

John Quincy Adams's Rhetorical Crusade for Astronomy

By *Marlana Portolano**

ABSTRACT

Astronomy thrived in Europe during the early nineteenth century, but in the United States a utilitarian mind-set opposed it. John Quincy Adams's oratory in support of American astronomical discovery reached its peak during congressional debate over the Smithsonian Institution (1838–1846). During this debate Adams countered proposals to found a university with plans for an observatory. His addresses to congressional and public audiences about observatories and astronomy were intended to foster interest in the science and encourage the growing astronomical community in America. Although the U.S. Naval Observatory in Washington, D.C., was established before the Smithsonian debate ended, many considered Adams its political father. Adams composed his speeches on astronomy in a systematic manner, following neoclassical principles of rhetoric that he had taught at Harvard University. His speeches both in and outside of Congress show evidence of the rhetorical principles he conscientiously used in the service of astronomy.

IN HIS INFLUENTIAL WORK *Science in the Federal Government*, A. Hunter Dupree calls John Quincy Adams's first annual message to Congress "the clearest statement ever made by a President of the government's duty toward knowledge." Both in his annual addresses as president and in his later congressional rhetoric, Adams was one of the greatest political spokesmen for science, especially for pure or basic science, in the nineteenth century. In light of both his political career and his appointment as a Harvard professor of rhetoric and oratory in 1806, the many occasions on which Adams spoke publicly in support of astronomy deserve the attention of historians of science.¹ (See Figure 1.)

Adams failed to accomplish his cherished plan of founding a federal observatory while president (1825–1829), but his public speaking in promotion of astronomy did not end when he left office. During his subsequent term in the House of Representatives (1831–1848), the United States government inherited a large sum of money from the British aristocrat James Smithson. Smithson's will, however, contained only general instructions that the bequest should be used to found "an Institution for the increase and diffusion of

* Department of English, United States Naval Academy, Annapolis, Maryland 21402.

¹ A. Hunter Dupree, *Science in the Federal Government: A History of Policies and Activities to 1940* (Cambridge, Mass.: Harvard Univ. Press, Belknap, 1957), p. 39. See also Ronald F. Reid, "The Boylston Professorship in Rhetoric and Oratory, 1806–1904: A Case Study in Changing Concepts of Rhetoric and Pedagogy," in *Essays on Rhetoric in the Western World* (Dubuque, Iowa: Kendall/Hunt, 1990), pp. 261–282, on pp. 262–263.

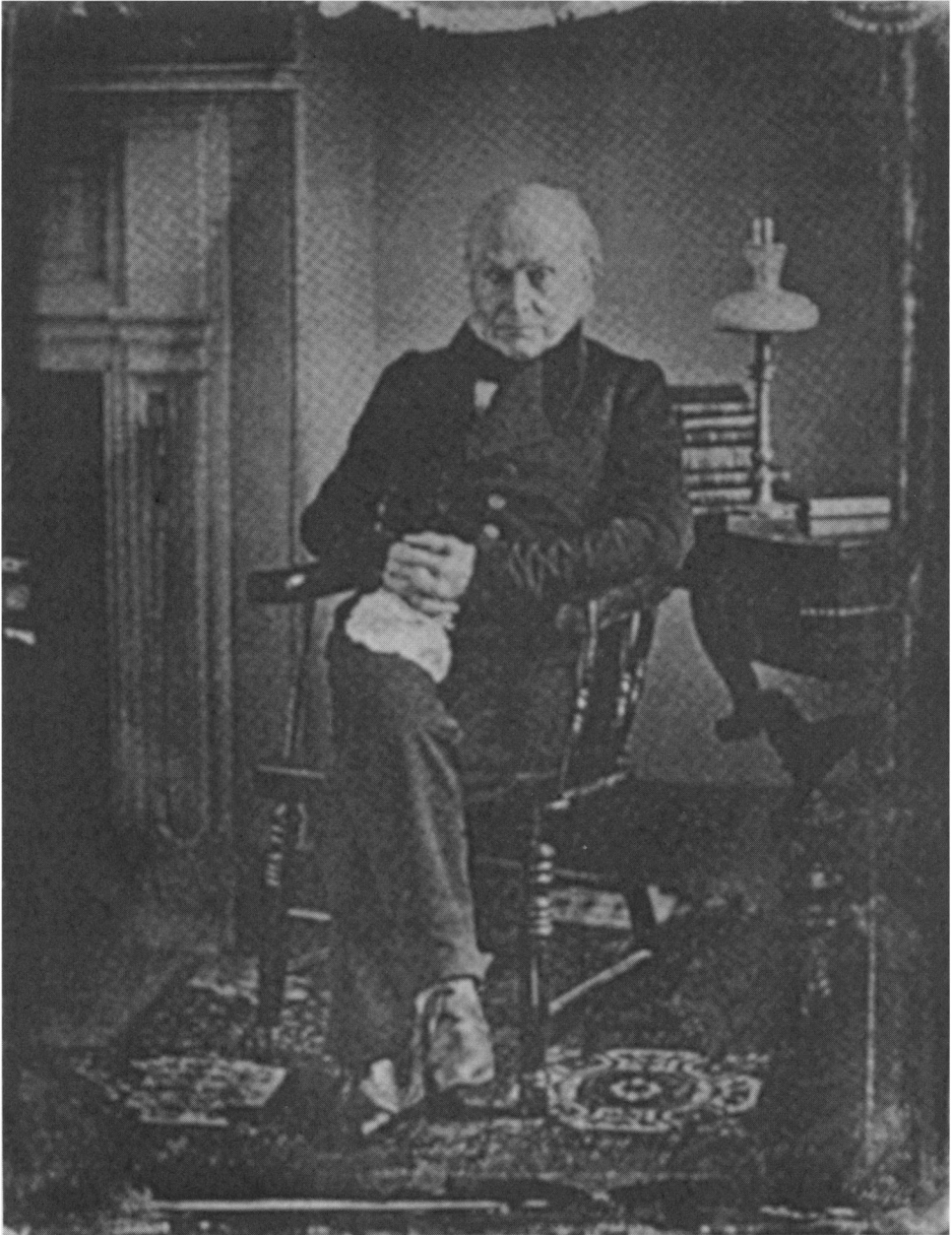


Figure 1. Albert Sands Southworth, "John Quincy Adams." Daguerrotype, 1843. (Reproduced in Andrew Oliver, *Portraits of John Quincy Adams and His Wife* [Cambridge, Massachusetts: Harvard University Press, 1970], page 284.)

Knowledge among Men."² Adams saw the ensuing debate in Congress over the use of Smithson's money as an opportunity to renew his advocacy for astronomy by promoting the concrete goal of a Smithsonian observatory. He made use of congressional forums and conducted public speaking tours in 1839 and 1843 to promote his views. As the debate pushed slowly through Congress, however, Adams realized that his observatory plan was ill fated, and so he adjusted the purpose of his speeches. The new and perhaps more important aim of Adams's rhetorical crusade looked beyond founding a particular observatory and sought instead to further interest in and acceptance of astronomy as a research-based institutional science in the United States. With this end in mind, Adams spoke past his current audience to future ages, namely, to the astronomical community that was beginning to develop in the United States after 1830 and was fully formed by 1859, the year that Robert Wilhelm Bunsen and Gustav Robert Kirchoff announced empirical laws for the interpretation of spectra and that John Lankford has used as a starting point for his *American Astronomy*. As historians of American science have shown, American culture began to lay the groundwork for such a community decades before the trend of building observatories reached its peak in the second half of the nineteenth century. Robert Bruce has explained that "the public's reaction held implications . . . for the future of science, especially in America," and Nathan Reingold reminds historians of science that the study of great astronomers, discoveries, and technological advances in astronomy needs to be supplemented by "a critical concern for the total environment in which research occurs."³ This certainly would include the rhetorical conventions of the day, as they were used by political and public promoters of science like Adams.

The dual purposes of Adams's promotion of astronomy—the Smithsonian observatory plan in particular and, more generally, America's involvement in astronomy in the future—are clarified by the principles of rhetoric he followed while composing his speeches. Scholars concerned with the historical effects of Adams's public speaking often overlook his highly disciplined, classically informed rhetorical practice. As a young man Adams had written lectures on the art of rhetoric as the first Boylston Professor of Rhetoric and Oratory at Harvard.⁴ Diary entries show that he internalized and practiced principles of the classical art of rhetoric and made Cicero his lifelong paradigm in honing his own skills as a civic leader and public orator. During his involvement in the Smithsonian debate, Adams used

² Will of James Smithson, in *The Smithsonian Institution: Documents Relative to Its Origin and History*, 2 vols., ed. William J. Rhees (Washington, D.C.: Government Printing Office, 1901), Vol. 1: 1835–1887, pp. 1–2. In 1879 William J. Rhees collected several of the legal documents, congressional records, entries from the diary of John Quincy Adams, and public and private correspondence having to do with the founding of the Smithsonian into a single volume: *The Smithsonian Institution: Documents Relative to Its Origin and History* (Washington, D.C.: Smithsonian Institution, 1879). This edition was reprinted as Volume 17 in the series *Smithsonian Miscellaneous Collections* (Washington, D.C.: Smithsonian Institution, 1880). The two-volume 1901 collection reprints and expands the legal documents and congressional records in the 1897 edition but omits the Adams diary and much of the correspondence. I use the 1901 edition (hereafter cited as *Smithsonian Institution: Documents [1901]*) unless otherwise noted. The debate has also been treated by historians of the Smithsonian Institution such as George Brown Goode, Wilcomb Washburn, and Paul H. Oehser.

³ John Lankford, *American Astronomy: Community, Careers, and Power, 1859–1940* (Chicago: Univ. Chicago Press, 1997); Robert Bruce, *The Launching of Modern American Science: 1846–1876* (New York: Knopf, 1987), p. 115; and Nathan Reingold, "American Indifference to Basic Research: A Reappraisal," in *Science American Style* (New Brunswick, N.J.: Rutgers Univ. Press, 1991), p. 65. On the groundwork for interest in astronomy see esp. Michael Mendillo, David DeVorkin, Richard Berendzen, et al., "History of American Astronomy," *Astronomy*, July 1976, 4:6–107 (special bicentennial issue); Stephen G. Brush, "Looking Up: The Rise of Astronomy in America," *American Studies*, Fall 1979, 20:41–67; and Bruce, *Launching of Modern American Science*.

⁴ John Quincy Adams, *Lectures on Rhetoric and Oratory, Delivered to the Classes of Senior and Junior Sophisters in the Harvard University*, 2 vols. (Cambridge, Mass.: Hilliard & Metcalf, 1810). The lectures were delivered between 1806 and 1809. See also Reid, "Boylston Professorship" (cit. n. 1).

the classical principles of rhetoric in the service of research-based science in general and astronomy in particular. Of course, a direct cause-and-effect relationship between Adams's addresses on astronomy and the growth of the astronomical community cannot be proved on the basis of present evidence; but neither can it be disproved. The point of rhetorical analysis, in this case, is to demonstrate the classical rhetorical techniques that Adams used in these unusual speeches promoting the cultural relations of science.

In order to illustrate Adams's use of rhetorical principles in his patronage of astronomy, I begin with a discussion of classical rhetorical theory as he and others taught it in American colleges during the first half of the nineteenth century. There follows a brief review of the undeveloped state of astronomy in America during the same period, along with Adams's presidential efforts to correct this shortcoming. I then advance to the peak of Adams's rhetorical crusade for astronomy, which occurred while he served in the House of Representatives. The fourth section describes how he began to promote astronomy to public audiences as the congressional debate over Smithsonian's bequest lingered unresolved for eight years (1838–1846). This change in audience required a significant revision of Adams's strategy for persuasion. My analysis reveals that Adams's public addresses on astronomy mark a shift in his rhetorical purpose: no longer focusing on concrete political expediency, he turned instead to fostering public intellectual values and planting the seeds of a science that would grow to maturity some years hence. My discussion concludes with remarks on the outcome of the Smithsonian debate and its relationship to what would become the U.S. Naval Observatory.

“OLD MAN ELOQUENCE”

The aim of classical rhetorical art was not to speak in a certain style or to win arguments at any cost but, rather, to invent all the possible proofs for a given argument and a specific audience.⁵ These “proofs”—including artfully constructed demonstrations of the speaker's good character, appeals to the emotions of the audience, and logical reasoning—were “invented” by the speaker as he systematically assessed the audience's attitudes toward his claims and expressed them in spoken language. It is therefore possible to trace the rhetorical principles in a particular text as a means of understanding it as a cultural artifact. The resulting analysis may provide interdisciplinary access to the less tangible objects of historical scholarship: attitudes, motives, emotional and ethical tenor, and the relationships between subgroups in public and political audiences. In effect, a rhetorical text is a linguistic record of its writer's perspective on the many-layered psychological state of the audience at a given moment and on its disposition to act. What may be gained from an examination of a text's rhetorical art is not so much empirical evidence about cause and effect but, rather, a clearer picture of the intellectual processes involved in the social workings of the history that text is a part of. Rhetoric gives voice to an audience's collective identity and values, indicators that John Lankford has described as formative in scientific communities and crucial to their acceptance in the general cultural sphere.⁶

Adams was never a wealthy man, so in his patronage of astronomy he primarily expended rhetorical know-how, which he did have in abundance. Until a recent resurgence

⁵ “The function [of rhetoric] is not so much to persuade, as to find out in each case the existing means of persuasion”: Aristotle, *The “Art” of Rhetoric*, trans. John Henry Freese (Cambridge, Mass.: Harvard Univ. Press, 1982), 1.1.1355b.

⁶ Lankford, *American Astronomy* (cit. n. 3), p. 3.

of scholarly interest in Adams—the ironic result, in part, of his popular characterization in the movie *Amistad*—his practice of rhetoric had not received the attention it deserves. This neglect can to some extent be attributed to the fact that Adams's rhetorical theory and practice were self-consciously classical, while most historical scholarship on nineteenth-century rhetoric has focused on the shift away from the traditional liberal arts in universities.⁷ Adams's persuasive efforts for slaves' human rights are now common knowledge, thanks to Steven Spielberg; but the history of science owes his rhetoric a tribute as well.

Adams was not a naturally talented speaker, yet his fellow congressmen nicknamed him "Old Man Eloquence," borrowing from Milton's description of Isocrates.⁸ The process by which he invented arguments and his complicated style were the result of conscientious study and practice of the rhetorical principles described by dozens of ancient and contemporary European theorists. Having researched the subject in preparation for his lectures at Harvard, Adams formed a lifelong habit of practicing ancient techniques of invention, composition, and delivery.

When Harvard offered Adams the endowed Boylston Chair in Rhetoric and Oratory in 1805 he was delighted. His responsibilities as a U.S. Senator from Massachusetts, however, would not allow him to fulfill all the statutes of the position, so the officers of the Boylston trust offered it to him on a limited basis. From 1806 to 1809 Adams fulfilled his duties as professor part time.⁹ His primary responsibility was to research and deliver a series of lectures on the history, theory, and practice of rhetoric, with an emphasis on the writings of Aristotle, Cicero, and Quintilian.

At the dawn of the nineteenth century in America, rhetorical studies were still a primary part of college education. Before specialization in the sciences and in professions such as engineering began to influence American culture, classical education embodied the democratic ideals of the new republic. The civic tradition of classical Greek and Roman rhetoric suited a culture that was primarily oral and collective in expressing its values. John Witherspoon at Princeton and Timothy Dwight at Yale, for instance, were influenced chiefly by the ancient rhetoricians in developing their college curriculums for ministers, politicians, and lawyers—the country's future civic leaders. John Quincy Adams's *Lectures on Rhetoric and Oratory* (1810) was among the most classical of these early American rhetorics, especially in its extensive treatment of the invention of arguments.¹⁰ We are fortunate to have a record of Adams's extensive readings while composing the *Lectures*, for he made meticulous comments in his diary about the rhetorical works he studied during this period. These notes, his lectures, and his public oratory offer striking evidence as to how his theory shaped his practice of rhetoric.

The published edition of *Lectures on Rhetoric and Oratory* (1810) contains thirty-six lectures in two volumes. (See Figure 2.) As called for in the Boylston statutes, the first six lectures, together with the inaugural oration Adams delivered when he assumed the chair,

⁷ Some representative examples of this type of scholarship are James Berlin, *Writing Instruction in Nineteenth-Century American Colleges* (Carbondale: Southern Illinois Univ. Press, 1984); and Nan Johnson, *Nineteenth-Century Rhetoric in North America* (Carbondale: Southern Illinois Univ. Press, 1991).

⁸ "Till the sad breaking of that Parliament/Broke him, as that dishonest victory/At *Chaeronéa*, fatal to liberty,/ Killed with report that Old man eloquent": from "Sonnet X: *To the Lady Margaret Ley*," in *John Milton: Complete Poems and Major Prose*, ed. Merritt Y. Hughes (New York: Macmillan, 1957), p. 141.

⁹ Reid, "Boylston Professorship" (cit. n. 1), pp. 264–265. "Statutes" were the requirements established as terms of the appointment.

¹⁰ George A. Kennedy, *Classical Rhetoric and Its Christian and Secular Tradition from Ancient to Modern Times* (Chapel Hill: Univ. North Carolina Press, 1980), pp. 132–245.

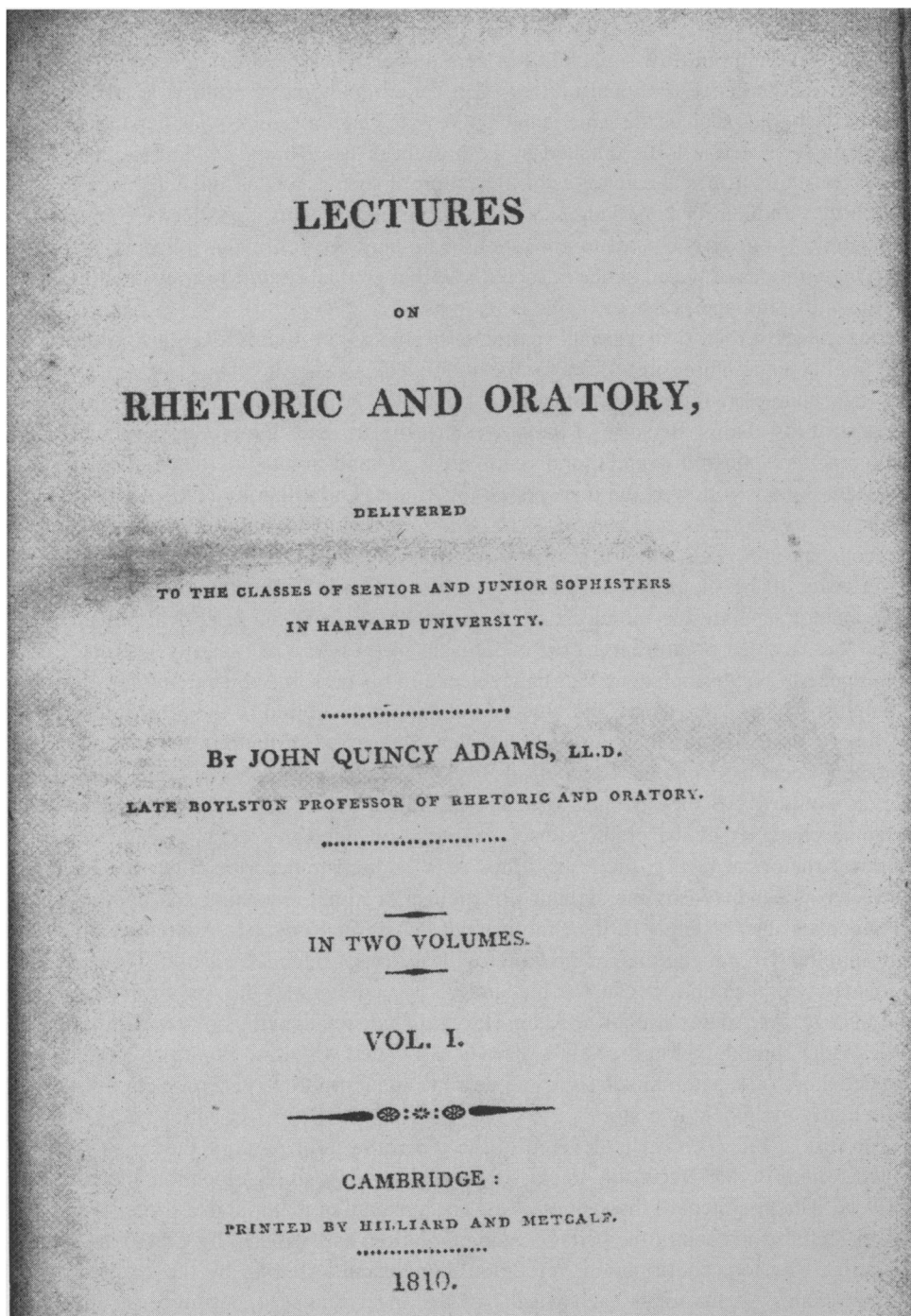


Figure 2. Cover page of John Quincy Adams, *Lectures on Rhetoric and Oratory* (Cambridge, Massachusetts: Hilliard & Metcalf, 1810).

introduce the origin and history of rhetoric and oratory; there are separate lectures on Cicero and Quintilian. Lectures 7–16 deal with the first part of the art of rhetoric, invention of arguments. Inventive strategies are categorized according to each of the three genres of classical oratory: political, judicial, and ceremonial. These genres are defined by their purpose and audience. Political oratory, also called deliberative oratory, is addressed to legislative bodies such as the American Congress and attempts to provide persuasive proof for a course of action to be pursued in the present or near future. Its aim is expediency, and it considers practical categories of logical proof such as means and ends, legality, and possibility. Judicial oratory judges a past action, and its aim is justice. Ceremonial or “epideictic” oratory is closest to education in its purpose: it aims at influencing the underlying attitudes of the audience in such a way that gradual change may eventually result. Virtue is its aim, and praise or blame is its method.

One aspect of rhetorical art that is particularly stressed in Adams’s *Lectures* is the moral and intellectual qualities necessary for the orator. The speaker invents ways to incorporate his own character, reputation, and moral principles into logical forms of argument in support of his claims. Because of the power that the art lends the orator, particularly in a democracy, responsibility and moral vision must go hand-in-hand in the practice of rhetoric. Here Adams followed the precepts of Cicero and Quintilian by teaching the concept of the *orator perfectus*, an ideal orator for whom civic duty and moral leadership become the constant aim. This state of perfection was strictly an ideal: though the orator could never reach it, he should spend his life trying to attain it. In Lecture 15 Adams writes, “We cannot separate the moral character of the orator from the oratorical power. If we assume as a given point, that a man is deficient in the score of integrity, we discard all confidence in his discourse, and all benevolence to his person. We condemn his argument as sophistry.”¹¹ Adams adapts his view of the qualities required of the ideal orator to the needs of a Christian republican leadership as he conceived of them in the first decade of nineteenth-century America. He counsels his students to imagine what Truth, Honor, and Virtue would say if they could speak with a human voice. To this effect, the ethos or personal character of the orator himself, as it is conveyed in speech, is paramount. (In classical rhetorical theory, the term “ethos” can be used to describe either the speaker’s character as perceived by the audience or the use of moral reasoning and appeals to the audience’s value system.) In the Smithsonian debate in Congress, Adams spoke as the self-appointed moral guardian of the fund for the testator’s intended use of it. This approach resonated with the public because of his family’s association with the American Revolution and his age. As Adams explained to his Harvard students, the ethos of a well-established civic leader should exploit the values already associated with him. For an older, generally respected orator, a paternalistic style and persona are appropriate in certain circumstances, particularly in epideictic oratory.

The rest of the *Lectures* is devoted to the remaining four parts of the art of rhetoric, which Adams divides according to classical tradition: disposition, elocution, memory, and delivery. The treatment of disposition—the arrangement of material in a speech—encompasses lectures on each of the parts of a single oration, as stipulated by Cicero: exordium, narration, division, confirmation, refutation, conclusion. Abiding by the statutes of the professorship, Adams treats each portion of the speech as an opportunity for inventing

¹¹ Adams, *Lectures on Rhetoric and Oratory* (cit. n. 4), Vol. 1, p. 345.

arguments and proofs; but he also explains that Aristotle's simple "State your case and prove it" is the more useful and practical approach.¹²

Also included under "disposition" are lectures on the parts and species of argument: confirmation, confutation, transition, ratiocination, and induction. Some of these methods are particularly relevant to my textual analysis of the Smithsonian debates. Ratiocination, in particular, covers a broad range of deductive reasoning strategies. The enthymeme, or rhetorical syllogism, is the most common form of ratiocination used in classical oratory. Like an ordinary syllogism, it consists of two general premises that lead to a more particular conclusion ($x = y$; and $y = z$; therefore $x = z$). One or sometimes both of the premises in an enthymeme are unstated in the discourse of an oration, however. The unstated premise is significant for audience analysis: we can assume that the audience is already united in firm belief in the premise taken as an assumption.

Adams's lectures on elocution (the eighteenth-century word for "style") describe eighteenth- and nineteenth-century concepts of purity and clarity, or "perspicuity," in language. Here Adams reveals that he is not simply recounting the theories of the ancient rhetoricians but adapting classical inventive strategies for use with contemporary styles of speaking. He also included lectures on classical style, noting its historical value in the study of ancient speeches and letters. Adams's own sentence structure, moreover, often resembled Cicero's at times when he felt that a traditional, stately style was appropriate to the subject. His treatment of style includes separate chapters on allegory, metaphor, metonymy, and synecdoche. Finally, he considers techniques of memory and delivery in one chapter each.

While eighteenth-century British and American universities generally had taught these classical principles of the art, the study of rhetoric was in a dramatic state of flux as it absorbed the influences of new psychological and epistemological fields of study. Adams's conception of rhetoric remained largely classical when he began his work in 1805, but new philosophies had begun to alter European views of the art in the century preceding his composition of the *Lectures on Rhetoric and Oratory*. The philosophies of René Descartes and John Locke had elevated mathematical logic and empirical science to the status of absolute truth. Classical rhetoric in the Aristotelian and Ciceronian vein, on the other hand, emphasized probabilistic and deductive reasoning, which now became suspect because it did not rely on quantifiable observations. Elaborate figures and tropes—among them the copious, flowery displays of some Ciceronian rhetoricians—were thought to obscure truth beyond recognition. As a result, rhetoricians such as George Campbell, Hugh Blair, and Richard Whately began to emphasize "perspicuity" rather than ornamentation in their discussions of style.¹³ Adams was also influenced by this trend.

On a more substantive level, many eighteenth-century rhetoricians in Europe abandoned the study of invention, which included techniques for the discovery of ethical, emotional, and logical proofs (ethos, pathos, and logos) that would persuade a particular audience. Heuristic systems of topics were discarded as mechanical and unnecessary. Deductive proofs and values-based reasoning were also rejected in favor of inductive methods that relied on experience and observation. These Enlightenment scholars saw a veritable gulf

¹² Charges made by some rhetorical scholars regarding Adams's slavish adherence to Cicero's technical rhetoric are therefore unfounded, even though he valued the works of the Roman statesman highly. This mistaken position was first argued in Lousene G. Rousseau, "The Rhetorical Principles of Cicero and Adams," *Quarterly Journal of Public Speaking*, Apr. 1916, 2:397–410; for another example see Donald Goodfellow, "The First Boylston Professor of Rhetoric and Oratory," *New England Quarterly*, 1946, 19:372–389.

¹³ Wilbur Samuel Howell, *Eighteenth-Century British Logic and Rhetoric* (Princeton, N.J.: Princeton Univ. Press, 1971), pp. 445–447, 259–264.

between language (*verba*) and reality (*res*), and they believed that classical invention exacerbated this split and thwarted the scientific search for truth. While European universities had seen the subject transformed, American schools were only beginning to implement these changes in the study of rhetoric in the first half of the nineteenth century. Classical rhetoric was still widely used and accepted as a cultural norm.¹⁴ Adams's use of classical rhetoric in the service of research-based sciences, particularly astronomy, thus stands at an important transition point in American culture in general and marks an interesting early stage in the development of public readiness for an astronomical community. Adams had—we might say—one foot planted in the classical values and oratorical mindset of the eighteenth century, the other in the scientific aspirations and desire for progress of the nineteenth century.

ORIGINS OF ADAMS'S RHETORIC IN THE SERVICE OF ASTRONOMY

During his presidency Adams had tried without success to secure public funding for an observatory, along with several other projects for “internal improvements” of the intellectual life of the citizens, including a national university. In 1825, in the first of his annual addresses to Congress as president, he had sought to arouse interest in a national observatory by appealing to American patriotism:

It is with no feeling of pride, as an American, that the remark be made that, on the comparatively small territorial surface of Europe, there are existing upward of one hundred and thirty of these light-houses of the skies; while throughout the whole American hemisphere there is not one. If we reflect for a moment upon discoveries which, in the last four centuries, have been made in the physical constitution of the universe by means of these buildings, and of observers stationed in them, shall we doubt of their usefulness to every nation? And while scarcely a year passes over our heads without bringing some new astronomical discovery to light, which we must fain receive at second-hand from Europe, are we not cutting ourselves off from the means of returning light for light, while we have neither observatory nor observer upon our half of the globe, and the earth revolves in perpetual darkness to our unsearching eyes?

Biographers have focused on Adams's role as a minority president when he made this speech and on how his opponents misrepresented his Baconian metaphor for observatories—“light-houses of the skies”—by misquoting it as “light-houses *in* the skies.”¹⁵ Given Adams's simultaneous efforts to effect other “internal improvements,” such as roads and lighthouses, this phrase was surely tailored to the utilitarian mind-set of the audience. Yet an analytical approach to Adams's rhetorical language is incomplete if we consider only its immediate effects on the hearers. In couching his passion for new scientific endeavors involving observation and research in long, balanced sentences typical of Ciceronian oratory, Adams combined two competing nineteenth-century trends in American political language: one stemming from classical democratic models, the other from science and progress. He used classical rhetoric in the service of scientific research and progress.

¹⁴ On the situation in Europe see Howell, *Eighteenth-Century British Logic and Rhetoric*, pp. 443–446. A good explanation and examples of this transformation as it happened in America in the nineteenth century are offered in Michael S. Halloran and Gregory Clark, *Oratorical Culture in Nineteenth-Century America: Transformations in the Theory and Practice of Rhetoric* (Carbondale: Southern Illinois Univ. Press, 1993).

¹⁵ John Quincy Adams's first annual address to Congress, 6 Dec. 1825, in *A Compilation of the Messages and Papers of the Presidents, 1789–1902*, ed. James D. Richardson (New York: Bureau of National Literature and Art, 1904), p. 56. For a biographer's view see Samuel Flaggs Bemis, *John Quincy Adams and the Union* (New York: Knopf, 1956), pp. 501–523.

Although Adams was not the only speaker who combined these competing trends, his speeches are unique in the history of astronomy. I will offer a fuller explanation and analysis of the linguistic aspects of his method in the next section. First, a closer look at the state of astronomy before 1830 will illustrate the general difficulties Adams faced with his audience.

While the practice of astronomy in America lagged behind that in Europe during the eighteenth and nineteenth centuries, it retained a certain distinction. Other scientists judged the state of their fields in comparison with the utility of European astronomical observations that improved the quality and productivity of life. Classified as a subfield of geography, astronomy was particularly relevant to the ongoing development of navigation, an art that was essential for increasing trade. Before 1830, however, America lacked a permanent observatory. Where there was interest, there was virtually no public patronage of astronomy and little knowledge of new theoretical and mathematical developments that were taking place in Europe. Adams's father had encouraged some research in astronomy, such as the work of Nathaniel Bowditch, in the American Academy of Arts and Sciences, and the results appeared in the academy's *Memoirs*. Benjamin Franklin's American Philosophical Society also published astronomical observations in its *Transactions*, most notably the contributions of David Rittenhouse and Andrew Ellicott. For the most part, however, these observations were conducted not in observatories but by individuals using their own small telescopes.¹⁶

David F. Musto has recounted the demise of the first American observatory, built by the astronomer David Rittenhouse in Philadelphia in 1781 and given to the American Philosophical Society in 1796. As the area became more urban, the use of this observatory grew increasingly difficult; the building was returned to the Rittenhouse family in 1810. Subsequent efforts by the American Philosophical Society and Harvard College failed to secure enough private funding to construct an observatory building or purchase instruments. Adams had wanted Harvard to have the first permanent observatory in the United States and had even pledged one thousand dollars for the purpose in 1823, but the college never collected the money because other donations could not be secured. The University of North Carolina finally built a small observatory in 1831 with funding from its president, Joseph Caldwell; unfortunately, it burned down seven years later.¹⁷

The United States was content to rely almost exclusively on British almanacs for navigation during this period, and federal legislators remained opposed to appropriating public funds for research in astronomy. There was strong aversion to Adams's attempts to win federal support for an observatory during his presidency; indeed, the majority of Congress believed that support for scientific research was a breach of the federal Constitution, unless it posed little financial risk and could produce immediate and obvious benefits for the agrarian economy. The memory of this political hostility would haunt Adams ten years later, during his continued efforts to benefit American astronomy in the House of Repre-

¹⁶ On views of astronomy see Mendillo *et al.*, "History of American Astronomy" (cit. n. 3), pp. 41–42; and Reingold, *Science American Style* (cit. n. 3), pp. 103–104. On early American work in astronomy see John C. Greene, *American Science in the Age of Jefferson* (Ames: Iowa State Univ. Press, 1984), pp. 128–156; and I. Milham Willis, *Early American Observatories: Which Was the First Astronomical Observatory in America?* (Williamstown, Mass.: Williams College, 1938).

¹⁷ David F. Musto, "A Survey of the American Observatory Movement, 1800–1850," in *Vistas in Astronomy: New Aspects in the History and Philosophy of Astronomy*, Vol. 9, ed. Arthur Beer (Oxford: Pergamon, 1967), pp. 87–88 (Philadelphia), 89 (North Carolina); and Bessie Zaban Jones and Lyle Gifford Boyd, *The Harvard College Observatory: The First Four Directorships, 1839–1919* (Cambridge, Mass.: Harvard Univ. Press, Belknap, 1971), p. 32.

sentatives. Public interest in astronomy, however, had meanwhile begun to show signs of life.

A list of observatories founded between 1830 and 1840 confirms that Adams's rhetoric was part of a trend toward general curiosity about this science, which he had helped to nourish with his public speaking. As already noted, the University of North Carolina built the first college observatory in 1831; the oldest surviving observatory in the United States, Hopkins Observatory at Williams College, was finished in 1836. Soon domed structures with permanent mounted telescopes were erected at Western Reserve College at Hudson, Ohio (1837), the Military Academy at West Point (1839), and Central High School in Philadelphia (1840). Important publications such as the "Report on the Progress of Astronomy in This Century" (1832) of Britain's astronomer royal, George Biddle Airy, and John Herschel's *Treatise on Astronomy* (1833, reprinted in America in 1834) sparked more public interest, as did lecture series by scientists such as Cincinnati's Ormsby MacKnight Mitchel. During the 1840s the active practice of astronomy came to fruition with several community and college observatories, the most famous of which was the Cincinnati observatory established in 1843 primarily through the work of Ormsby Mitchel. Also founded in the 1840s were observatories at Tuscaloosa, Alabama (1843), Georgetown (1843), Amherst (1847), and Shelby College (1847).¹⁸

As chair of the House of Representatives Committee on the Smithsonian, Adams submitted several bills proposing the construction of a national observatory in Washington to Congress in the 1830s and 1840s. In his committee reports and his frequent public lectures and private correspondence on the subject, Adams often looked to the Royal Observatory in Greenwich as the model for his proposals. In appendixes to these reports Adams included letters he had written to Airy asking about the founding, history, cost, maintenance, duties, instruments, and activities of the Royal Observatory, along with the detailed six-page letter answering his questions. He also discussed new observatories in France and in Russia. Despite political bias against Adams, the effect of these descriptions was to water the seed of desire, already planted by the unfulfilled efforts of small communities and colleges before 1830, to catch up with Europe in the national pursuit of knowledge. Thus Adams's contributions to the Smithsonian debate in Congress during the 1830s and 1840s, especially after the publication of both his committee reports and his public lectures on the Smithsonian bequest, played a part in the growing public interest in astronomy after 1830.¹⁹ (See Figure 3.)

In the following sections I analyze specific examples of Adams's oratory promoting astronomy in terms of his classical rhetorical theory. I pay particular attention to his advice to his Harvard students, as well as to voluminous diary entries that show his invention and composing process in action. Knowledge of Adams's rhetorical theory clarifies the purposes of his speeches, providing a fuller picture of his audiences' attitudes toward astronomy and their disposition to act accordingly.

¹⁸ On the observatories built up to 1840 see Musto, "Survey of the American Observatory Movement," p. 89; see also Brush, "Looking Up" (cit. n. 3), pp. 43–45. On increasing public interest see Deborah Jean Warner, "Astronomy in Antebellum America," in *The Sciences in the American Context: New Perspectives*, ed. Nathan Reingold (Washington, D.C.: Smithsonian Institution Press, 1979), pp. 55–65. On developments in the 1840s see Jones and Boyd, *Harvard College Observatory*, p. 38.

¹⁹ *Smithsonian Institution: Documents* (1901), pp. 208–214. See also the discussion in Bemis, *John Quincy Adams and the Union* (cit. n. 15), p. 514.

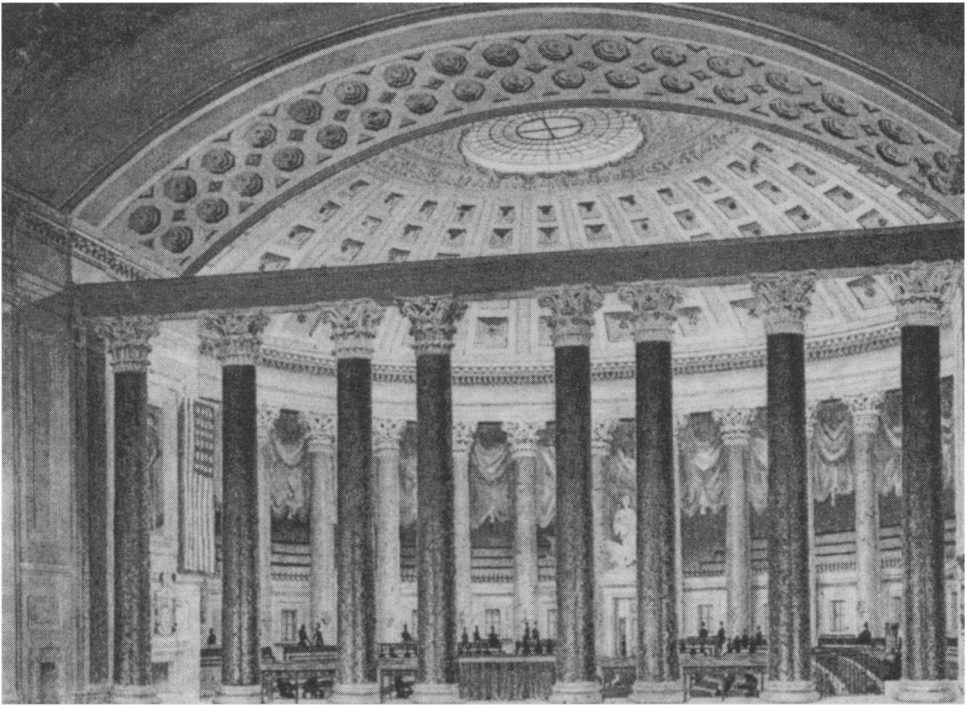


Figure 3. Alexander Jackson Davis, "Hall of Representatives, Washington, D.C." Watercolor on paper, 1832. I. N. Phelps Stokes Collection, Miriam and Ira D. Wallach Division of Art, Prints and Photographs, New York Public Library, New York; Astor, Lenox, and Tilden Foundations. (Reproduced in Pamela Scott, *Temple of Liberty: Building the Capitol for a New Nation* [New York: Oxford University Press, 1995], Plate 24.)

ADAMS'S PROPOSAL FOR A SMITHSONIAN OBSERVATORY

When Congress accepted Smithson's bequest in 1838, it agreed to preserve the capital sum and reinvest the interest until a decision could be made concerning the bequest's allocation. Working under the assumption that the first few years' interest would fund scientific and educational projects, congressmen began to argue over what particular purposes the money should support. Adams made it his personal mission to guard the Smithsonian bequest against fraudulent use and to guide the debate in Congress in a special House Committee on the Smithsonian. Because he saw astronomy as the queen of the sciences, he proposed that the first seven years' interest be used to build an astronomical observatory—simply a telescope and domed structure for physical observations—and to secure the means to publish navigational and other useful discoveries related to astronomy. An amateur astronomer himself, Adams had visited several observatories in his travels to Russia and Europe. He believed that knowledge of the stars was important to the economic, political, and international development of the United States. According to Deborah Jean Warner, nineteenth-century supporters of astronomy saw this science not only as a practical aid to navigation and sea trade but also as likely to benefit the prestige and cohesion of the young

nation, as “conducive to independent thought and a valuable ally of democracy.”²⁰ Adams alluded to all of these benefits in his political promotion of astronomy. Unfortunately, his efforts fell on unsympathetic ears in his congressional audience.

At the beginning of the Twenty-sixth Congress (1839–1841) Adams was chair of the House Committee on the Smithsonian. On 5 March 1840 he stood before the House and delivered a report on the issue. The purpose of this speech was twofold: to criticize a popular proposal to use Smithson’s money to found a national public university and to introduce his own proposal to establish an observatory.

In the chapters on deliberative rhetoric in his *Lectures on Rhetoric and Oratory*, Adams had discussed arguments pertaining to legality, contingency, necessity, facility, and possibility. His 1840 report on the Smithson bequest, and most of his speeches on astronomy in this debate, made use of each of these topics of argument in a way that demonstrates his systematic art of classical invention. Alert to Ciceronian principles of the ideal orator, he also drew on the image his audience had of him as a mature and ethical civic leader. In his treatment of Smithson’s will, he began with the topic of legality.

His understanding of the benefactor’s intent was the primary reason behind Adams’s belief that the fund should be used for scientific discovery and not for public education. Since Smithson’s will had stated clearly, if briefly, that the “increase and diffusion of knowledge among men” was his intent, Adams’s first task in moving the audience to his view was to define this phrase in terms of the legal parameters of the will. He elaborated his definition in a careful Ciceronian period, emphasizing important words and phrases: “The *increase and diffusion of knowledge among men* present neither the idea of knowledge already acquired to be taught, nor of childhood or youth to be instructed; but of *new discovery*, of *progress* in the march of the human mind; of accession to the moral, intellectual, and physical powers of the human race; of dissemination throughout the inhabited globe.” Because American universities were not yet conceived to be institutions dedicated to research and discovery as well as instruction in acquired knowledge, Adams’s argument could make this distinction convincing. Using a metaphor at the end of this series of deductions, he set up a pattern of rhetorical amplification that he used throughout his Smithsonian orations: he asserted that Smithson’s purpose was “entirely different” from that of mere education, that it “assumed . . . an interest . . . [which would] command grateful acclamations of future ages and illuminate the path of man upon earth with rays of knowledge still gathering with the revolving lapse of time.”²¹ In addition to emphasizing the benefits of building up a store of new knowledge for future generations of Americans, these light metaphors carry a strong religious association, since the “illumination” of wisdom would certainly result from close study of the heavens.

The beginning of the speech also dealt with an ethical proof of Smithson’s motivation:

²⁰ Warner, “Astronomy in Antebellum America” (cit. n. 18). When Richard Rush brought Smithson’s bequest back from England, the full amount was \$508,318.46. This sum had the spending power of over \$7 million today. For arguments over use of the money see *Smithsonian Institution: Documents* (1901), pp. 135–352; for Adams’s view see Adams’s Committee Report to the House, 5 Mar. 1840, *ibid.*, pp. 195–206.

²¹ MS Rept. 181, HC 29, Record Group 233, Series COMPAPERS, House Committee Records, National Archives, Washington, D.C. National Archives Records HC 28–33 are a collection of petitions, reports, and other material related to a short-lived Joint Committee on the Smithsonian (1838–1839), initially organized in Congress before separate committees formed in the House and Senate. There is a summary of the activities of this committee in Adams’s Committee Report to Congress, 5 Mar. 1840, pp. 188–190. A Ciceronian period is a sentence with a series of phrases leading to a central point of transition (in the first quoted sentence, the word “but”), after which a corresponding series of phrases fulfills the functional and grammatical expectations of the opening series in a balanced and symmetrical order.

his will had stipulated that the funds be used in the American capital because, as the seat of democratic government, it could superintend benefits deriving not only for the United States but for the whole world. Here Adams's arguments looked to the inventive categories of contingency and possibility. His use of a guardian ethos prophetically presented the United States as a steward for other nations, this time in terms of scientific knowledge to be acquired and disseminated.

As he neared the climactic section of his speech, Adams prepared the audience for his arguments for an observatory. Conscious of his listeners' differing opinions on the use of the fund, he first established common ground on the general subject of knowledge:

No [personal] preference . . . is indicated by [Mr. Smithson's] will. It is knowledge, the source of all human wisdom and of all beneficent power; knowledge, as far transcending the postulated lever of Archimedes as the universe transcends this speck of earth upon its face; knowledge, the attribute of Omnipotence, of which man alone in the physical and material world is permitted to partake; the increase and diffusion of which among men is the result to which this . . . fortune is devoted. . . . Let not, then, any branch or department of human knowledge be excluded from its equitable share. But it is believed that no one science deserves or requires the immediate application of the . . . accruing income of the fund so urgently as practical astronomy.²²

A change in voice from the active to a generalized, passive "it is believed" accompanies the turn from a universal treatment of knowledge to the more controversial subject of astronomy. This passage also linked astronomy with an "attribute of Omnipotence"—an identification he would use again and again.

Unlike the proposed national university, a national observatory would have a purpose in legal compliance with Smithson's will. With this premise established, Adams launched into a deductive proof of the purpose of astronomy, finally amplifying the subject with a chain of examples and a metaphorical crescendo. The purpose of this use of "ratiocination" was to prove that the object of Smithson's will would be expediently fulfilled by an observatory:

The express object of an observatory is the increase and diffusion of knowledge by new discovery. The influence of the moon, of the planets, our next door neighbors of the solar system, of the fixed stars, scattered over the blue expanse in multitudes exceeding the power of human computation, and at distances of which imagination herself can form no distinct conception; the influence of all these upon the globe which we inhabit, and upon the condition of man, its dying and deathless inhabitant, is great and mysterious. But to the vigilance of a sleepless eye, to the toil of a tireless hand, and to the meditations of a thinking, combining, and analyzing mind, secrets are successively revealed . . . which seem to lift him from the earth to the threshold of his eternal abode, to lead him blindfolded up to the council chamber of Omnipotence, and there, stripping the bandage from his eyes, bid him look undazzled at the throne of God.²³

Not only would an observatory fulfill the object of Smithson's will; it would also greatly expand the potential of Smithson's gift in the future. By associating the telescope with the author of all creation, Adams drew on a viewpoint advanced since antiquity—that astron-

²² MS Rept. 181, HC 29.

²³ *Ibid.* The deductive reasoning in the quoted argument that follows may be represented as a syllogism:

The object of an observatory is the increase and diffusion of knowledge.

The increase and diffusion of knowledge is the object of Smithson's will.

Therefore, an observatory is the object of Smithson's will.

The middle premise, as in most enthymemes, is unstated, because Adams assumes the audience already believes it to be true.

omy elevates those who study it because its object is God's handiwork. Astronomers since Ptolemy, Galileo, and Copernicus had argued that achieving a greater understanding of the universe and the mysteries of time and space would add to our appreciation of God's creation. Eighteenth- and nineteenth-century natural theologians, such as the Englishman William Paley and the American Edward Hitchcock, taught that evidence drawn from the mechanisms of the universe could establish the existence of God and allow inference of his characteristics. Framed in this way, Adams's identification of the heavens with knowledge of God also reflects Psalm 19—"The heavens are telling the glory of God; and the firmament proclaims his handiwork. Day to day pours forth speech, and night to night declares knowledge"—an allusion that enhanced the authority of Adams's rhetoric for his nineteenth-century audience, many of whom were eager for ways to see science and religion as harmonious.²⁴

After these appeals to tradition, Adams turned to inductive reasoning to consider the potential of astronomical discovery as it related to research in geography and navigation. Continuing his metaphor of spiritual mysteries to be explored, he suggested that magnetism promised to be a vast and interesting topic of study for Smithsonian astronomers:

What an unknown world of mind, for example, is yet teeming in the womb of time, to be revealed in tracing the causes of the sympathy between the magnet and the pole . . . that unseen, immaterial spirit, which walks with us through the most entangled forests, over the most interminable wilderness, and across every region of the pathless deep, by day, by night, in the calm serene of a cloudless sky, and in the howling of the hurricane or the typhoon.

Evoking the geophysical tradition of Alexander von Humboldt, Adams authors a metaphor that endows the nineteenth-century astronomical study of the earth and its atmosphere with a wonder and grandeur over and above its usefulness for mapmaking and navigation.²⁵ His style here certainly differed from the simple, direct "perspicuity" prized by some congressmen in the middle of the nineteenth century. But Adams's *Lectures on Rhetoric and Oratory* found occasion for what the twentieth-century critic Richard Weaver terms "the spaciousness of the old rhetoric." When the cause is great, Adams advised, "the orator may fairly consider himself, as addressing not only his immediate hearers, but the world at large; and for all future times. . . . He takes the vote of unborn millions upon the debate of a little senate, and incorporates himself and his discourse with the general history of mankind." The style of these arguments also calls to mind Adams's comments on the ethos of a mature orator: "If advanced in years, and elevated in reputation and dignity, the gravity of his manner and the weight of his sentiment should justly correspond with the reverence, due to his station."²⁶

But Adams's arguments for astronomy were not all so lofty. Mindful of his Jacksonian audience's preference for the practical and the useful, Adams dwelled on the history of astronomy and its benefits for the practical arts of timekeeping and navigation. He paid particular attention to authoritative precedent in this section, explaining that "the discoveries of Newton were the results of calculations founded upon the observations . . . of

²⁴ Psalm 19, in *The New Oxford Annotated Bible*, Revised Standard Version (New York: Oxford Univ. Press, 1973), p. 668. See also Bruce, *Launching of Modern American Science* (cit. n. 3), pp. 120–124.

²⁵ MS Rept. 181, HC 29. See also Reingold, *Science American Style* (cit. n. 3), p. 104.

²⁶ Richard Weaver, *The Ethics of Rhetoric* (Davis, Calif.: Hermagoras, 1985), p. 184. Weaver examines the rhetoric of some congressional leaders of the mid-nineteenth century. He writes of this type of rhetoric in general, "Its very spaciousness shows a respect for the powers and limitations of his audience." For Adams's view see Adams, *Lectures on Rhetoric and Oratory* (cit. n. 4), Vol. 1, pp. 274, 269.

Copernicus, of Tycho Brahe, of Kepler, of Flamsteed.” He named several successful observatories in Europe and noted the practical and theoretical fruits of their efforts. Drawing on the American sense of inferiority with regard to the intellectual institutions of the Old World, he used a simple quantitative comparison in informing his hearers that European governments almost invariably funded observatories, “the number of which in that quarter of the globe is not at this time less than 120, while throughout the whole range of these United States there is not one.”²⁷ In the *Lectures* Adams had claimed that jealousy was the passion most effectively aroused by ceremonial praise (that is, in epideictic oratory). The fact that he invented epideictic arguments for this report to Congress indicates that his purpose was not only political expediency and usefulness but also engendering a better appreciation among his audience for the observations made by astronomers.

Adams concluded his arguments by contrasting the insignificance of the educational proposal to the magnificent expanse of an astronomy associated with rising technology and scientific advances. He explained that “all the benefits [of the university proposal] would necessarily be confined to a very small number of students from the city of Washington . . . together with those few who were wealthy enough to move from distant parts.” But Smithson’s fund should benefit all people, not just those of one location or class or time. He ended by listing the benefits an observatory would offer: international prestige, navigational improvement, increase in geographical knowledge, and commercial opportunity. His final sentence brought his hearers down from the heights of a sublime vision to the simple, practical means-and-ends concerns of a governmental committee: “The bequest of James Smithson fortunately furnishes the means, without needing the assistance of any contribution from public funds of the nation.”²⁸

THE DUAL PURPOSES OF ADAMS’S PUBLIC SPEAKING ON ASTRONOMY

As the public became more aware of Smithson’s bequest and the debate over it in Congress, requests from special interest groups grew in number. Petitions were tendered favoring a library, a university, an agricultural station, and many other projects. Adams, a champion of the right of all citizens to petition Congress, respectfully and patiently presented many of these requests himself.²⁹ But in his role as chairman of the special House Committee on the Smithsonian he tirelessly upheld three fundamental principles: that the capital sum must be protected from waste or misuse, that the idea of original scientific research must be defended against the movement to found a school or university, and that the first seven years’ interest should be used to found a national observatory as the first project to “increase and diffuse knowledge among men.” He continued to present committee reports and bills in an attempt to put these principles into action—in 1840, 1841, 1842, and 1845. But opposition was strong, and the debate was going nowhere.

In the meantime, hoping to generate more public interest in the science of astronomy, Adams undertook several public speaking engagements that enabled him to tell the story of the Smithson bequest and to praise astronomy as the worthiest means of increasing and diffusing knowledge. In 1839 he gave a series of lectures in Quincy and Boston at the invitation of the Lyceum of the Apprentice Mechanic’s Association. Although the audiences at these lectures were expecting a general address on a scientific or trade-related

²⁷ MS Rept. 181, HC 29.

²⁸ *Ibid.*

²⁹ *Smithsonian Institution: Documents* (1901), pp. 241, 242, 273.

topic, Adams took the opportunity to compose a lengthy narrative about the struggles in Congress concerning the Smithsonian bequest. Near the end of the debate, in 1843, he accepted another invitation to speak, this time at the dedication ceremony for the Cincinnati Observatory. Again, he decided to use the occasion to stir popular interest in his plans for the Smithsonian bequest; this time, however, he hoped to excite widespread esteem for astronomical discovery as well. He also accepted several other lecture invitations along the way, so that the trip became a speaking tour headed westward to Ohio.³⁰

In the process of composing the 1839 lectures to be given in Quincy and Boston, Adams endured not only the pressures of political opposition to his proposal but also the stresses of great personal crisis. His youngest granddaughter, Georgiana Frances Adams, was ill with tuberculosis and near death. Often he sat up late into the night, listening to the child's labored breathing. His own health was hardly robust at the time: in addition to rheumatism, he suffered a severe cold. But Adams was a man whose perseverance knew no bounds: as president, he had swum for an hour every morning in the Potomac, against the current, even in winter, despite painful arthritis in his arms and legs.³¹ There was little chance of his giving up on the Smithsonian debate, whatever his personal tribulations.

Adams used his public speaking engagements in Quincy and Boston for both political and epideictic rhetorical purposes. His method of composing the lectures reveals more about his dual purpose than do the speeches themselves. On the one hand, he used the speeches to practice exhaustive political arguments in favor of an observatory but against spending the capital of the Smithsonian fund. He planned to use these arguments later in Congress. On the other hand, his praise of both the Smithsonian bequest and the science of astronomy served to rally popular enthusiasm, which could both intensify political pressure on Congress and educate the public on the importance of astronomy to the nation. On 26 October 1839, during the composition of the first lecture, Adams confided in his diary:

This subject weighs deeply upon my mind. The private interests and sordid passions into which that fund has already fallen fill me with anxiety and apprehensions that it will be squandered upon cormorants or wasted in electioneering bribery. The apparent total indifference of Mr. Van Buren to the disposal of the money, with his *general* professions of disposition to aid me . . . the opposition, open and disguised, of John C. Calhoun, W. C. Preston [a member of the Senate committee], Waddy Thompson [a member of Adams's own committee], even to the establishment of the Institution in any form; the utter prostration of any public spirit in the Senate, proved by the encouragement which they gave to the mean and selfish project of Asher Robbins to make a university, for him to be placed at the head of it . . . are so utterly discouraging that I despair of effecting anything for the honor of the country, or even to accomplish the purpose of the bequest—the increase and diffusion of knowledge among men. It is hard to toil through life for a great purpose with a conviction that it will be in vain; but possibly, seed now sown may bring forth some good fruit hereafter. . . . If I cannot prevent the disgrace of the country by the failure of the testator's intention, by making it the subject of a lecture, I can leave a record for future time of what I have done, and what I would have done, to accomplish the great design, if executed well. And let not the supplication of the Author of all good be wanting.³²

³⁰ For the 1839 lectures see John Quincy Adams, *The Great Design: Two Lectures on the Smithsonian Institution*, ed. Wilcomb Washburn (Washington, D.C.: Smithsonian Institution Press, 1965), p. 44. These lectures were published by special exception; a complete set of the Adams Papers—father and son—is being prepared for publication by the Belknap Press of Harvard University Press. On the 1843 tour see Bemis, *John Quincy Adams and the Union* (cit. n. 15), pp. 515–521.

³¹ On Georgiana's illness see John Quincy Adams, MS diary, 18 Nov. 1839, Adams Papers, microfilm in Library of Congress, Washington, D.C., reel 45. Adams's swimming is noted in Bemis, *John Quincy Adams and the Union*, p. 120.

³² Adams MS diary, 26 Oct. 1839, Adams Papers, reel 45.

Adams's comments reveal his intention both to invent arguments for the present and to speak to posterity. As he considered the future readers of his lectures and diary, he wanted to leave a "record" to protect his reputation; but he also hoped that there might be "some good fruit" produced from the seeds of his arguments. In classical rhetorical theory, epideictic rhetoric is a form of ceremonial praise or blame that aims not at immediate action but at a change in the audience's disposition that may lead to future action. The epideictic purpose of Adams's lectures, as explained in his diary, seems to transcend the moment and address an audience of posterity. If his motive now seems a bit self-righteous, it is only because he knew that petty schemes continued to gain supporters and that his advanced age might put an end to his promotion of short-term goals for the Smithsonian bequest. He truly believed that he was right on this issue, and so he appealed to the public beyond the scope of special interests in Congress.

Adams was certain that future readers of these public lectures, unbiased by contemporary partialities, would understand the universal goal of the Smithsonian bequest as he did: the benefit of all mankind through scientific discovery. The twentieth-century rhetorical theorists Chaim Perelman and L. Olbrechts-Tyteca assign a special importance to epideictic rhetoric; their account of this mode of oratory effectively describes Adams's purpose in his lectures: "Being in no fear of contradiction, the speaker readily converts into universal values, if not eternal truths, that which has acquired a certain standing through unanimity. Epideictic speeches are most prone to appeal to . . . the supposedly unquestionable values."³³ Adams did not intend to make the subject of his lectures appear controversial; rather, he meant to relate a simple narrative and to present his points in terms of values that his audience would accept as universal.

As Adams became absorbed in preparing his Massachusetts lectures, he realized that he could not say everything in one speech. He used his notes to himself to direct and refine his political purpose in relation to his audience: "My main object must be to prepare for action upon it [the Smithsonian bequest] at the approaching session of Congress, and to gather facts and arguments for a last effort to save the fund from misapplication, dilapidation and waste."³⁴ The text of the lectures reveals the shifting focus of their invention, caused by the pressure of the approaching deadline in Congress. At times the purpose and audience seem confused: at one moment he is engaged in an encomium on the timeless virtues of astronomy, while the next he argues deliberatively about a practical issue facing Congress—for example, the plan to use only the interest from the Smithsonian fund.

Adams's diary shows that he was relentlessly self-critical about the composition of these lectures. He worried about their effects on the public audience and the need to modify them if he failed in Quincy or in Boston. He considered the prospect of giving more lectures elsewhere at a later date: "If I can possibly rouse the public mind to take some interest in this foundation, it may save the fund from being utterly wasted and lost, and the more frequently I go before the public upon it, the more chances will there be for connecting public sympathies with it. The experiment is desperate, but with a blessing it may succeed." Yet, as he finished writing his lectures, he confided to his diary, "I finished this day, my second Lecture upon the Smithsonian bequest. But they have been written under the harrow of such distress of mind, that they are unfit to go before the public, and I fear will be

³³ Chaim Perelman and L. Olbrechts-Tyteca, *The New Rhetoric: A Treatise on Argumentation*, trans. John Wilbenson and Purcell Weaver (Notre Dame, Ind./London: Univ. Notre Dame Press, 1969), p. 51.

³⁴ Adams MS diary, 29 Oct. 1839, Adams Papers, reel 45.

found insupportably tedious and dull." His evaluation of the political arguments finds them lacking:

I have done scarcely anything that I intended. I have not set forth at large the reasons for objecting to the application of any portion of the funds to purposes or institutions of education . . . [or] for devoting the appropriations for a series of years to an astronomical observatory. There are points upon which it will be important to dwell with power in the argument to be maintained before Congress, the preparation of which will be much more laborious and difficult than that of these Lectures. The arguments against the application of the funds to education are the multitudes of such institutions already existing, and the impossibility of equalising its benefits to all the people of the Union—State and Sectional jealousies, and no prospect of any evident and palpable increase of knowledge. The arguments in favour of an observatory, the history of that of Greenwich, and superadded facts.

But Adams continued his inventive efforts even as he criticized them. His comments to himself, assessing the worth of his rhetorical composition, acted as a counterbalance to the audience at hand. Adams was always, it appears, a member of his own audience, perhaps the member most difficult to please. As he had explained in the *Lectures on Rhetoric and Oratory*:

By the power of imagination the orator undergoes a virtual transformation. He identifies himself either with the person, in whose behalf he would excite the sentiment of compassion, or with the antagonist, against whom he is to contend, or with the auditor, whom he is to convince or persuade; or successively with each of them in turn. In the deep silence of meditation he holds an instructive dialogue with every one of these personages.³⁵

Although he fretted over the quality of his rhetoric, the 1839 Quincy and Boston lectures were not wasted efforts in explaining the Smithson bequest and promoting the science of astronomy. In content, they were primarily a narrative of Smithson's will and the deliberations in Congress to date. In tone, they resembled personal testimony, an ethical form of argument described by many neoclassical rhetorical theorists, particularly those in the elocutionary school, which favored the close study of delivery and of the qualities of the orator. This approach takes full advantage of Adams's morally driven role since the beginning of the debate. For instance, as he began his account of the transactions in Congress, he wrote:

I cherish the hope that this subject may be considered as divested of all intermixture of party politics—and I have thought it proper to avail myself of the occasion [of speaking before the Apprentice Mechanic's Association] to lay before you a narrative of the transactions in the Congress of the United States, upon this subject hitherto—of the parts I have taken in them, of my opinions, with regard to the solemn duties incumbent upon this Nation, and upon their Rulers and Servants, by their acceptance of this magnanimous bequest, and of what I still propose to do in this behalf, with fervent prayer to Divine Providence for his blessing upon a design, the express object of which, is for improving the condition of mankind on earth.

In the course of the two addresses, he explained the bill—introduced by Adams and passed by Congress—that accepted the fund and pledged solemnly to fulfill the testator's wishes; his letters to Secretary of State John Forsyth on the observatory proposal; and even con-

³⁵ Adams MS diary, 6 Nov. 1839, 12 Nov. 1839, Adams Papers, reel 45; and Adams, *Lectures on Rhetoric and Oratory* (cit. n. 4), Vol. 2, p. 382.

versations with private citizens on the subject of a national university. The lectures were in an almost purely narrative form. In effect, Adams put himself on the witness stand, drawing on the conventions not only of epideictic but also of judicial rhetoric. “A single error of judgment, a single false step now made,” he soberly told his present and future judges, “might totally defeat one of the noblest benefactions ever made to the race of man . . . and turn to the disgrace of this Nation.” With the self-imposed ethos of his understanding and moral rectitude on the matter of the Smithson bequest, he implicitly accepted the burden of proof, showing through his narrative that he is doing all he can to keep the nation’s promise to James Smithson. If Congress failed to settle on noble principles for the institution’s foundation, he had shown that that was not his fault. The rhetorical practice of taking on the burden of proof would have been familiar to many in his wider audience after the publication of the lectures, since it was popularized in the 1830s by Richard Whately in his *Elements of Rhetoric*.³⁶

The reception of the first lecture at the Quincy Lyceum was not as deplorable as Adams had anticipated. The lectures were open to the public, and the people of Quincy were eager to hear the distinguished speaker—particularly the women, a point that seems to illustrate the interest of the general lay community in astronomical developments. The *Boston Evening Transcript* reported, “Though laboring under a heavy cold, Mr. Adams spoke with a firm voice, and with his characteristic earnestness and interest, for an hour and a half. The hall was crowded with ladies and gentlemen of his native town, who are ever glad to listen to the voice of the old man.” Adams described the occasion in his diary:

At 7 o’clock this Evening I walked to the Town Hall, and though labouring under great hoarseness, and a hacking cough delivered the first of my two lectures on the Smithsonian bequest, which took me one hour and twenty minutes. The hall was crowded to its utmost capacity with two or three women to one man. The attention of the auditory was well sustained, though parts of the discourse were evidently tiresome. . . . I rode home, shortly before the Evening bell, and retired to bed with a cup of spearmint tea.

He was not able to deliver the second lecture himself, as his granddaughter’s illness worsened. On the appointed evening he gave the text of the second address to William P. Lunt, the family’s minister, and told him to wait until 7:00 P.M. His diary records the instructions he gave Lunt: “If the child should become so that I could attend, I would come and deliver the Lecture myself. But if I should not be there at 7, I wish him to read it.” By 5:15, Georgiana’s breathing was short. She died at 5:50, after which, Adams writes in his diary, “I retired for the remainder of the evening to my chamber in a state approaching stupefaction.”³⁷

In Adams’s absence, Lunt’s delivery received respectable reviews. Adams agreed to publication of the first lecture in Boston’s *Christian Register* after the editor, Rufus A. Johnson, printed a glowing account of the address and “a personal panegyric for which,” Adams later wrote, “I ought to humble myself before God, with confusion of face.”³⁸

³⁶ Adams, *Great Design*, ed. Washburn (cit. n. 30), p. 44; and Richard Whately, *The Elements of Rhetoric*, in *The Rhetoric of Blair, Campbell, and Whately*, ed. James L. Golden and Edward P. J. Corbett (Carbondale: Southern Illinois Univ. Press, 1990), pp. 273–399, esp. pp. 342–343. Whately’s widely used *Elements of Rhetoric* was first published in 1828 and underwent several revisions throughout its seven editions, the last of which was published in 1846.

³⁷ *Boston Evening Transcript*, quoted in Adams, *Great Design*, ed. Washburn, p. 20; and Adams MS diary, 13 Nov. 1839, Adams Papers, reel 45. Washburn’s narrative of Adams’s personal struggles during this lecture tour is excellent; it appears in his introduction to the volume.

³⁸ Adams MS diary, 24 Nov. 1839, Adams Papers, reel 45.

Four years later, in 1843, near the end of the Smithsonian debate, Adams received another invitation to speak, this time at the cornerstone ceremony for an observatory belonging to the new Cincinnati Astronomical Society. Though previously unimpressed with the work of the Cincinnati society's president, Ormsby MacKnight Mitchel, Adams saw the invitation as the tenacious hand of Providence guiding him once again to take advantage of the new popular interest in his favorite science. He drafted a speech on the relationship between scientific research and American democratic government, with special emphasis on the field of astronomy. By this point in the debate his astronomical observatory proposal was losing ground in Congress, as new plans were under way for both a naval observatory in Washington, D.C., and a college observatory at Georgetown. However, Adams saw a much broader purpose for this lecture tour. In his diary he wrote:

The people of this country do not sufficiently estimate the importance of patronizing and promoting science as a principle of political action; and the slave oligarchy systematically struggle to suppress all public patronage or countenance to the progress of the mind. Astronomy has been specially neglected. . . . My task is to turn this transient gust of enthusiasm for the science of astronomy at Cincinnati into a permanent and persevering national pursuit, which may extend the bounds of human knowledge and make my country instrumental in elevating the character and improving the condition of man upon earth. The hand of God Himself has furnished me this opportunity to do good.

Here his strongest epideictic tactic emerges: Adams meant to present his values for the benefit of future generations. The oration he wrote for the Cincinnati Astronomical Society was, again, primarily a long narrative. This time he tells the story of astronomy from ancient times to the nineteenth century, with bursts of praise for the nobility and virtue of this queen of sciences: "The music of the spheres is the chorus of Angels conveying to man the inspiration of the Almighty, which giveth him understanding."³⁹

The printed version of the speech is sixty-three pages long (twenty-five thousand words), but he delivered only half of this. After reviewing the most important astronomical discoveries from Anaxagoras to Herschel and the contemporary achievements of the science in Europe, he asks his audience: "but what, in the meantime, have *we* been doing" since the foundation of our enlightened nation in 1776? His answer: "The God in whose name they [our founders] spoke, had taught them that the only way in which man can discharge his duty to Him is by loving his neighbor as himself, and doing with him, as he would be done by—respecting his right, while enjoying his own, and applying all his emancipated powers of body, and of mind, to self-improvement, and improvement of the race."⁴⁰ To Adams, the science of astronomy was nothing less than a fulfillment of America's duty to her forefathers and, above all, to God.

Adams suffered fewer political and personal tribulations during his 1843 lecture tour than he had in 1839, but his health continued to deteriorate. At the age of seventy-six he traveled for a month by train, steamboat, ferry, coach, and foot through dozens of towns, including Erie and Pittsburgh, Pennsylvania; Springfield, Dayton, Akron, and Newark in Ohio; Marysville, Kentucky; Cumberland, Maryland; and Harper's Ferry, West Virginia. Everywhere he was greeted by admiring crowds and invitations for more speaking en-

³⁹ Adams MS diary, 24 Nov. 1843, Adams Papers, reel 47; and John Quincy Adams, "An Oration Delivered before the Cincinnati Astronomical Society on the Occasion of the Laying of the Cornerstone of an Astronomical Observatory on the 10th of November, 1843," quoted in Bemis, *John Quincy Adams and the Union* (cit. n. 15), p. 519 (Adams's view of Mitchel appears on p. 515).

⁴⁰ *Ibid.*

gagements, some of which he graciously accepted but many of which his strength simply would not endure. Though racked by a constant cough, he often stayed awake until one or two in the morning composing addresses for eager audiences.⁴¹

Adams's reputation and character at this stage in his life resound in the newspaper coverage of his tour. Often the praise centered more on the man than on what he said—a point that accords well with his Ciceronian view that an orator's character is essential in persuasion. The audience continued to garnish Adams's ethos by identifying him with the birth of the nation through his father. The *Cleveland Herald* proclaimed: "Blessings on thee, Patriot, Statesman, and Sage! . . . No two men have ever lived and filled so large a space in our public life, whose names will be transmitted to future ages with more true greatness and patriotism than John Adams, and his illustrious son."⁴² Unfortunately for Adams, popular adoration could not revive his proposal for an observatory. The other two points on his agenda, however, were still defensible in the congressional forum: preserving the capital sum of the bequest and preventing its use for simple education of the young. Furthermore, he had a new understanding of his former purpose: to increase acceptance of astronomy on a cultural level, using his respected public image to win the symbolic stamp of national approval.

These public speeches and Adams's final congressional rhetoric on the topic of a national observatory took the form of ceremonial praise for science and astronomy, which he hoped would awaken Americans' desire for astronomical discoveries. In accordance with the ethical principles of classical rhetoric, he used his art for what he believed to be the greater benefit of the citizens, rather than simply to win the immediate congressional argument at any cost.

The published versions of these lectures and the congressional reports on the Smithsonian bequest were Adams's contribution to the public interest in astronomy that was finally beginning to develop in communities across the nation. His purposeful use of epideictic rhetorical invention to praise astronomical discovery, both in his congressional addresses and in his public speaking tours, indicates the role that the hard-working Adams played in the history of American science. Although it is often overlooked because of Adams's political disappointments, the longer-lasting cultural precedent that he set is significant, especially given the general esteem in which his public audiences held him.

ADAMS'S PROMOTION OF ASTRONOMY AND THE OUTCOME OF THE SMITHSONIAN DEBATE

While Adams's lengthy arguments praising astronomy sometimes smelled too much of the lamp, they did have a lingering effect on many listeners. Many of his contemporaries acknowledged his influence, not so much as an administrative power behind the new observatories founded during this period (including what would later become the U.S. Naval Observatory), but as a primary ideological inspiration. This was not an insignificant role during the Jacksonian era.

In 1842 Lieutenant James Gilliss of the U.S. Navy, inspired in part by Adams's efforts to promote astronomy in the Smithsonian debate, succeeded in his attempts to secure funds for a naval observatory in Washington, D.C. Congress had remained skeptical of Adams's

⁴¹ Bemis, *John Quincy Adams and the Union*, pp. 515–521.

⁴² *Cleveland Herald*, 1, 2 Nov. 1843, in *Annals of Cleveland* (Cleveland: Works Progress Administration, 1938), Project 16823, Vol. 26, pp. 206–207.

persistent attempts to found an observatory, probably because of the memory of political bias against his program while he was president. Why did it vote to fund an observatory for the Navy after years of argument over the Smithsonian? According to Steven J. Dick, the reasons for this seemingly contradictory behavior were precisely that the plan was not proposed by Adams and that the building was not called an "observatory." In funding what it called the Depot of Charts and Instruments, Congress avoided giving Adams credit for this first national observatory; further, this title would clearly signal the functional uses of astronomy for navigation while avoiding any overt association with Adams's promotion of the science's ideological usefulness for building a national identity. The support of Senator W. C. Preston (South Carolina), in particular, was crucial to the passage of Gilliss's proposal. At the same time, Preston was also presenting a bill, in opposition to Adams's observatory bill, that would place the Smithson bequest under the control of the National Institute for the Promotion of Sciences.⁴³ The poor legislative timing of Adams's political efforts, however, should not rob him of credit for the success of his epideictic rhetorical purpose: to lay the groundwork for a national identity that could accept the value of original astronomical research. In the light of this cultural contribution to the history of American science, the failure of his immediate political purpose appears less significant.

The establishment of the Depot of Charts and Instruments significantly weakened Adams's arguments, at the end of the Smithsonian debate, that the money should be used to fund an observatory. The efforts of the former president, however, were a unique and important spur to the increasing interest in astronomy in the later half of the nineteenth century. His well-received public lectures were a remarkable attempt to encourage the community spirit that eventually led to a thriving astronomical scientific community. The Cincinnati observatory, for which Adams laid the cornerstone in 1843, is an example of a project that is primarily the work of a whole community, including private citizens. As John Lankford has demonstrated, the early development of a lay audience was essential to cultivating and funding the conditions for research in the sciences.⁴⁴

A bill to found the Smithsonian Institution finally passed in August 1846. Although the Smithsonian had little to do with astronomy until its Astrophysical Observatory was established in 1890, the other two important goals that Adams had championed were incorporated immediately: regulations that required investing the fund in the Federal Treasury and that prevented its use on public education were largely the result of Adams's political rhetoric. Robert Dale Owen, the author of the Smithsonian bill that finally prevailed, said: "The gentleman from Massachusetts had labored more zealously in this good cause than, perhaps, any other individual." Because of Adams's committed efforts, moreover, the first Secretary of the Smithsonian Institution, Joseph Henry, was able to focus on using the income of the fund for scientific research during the first several years of its existence. With regard to his cherished hope for a national observatory, Adams told Congress that he was "delighted that an observatory—not perhaps so great as it should have been—had been smuggled into the number of the institutions of the country."⁴⁵ While Adams's rheto-

⁴³ Steven J. Dick, "John Quincy Adams, the Smithsonian Bequest, and the Founding of the U.S. Naval Observatory," *Journal for the History of Astronomy*, 1991, 22:31–44.

⁴⁴ Lankford, *American Astronomy* (cit. n. 3), pp. 11–17. See also Musto, "Survey of the American Observatory Movement" (cit. n. 17), p. 90.

⁴⁵ Robert Dale Owen, quoted in *Smithsonian Institution: Documents* (1901), p. 405; and John Quincy Adams, quoted *ibid.*, p. 399. Marlana Portolano, "John Quincy Adams and the Rhetoric of the Smithsonian's Inception" (Ph.D. diss., Catholic Univ. America, 1998), contains a complete analysis of Adams's rhetoric during the Smithsonian debate.

ric in Congress and before public audiences may not have been the sole cause either of the legislation regarding the naval observatory or the Smithsonian's focus on scientific research, he had certainly put up a long and formidable resistance to opponents of these ideas. With the last year of his life (1848) close on the horizon, Congress had finally approved his dream of "light-houses of the skies."