 1776), *Papers of John Adams,* ed. Robert J. Taylor et al., IV (Cambridge, Mass., 1979), 92.

[39] Adams to James Sullivan, May 26, 1776, in Adams, ed., *Works of John Adams,* IX, 376.

[40] Adams to James Warren, Apr. 22, 1776, in Taylor et al., eds., *Papers of John Adams,* IV, 135.

a new world is at hand," expressed reservations in 1776 about political systems that depended on complicated balances. "I draw my idea of the form of government from a principle in nature which no art can overturn, viz. that the more simple any thing is, the less liable it is to be disordered, and the easier repaired when disordered." Heaping scorn upon the celebrated balance of the British constitution, Paine argued that political balances were nothing but insidious fol-de-rol used to distract the public's attention from the fact that power will always be centered somewhere:

> As the greater weight will always carry up the less, and as all the wheels of a machine are put in motion by one, it only remains to know which power in the constitution has the most weight, for that will govern: and though the others, or a part of them, may clog, or, as the phrase is, check the rapidity of its motion, yet so long as they cannot stop it, their endeavours will be ineffectual: The first moving power will at last have its way.

Paine's skepticism regarding political machinery—so close, in its way, to Smith's position—did not preclude his using Newtonian language to justify some degree of well-founded governance. Discussing the emergence of a hypothetical society "in the midst of a wilderness," Paine observed that

> necessity, like a gravitating power, would soon form our newly arrived emigrants into society, the reciprocal blessings of which would . . . render the obligations of law and government unnecessary. . . . But as nothing but Heaven is impregnable to vice, it will unavoidably happen that in proportion as they surmount the first difficulties of emigration, which bound them together in a common cause, they will begin to relax their duty and attachment to each other: and this remissness will point out the necessity of establishing some form of government to supply the defect of moral virtue.[41]

Paine's espousal of laissez-faire was less pronounced when he wrote *Common Sense* than it became by the 1790s, although a doctrine of minimalist governance could still be glimpsed in the embryonic form of his preference for simplified governance.

Laissez-faire had moved beyond the embryonic stage in that other epochal document of 1776, Smith's *Wealth of Nations,* the most optimistic version of Newtonian social theory in the closing decades of the eighteenth century. In the economics of Smith, Newtonian principles were not to be employed in the challenge of building a machinery of state, but rather in a program to dismantle certain parts of the existing mechanism in order to allow latent social balances to harmonize economic interactions. Smithian economics significantly developed the potential of Newtonian social theory to serve as an

[41] Paine, *Common Sense* (1776), in *Complete Writings of Thomas Paine,* ed. Foner, I, 5, 6, 8.

instrument of laissez-faire certitude. But as students of Smith have long been aware, the reformist optimism of the economic system presented in the *Wealth of Nations* was tempered by substantial caveats; Smith was quite prepared to acknowledge the limitations beyond which the market's "invisible hand" was undependable.[42]

In the 1780s, the interplay of certitude and doubt within the Newtonian political discourse continued, and different iterations of Newtonian politics proliferated. Benjamin Rush made it clear in a treatise on education that he considered it "possible to convert men into republican machines." "This must be done," he continued, "if we expect them to perform their parts properly, in the great machine of the government of the state."[43] Rush's system, however, depended on a rather draconian regimen of moral pedagogy.

For the framers of the Constitution, counterpoise was one of the supreme intellectual constructs upon which everything depended. They regularly employed Newtonian metaphors and disputed their meaning. At the federal Convention, John Dickinson "compared the proposed National System to the Solar System, in which the States were the planets, and ought to be left to move freely in their proper orbits." Madison replied that the reverse was true—that "to recur to the illustrations borrowed from the planetary System, This prerogative of the General Govt. is the great pervading principle that must controul the centrifugal tendency of the States; which, without it, will continually fly out of their proper orbits and destroy the order and harmony of the political system." Adams, in the midst of his diplomatic travels, took time to assert the necessity of bicameral checks and balances against the advocates of unicameral legislatures by invoking, in his *Defence of the Constitutions of Government of the United States of America,*

> those attractions and repulsions by which the balance of nature is preserved; or . . . those centripetal and centrifugal forces by which the heavenly bodies are continued in their orbits, instead of rushing to the sun, or flying off in tangents among comets and fixed stars; impelled or drawn by different forces in different directions, they are blessings to their own inhabitants and the neighboring systems; but if they were drawn only by one, they would introduce anarchy wherever they should go.[44]

As the Constitution, with its carefully calculated checks and balances, was submitted to the states for ratification, a great deal of rhetoric touted the overall perfection of the concept—if not every single detail—of the

[42] See esp. Smith, *Wealth of Nations,* bk. 5, chap. 1, pt. 3; Viner, *"Adam Smith and Laissez Faire," in Adam Smith, 1776–1926: Lectures to Commemorate the Sesquicentennial of "The Wealth of Nations"* (Chicago, 1928), 116–55; and Viner, *Intellectual History of Laissez Faire,* 59–60.

[43] Rush, *A Plan for the Establishment of Public Schools and the Diffusion of Knowledge in Pennsylvania; to Which Are Added Thoughts upon the Mode of Education, Proper in a Republic, Addressed to the Legislature and Citizens of the State* (Philadelphia, 1786), 27.

[44] Max Farrand, ed., *The Records of the Federal Convention of 1787* (New Haven, 1911), I, 153, 165; Adams, *A Defence of the Constitutions of the Government of the United States of America* (1786–1787), in Adams, ed., *Works of John Adams,* IV, 391.

Convention's achievement. In the throes of battle with New York's Antifederalists, Alexander Hamilton declared, "Make the system complete in its structure, give a perfect proportion and balance to its parts, and the powers you give it will never affect your security." Madison's proposition, in *Federalist* No. 51, that one could contrive "the interior structure of the government as that its several constituent parts may, by their mutual relations, be the means of keeping each other in their proper places" made clear the influence of constitutional automatism. But, for all the later enshrinement of the Constitution, the quest at Philadelphia for an instrument of balanced government led in practice through permutations that yielded a product that its own makers regarded at times with weary satisfaction but also with grave uncertainties. The same Hamilton who spoke in New York of a "perfect proportion and balance" in the parts of the proposed system could also dispense the most tellingly personal and worldly revelation in *Federalist* No. 65: "If mankind were to resolve to agree in no institution of government, until every part of it had been adjusted to the most exact standard of perfection, society would soon become a general scene of anarchy and the world a desert. Where is the standard of perfection to be found?" If perfection could be found in the realm of nature, said Madison in *Federalist* No. 37, the applications of such perfection to society were nonetheless extremely limited:

> When we pass from the works of nature, in which all the delineations are perfectly accurate, and appear to be otherwise only from the imperfection of the eye which surveys them, to the institutions of man, in which the obscurity arises as well from the object itself as from the organ by which it is contemplated, we must perceive the necessity of moderating still further our expectations and hopes from the efforts of human sagacity. . . . Questions daily occur in the course of practice, which prove the obscurity which reigns in these subjects, and which puzzle the greatest adepts at political science.

The implications for the Constitution were clear; Madison cautioned his Antifederalist opponents that "a faultless plan was not be expected" and begged them to remember that "they themselves also are but men, and ought not to assume an infallibility in rejudging the fallible opinions of others." In the final *Federalist,* Hamilton condemned "the chimerical pursuit of a perfect plan" and announced that "I never expect to see a perfect work from imperfect man."[45]

At the adjournment of the Convention, Washington and Madison, among others, harbored doubts about the proposed Constitution. Madison confided to Thomas Jefferson that, because Congress had no veto over state laws, "the plan should it be adopted will neither effectually answer its national object

[45] Hamilton, Address of June 27, 1788, *The Debates in the Several State Conventions, on the Adoption of the Federal Constitution* . . . , ed. Jonathan Elliot (Philadelphia, 1866), II, 350; *Federalist* No. 51, 336, *Federalist* No. 65, 428, *Federalist* No. 37, 226, 228–29, *Federalist* No. 85, 570–71, in *The Federalist: A Commentary on the Constitution of the United States.*

nor prevent the local mischiefs which every where excite disgusts agnst the state governments." Washington conceded that "the warmest friends" of the Constitution "do not contend that it is free from imperfections" and that "if evil is likely to arise there from, the remedy must come hereafter." Madison's notes from the Convention reveal Hamilton conceding that "no man's ideas were more remote from the plan than his own were known to be," Gouverneur Morris urging adoption of the plan "with all its faults," and Franklin posing his persuasive rhetorical question: "From such an Assembly can a perfect production be expected?" By 1789 Jefferson was urging Madison to take the imperfections of the Constitution in stride: "It may be proved that no society can make a perpetual constitution, or even a perpetual law."[46]

Antifederalists made use of Newtonian rhetoric to discredit the Constitution. A Virginian writing as "The Impartial Examiner" ridiculed the division of sovereignty between state and federal governments and argued that the latter's power would overwhelm the states:

> The idea of two sovereignties existing within the same community is a perfect solecism. If they be supposed equal, their operation must be commensurate, and like two mechanical powers of equal *momenta* counteracting each other. . . . [But] if one be greater than the other, they will be similar to two unequal bodies in motion with a given degree of velocity, and impinging each other from opposite points;—the motion of the lesser in this case will necessarily be destroyed by that of the greater.

The "Impartial Examiner" asserted that if the Constitution were ratified, the sovereignty of the states would be destroyed but that defeat of the Constitution would permit the present "well-organized confederation duly held in *equilibrio*" to be maintained. As the ratification neared, a Maryland Antifederalist "Farmer" lamented the imminent decline of state power, observing that the American states "are not to be fixed as a constellation to give light to revolving ages—they have blazed for a moment like meteors in a troubled sky."[47]

Newtonian concepts and idioms continued to play a part in the political contests of the 1790s that tested the new federal system. In December 1791, Madison anxiously declared in the *National Gazette* that it should be "the

[46] Madison to Jefferson, Sept. 6, 1787, in Robert A. Rutland et al., eds., *The Papers of James Madison* (Chicago, 1962–), X, 163–64; Washington to Bushrod Washington, Nov. 10, 1787, in John C. Fitzpatrick, ed., *The Writings of George Washington from the Original Manuscript Sources, 1745–1799* (Washington, D.C., 1939), XXIX, 311; Farrand, *Records of the Federal Convention of 1787,* II, 645, 642, 645–46; Jefferson to Madison, Sept. 6, 1789, in Boyd et al., eds., *Papers of Thomas Jefferson,* XV, 395–96.

[47] The Impartial Examiner, "To the Free People of Virginia," *Virginia Independent Chronicle,* Feb. 20, Mar. 5, 1788, in Herbert J. Storing, ed., *The Complete Anti-Federalist* (Chicago, 1981), V, 178, 186–87; "Essays by a Farmer," *Maryland Gazette,* Apr. 22, 1788, ibid., 66.

patriotic study of all, to maintain the various authorities established by our complicated system, each in its respective constitutional sphere." A month later, he bemoaned the ostensibly pernicious effect of Hamilton's *Report on Manufactures* and asked Henry Lee what he thought of Hamilton's "commentary . . . on the terms 'general welfare.'" If Hamilton's broad construction should prevail, it would vitiate the checks and balances of the Constitution, Madison complained, in which case "the parchment had better be thrown into the fire at once." As party animosities deepened, Madison worked hard to retain his confidence in the new system. His final contribution to the *National Gazette* employed Newtonian language in a piece entitled "Who are the Best Keepers of the People's Liberties?"—a dialogue between a "Republican" of Madisonian/Jeffersonian sympathies and a Hamiltonian "Anti-Republican." Republican accused his adversary of imputing a "centrifugal tendency" to the people that required a compensatory augmentation of the "attractive principle" of government and then declared: "What a perversion of the natural order of things! to make *power* the primary and central object of the social system, and *Liberty* but its satellite." Anti-Republican parried the thrust by declaring that

> the science of the stars can never instruct you in the mysteries of government. Wonderful as it may seem, the more you increase the attractive force of power, the more you enlarge the sphere of liberty; the more you make government independent and hostile towards the people, the better security you provide for their rights and interests. Hence the wisdom of the theory, which, after limiting the share of the people to a third of the government . . . establishes two grand hereditary orders . . . yet by a *mysterious* operation all combining to fortify the people in both.

Republican's scornful reply dismissed such metaphysical constitutional paradoxes:

> Mysterious indeed! But mysteries belong to religion, not to government; to the ways of the Almighty, not to the works of man. And in religion itself there is nothing mysterious to its author; the mystery lies in the dimness of human sight. So in the institutions of man let there be no mystery.[48]

As the politics of the 1790s became more embattled, the comfort provided by visions of Newtonian politics grew increasingly problematic. In 1798, Jefferson still could speak rhapsodically about the "beautiful equilibrium on which our Constitution is founded" while predicting that the evolution of the federal system, including its state and local components, would, "like the planets revolving around their common sun," exhibit "a degree of perfection,

[48] Madison, "Consolidation," *National Gazette,* Dec. 3, 1791, in Rutland et al., eds., *Papers of James Madison,* XIV, 139; Madison to Henry Lee, Jan. 1, 1792, ibid., 180; Madison, "Who Are the Best Keepers of the People's Liberties," *National Gazette,* Dec. 20, 1792, ibid., 427.

unexampled but in the planetary system itself." These observations, however, were delivered in the midst of the crisis of the Alien and Sedition acts—those explosions of political imbalance for which the Constitution provided no automatic correction through its checks and balances. Consequently, Jefferson, as he joined with Madison in tinkering on their constitutional initiatives for state nullification, saw fit to stress that the "enlightened statesman . . . will endeavor to preserve the weight and influence of every part, as too much given to any member" of a political system "would destroy the general equilibrium." The evolving perfection of America's system seemed to Jefferson, writing five months later, to depend on the ceaseless tug and shove of factions:

> In every free and deliberating society, there must, from the nature of man, be opposite parties, and violent dissensions and discords; and one of these, for the most part, must prevail over the other for a longer or shorter time. Perhaps this party division is necessary to induce each to watch and delate to the people the proceedings of the other.[49]

Uses of Newtonian language by political figures of the 1790s were fraught with concern for the preservation of the balance that was still regarded as crucial to ideal government. Madison, citing the terrible disequilibrium of French Revolutionary politics, argued that the "usurped sway" of the Directory "cannot be . . . too much pondered and contemplated by Americans who love their country." Patriots should particularly resist a tendency to "destroy the equilibrium of the departments of power" by "throwing improper weights into the Executive scale." Madison warned against Federalists whose hatred of the French Revolution led to executive abuses of power of the kind that had destroyed balanced government in France.[50]

To prevent such abuses through counterpoised force was a difficult undertaking. Madison's cousin, the Right Reverend James Madison, commiserated with his relative regarding the vexations of the struggle against the Alien and Sedition acts, observing in the language of political mechanics that, while "the federal Govt. is one, and pursues one Design" and "will be perpetually tending to that Point of political Repose, Despotism," the "Discordancy" of the states, with the attendant "Difficulty of making so many oblique Actions to bear upon one Point, will seldom, I fear, permit an effectual Resistance" to determined, centralized tyranny.[51]

So the nagging question recurred: Had a firm and dependable balance been achieved in the American political and constitutional system? *Could* it be achieved?

[49] Jefferson to Peregrine Fitzhugh, Feb. 23, 1798, in Albert J. Lipscomb and Albert Ellery Bergh, eds., *The Writings of Thomas Jefferson* (Washington, D.C., 1903), X, 3 (this letter makes clear the political context of Jefferson's observations); Jefferson to John Taylor, June 1, 1798, ibid., 45.

[50] Madison, "Political Reflections," Feb. 23, 1799, in Rutland et al., eds., *Papers of James Madison,* XVII, 241.

[51] Rev. James Madison to Madison, Jan. 9, 1800, ibid., 353.

Newtonian political imagery was still consequential at the end of the eighteenth century, and the dream of celestial balance imparted to human affairs retained a powerful appeal. Among early classical economists, counterpoise theory would continue to thrive as a vigorous doctrine of certitude. It embodied a faith that by essentially leaving things alone enlightened statesman would enable harmony to prevail. But for those incapable of leaving things alone, the theory of counterpoise remained a contradictory doctrine. A source of hope, it could also be a method for living with doubts while remaining alert. The metaphysical vagaries of balance—for those who pursued them on the cosmic, political, or psychological plane—had proven to be endless; and the practical difficulties of defining or enforcing a perfect political balance were increasingly clear. Michael Kammen has written that a "cordial acceptance of fallible government" began to overtake such theorists as Jefferson and Adams by the 1810s. Jefferson told a correspondent in 1816 that, unlike "some men" who "look at constitutions with sanctimonious reverence," he believed that the Constitution should be given "periodical repairs" every "nineteen or twenty years" so that the "majority" can "make the Constitution what they think will be the best for themselves."[52]

In short, while counterpoise theory continued at times to be a doctrine of automatic balance—or of faith in a natural providence—at other times it seemed to be a program that demanded a political structure that could only be maintained through vigilance. Such was one of the legacies of the system of checks and balances established in the Constitution of the United States. Although political theorists fervently wanted to create the most perfect constitution or even a celestially inspired approach to government, the most trustworthy systems of government, in the end, were perhaps the very systems most paradoxically at ease with the principle of doubt.

This ambiguous American legacy regarding political balance was produced by statesmen of diverse temperament—statesmen for whom the Newtonian language was one of a number of idioms that, while giving a unity of sorts to intellectual culture, lent themselves to divergent opinions and sensibilities. Whether elaborated with Jefferson's serene alertness, or with the guarded and monitory ambivalence of Madison, or through the colorful and often quite magnificent fretfulness of Adams, the Newtonian paradigm served as a channel through which both significant agreements and significant disagreements could be expressed and at times worked through. And the ambiguities of the political balances that Americans would come to live with related to the broader crosscurrents of Enlightenment culture—the new hopes, the old fears, and the perennial uncertainties to which the American founders responded and to which they contributed with such profundity.

[52] Kammen, *Machine That Would Go of Itself*, 44; Jefferson to Samuel Kercheval, July 12, 1816, in Lipscomb and Bergh, eds., *Writings of Thomas Jefferson*, XV, 40, 42, 43.