

**The Liberating Role of Astronomy in an Old Farmer’s Almanac:
David Rittenhouse’s “Useful Knowledge” and a Benjamin Banneker Almanac for 1792**

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Abstract

Traditionally, astronomy met theology and political ethics in almanacs. As presented in early New England almanacs of the farmer’s type, astronomy was deity-affirming and liberty-oriented. The old English label for astronomy that affirms theology was “*Astro-theology*” (William Derham, 1715). The New England rendering of astro-theology was so strongly oriented towards liberty that it can now be labeled *astro-liberation theology*. This 21st century label is appropriate because 18th century New England printers and astronomers used astronomy to demonstrate the glory of the Creator (astro-theology) and to encourage liberation from colonialism and slavery (astro-liberation theology). A philosophy of astronomy as “useful knowledge” expressed by David Rittenhouse in 1775—and implicit in a Benjamin Banneker almanac for 1792—included liberty-oriented visions of planet Earth as seen from outer space, and liberty-oriented visions of intelligent life on other planets orbiting other stars.

Key words: astronomy, theology, astro-theology, liberty, astro-liberation theology, useful knowledge, farmer’s almanac, philomath almanac, David Rittenhouse, Benjamin Banneker.

I. Astronomy in Almanacs

The role of almanacs in spreading astronomical knowledge among colonial and early U.S. English readers would be difficult to overstate. As indicated in Marion Barber Stowell's *Early American Almanacs: The Colonial Weekday Bible* (1977), in the absence of other calendars, and given the prevailing scarcity of other printed literature, very nearly everyone who could read regularly consulted almanacs. In many places, the only printed materials were bibles and almanacs. And typically, almanacs included abundant astronomical information, often presented in deity-affirming ways.

One among many typical examples is *the Pennsylvania, Delaware, Maryland and Virginia Almanack and Ephemeris for the Year of Our Lord 1789; Being the First After Bissextile, or Leap-Year, and the Thirteenth Year of American Independence, which commenced July 4, 1776* (Baltimore: William Goddard, ephemeris by Benjamin Workman [1788]). This almanac for the year 1789 was prefaced by a 3-page verbal "Sketch of the Solar System," said to have been penned by an unnamed "eminent Astronomer" (pp. 2-4). [This verbal sketch consists of extracts from work written by British astronomer Adam Walker (born 1731, died 1821) and his son William Walker (born 1766, died 1816), and reprinted in *An Account of the Eidouranion; or, Transparent Orrery; Invented by A. Walker ... as Lectured upon by His Son* (1793).] The sketch starts with our Sun, and proceeds outwards planet by planet to "the New Planet" called "Georgium Sidus" (Uranus), then to comets, then to the stars, and concludes with this affirmation of deity:

When we launch out into Infinite Space, and contemplate the numberless systems that fill it; here indeed we have a subject truly worthy of the DEITY ... So truly may we say with the Psalmist —‘The Heavens declare the Glory of G*d ...’ (unnamed eminent astronomer [William Walker], almanac for 1789, p. 4).

This verbal sketch of the solar system is followed by predicted “eclipses at Baltimore” (p. 5), and an extensive chronology of other predicted astronomical events—including risings, settings, phases, conjunctions, etc—for each of twelve months, plus another deity-affirming astronomy lesson in the form of a poem entitled “On the Universe” (almanac for 1789, pp. 38-39). [“On the Universe” is a word-for-word extraction from a much longer philosophical poem by British poet Sir Richard Blackmore. In the almanac for 1789, there is no mention of Blackmore. Appropriating material without naming the author(s) was common among 18th century almanac makers.]

Ancient Origins

Almanacs originated from the practical habits of measuring time and space by recording and predicting celestial motions. Such astronomical practices are essential to ancient history and prehistory. Archaeoastronomy has demonstrated that such highly practical skyward orienting was “embedded in everyday activities” (Stanislaw Iwaniszewski, 2010), and essential to the alignment of some important “building units” (Emília Pásztor, 2010). And, the history of

religions has demonstrated that skyward orienting has long been essential to the alignment of some important conceptual units—religious “symbols” (Mircea Eliade, 1961), and essential to “cosmic orientation” (Charles H. Long, 1963, p. 18). Given these ancient origins, the role of astronomy in almanacs is continuous with “the role of astronomy in ancient cultures” (Juan Antonio Belmonte, 2010).

The word “almanac” indicates continuity with, and change from, previous cultural astronomy. According to the *Oxford English Dictionary*, the medieval Latin “almanac(h)” derives from the late Greek “almenikhiaka” of unknown origin. *The American Heritage Dictionary of the English Language* adds that the late Greek “almenikhiaka” is related to “ephemeris” and perhaps of Coptic origin. “The actual term ‘almanac’ has been attributed to the Arabic word for calendar, which was brought into Spain by the Moors,” writes Louise Hill Curth; and notes that alternatively, the term “might have originated from the Latin ‘manacus’ [al + manacus] or ‘manadius’, which refers to the circle in a sundial” (Curth, 2002, p. 50). Maureen Perkins says:

The word ‘almanac’ may have come from the Arabic *al* (the) and *manach* (count), meaning the action of counting, or from a combination of both Arabic and Greek words meaning ‘the month’.

... It was adopted to indicate the inclusion of not only calendrical data, but also of astronomical detail. Eustace Bosanquet writes that it was first found in England in the *Opus Majus* of Roger Bacon in 1267, where it was used for tables of the apparent motions of the

heavenly bodies, whereas calendars showed only the days of the week and the months ... (Perkins, 1996, p. 22)

Regardless of whether the word “almanac” derived from Arabic celestial calendars or Latin sundials, or from late Greek or Coptic origins; modern almanacs originated from ancient practical uses of astronomy converging with the use of Arabic numbers, and Arabic names for stars, and printing on inexpensive paper during the 15th century.

Printed Almanacs

The first *printed* almanac was “the so-called Astronomical Calendar of 1448 [*Almanach auf das jahr, 1448*], printed by Gutenberg in Mainz” (Stowell, 1977, p. 8). This was “eight years before his famous Bible” (Curth, 2002, p. 50). The first almanac printed in England was the 1497 “Shepherd’s Kalendar” (Stowell, 1977, p. 10). Almanacs printed during the 15th century were calendars with “astronomical detail” (Perkins, 1996, p. 22).

During the 16th and 17th centuries, English almanac makers continued printing calendars with detailed astronomical predictions; *and* they added other predictions, including astrological predictions, prognostications, and prophecies (Bernard Capp 1979, Keith Thomas 1997). Other European almanac makers were also adding other predictions. For instance, in France, Michael Nostradamus (1503-1566) produced almanacs predicting “the deaths of kings, the Great Fire of London, and Cromwell’s success in Flanders” (Stowell, p. 10).

During the 17th century, unlike almanacs printed in England, almanacs printed in colonial *New England*—called “Philomath” almanacs—excluded most astrology and prognostication in favor of promoting modern Newtonian astronomy (Stowell, 1977).

17th Century Philomath Almanacs

The 17th century colonial New England almanacs are called “Philomath”—or “Cambridge” or “Harvard” almanacs—because, from 1639 to 1692, the Cambridge Press at Harvard College in Cambridge, Massachusetts printed almanacs containing astronomical predictions/ephemerides calculated by Harvard “Philomaths” (Stowell, 1977, p. 41). From 1639 to 1675 the Cambridge Press was the only printing press on the western side of the North Atlantic. Consequently, from 1639 to 1675 the only almanacs printed in New England were the Harvard-Cambridge-philomath almanacs.

In addition to providing calendars with detailed astronomical predictions, “teaching astronomy” was among the “primary missions” of the Harvard-Cambridge-philomath almanacs from 1656 through 1692 (Stowell, 1977, pp. 43-52). This astronomy teaching mission included teaching Harvard students by assigning them the task of doing the calculations, and teaching the public by placing astronomy essays in the almanacs.

Harvard Puritans saw no contradiction between teaching astronomy and teaching biblical theology (Stowell, 1977, p. 42). Harvard College, named for Puritan minister John Harvard (born 1607, died 1638), was started in 1636 for the purpose of training ministers. For the Harvard

College Puritans who produced the 17th century “philomath” almanacs, their religious mission included teaching astronomy.

18th Century Farmer’s Almanacs, Labeled in 1792

The 18th century almanacs printed in New England have come to be called “farmer’s” almanacs.

Stowell says:

Until 1675, Harvard College had possessed the only printing press in the colonies. The “philomath,” or Cambridge, almanac, a product of this press, had been scientific and academic in approach. After 1675, the Philomath almanac gave way to the *farmer’s almanac*, with its own distinctive character. This *new type of almanac* came to include a greater variety of material with popular appeal, such as astrological predictions, advice on husbandry and health, and humor. It is not, therefore, for chronological purposes alone that we mark a division between seventeenth-century and eighteenth-century American almanacs. (Stowell, 1977, p. 36, italics added)

Probably because the highly academic “philomath” type could not profitably compete with the more popular “new type of almanac” emerging after the 1675 end to the Cambridge printing monopoly; Harvard’s Cambridge Press ceased printing almanacs in the year 1692 (Stowell, 1977,

p. 36, pp. 52-56). And though the new type of almanac was well developed by the end of the 17th century; the typological label—“Farmer’s Almanac”—was not applied until the last decade of the 18th century (and more frequently applied in the 19th century). Explicit typological labeling occurred around the year 1792.

In the fall of 1792 **Robert B. Thomas** (born 1766, died 1846) produced an almanac for the year 1793—*The Farmer’s Almanac, Calculated on a New and Improved Plan, for the Year of Our Lord 1793: Being the First after Leap Year, and Seventeenth of the Independence of America* (Boston: Belknap and Hall [1792]). In the preface Thomas explained, “I had thought proper to entitle it ‘the Farmer’s Almanac’ as I have made it my principle aim to make it useful to that class of people” (Paul Belliveau, Colin Santangelo, Ryan Hartmann, 2009). After 1793, year after year in increasing numbers, other almanacs came to be called “Farmer’s” almanacs.

In 1831, for the sake of distinguishing his original “Farmer’s” almanac from other “Farmer’s” almanacs, Thomas parenthetically inserted the word “Old” to produce “*The (Old) Farmer’s Almanack ... for the Year of Our Lord 1832*” Then, for the year 1836, Thomas dropped “Old” from the title so as not to seem out of date and irrelevant. The next editor reinserted “Old” (without parentheses) to generate the still enduring title: “*The Old Farmer’s Almanac* by Robert B. Thomas” [now with a front-cover addendum: “THE ORIGINAL ROBERT B. THOMAS FARMER’S ALMANAC, FOUNDED IN 1792”].

Also, for the year 1792, there was an almanac printed in the fall of 1791 that included “Farmer’s” in the title: *The Farmer’s Diary: or the United States Almanack, for the Year of Our Lord 1792*

... ([1791] ephemeris by Joseph Leland). This is the first almanac with the word “Farmer’s” in the title listed in Robert K. Dodge’s *A Topical Index of Early U.S. Almanacs, 1776-1800* (1997).

Moreover, though without “Old” and “Farmer’s” in the title; there was another almanac of the farmer’s type printed in the fall of 1791 for the year 1792 featuring an astronomical ephemeris that was calculated by an actual old farmer: Benjamin Banneker.

Astronomy in a Banneker Almanac for 1792

Benjamin Banneker (born 1731, died 1806) was a free-born black African-American landowner (one hundred acres near Baltimore, Maryland), a gentleman-bachelor tobacco farmer (also, corn, wheat, vegetables, fruit orchards, herbs, beehives, two horses, and several cows), and a largely “untutored” amateur clockmaker and amateur mathematician (Bedini, 1999 [1972], pp. 43-49). He took up astronomy in 1788 (Bedini., p. 81) at the age of 57. In February 1791, Banneker was employed to assist the prominent astronomer, surveyor, ephemerides calculator, and Geographer General Major **Andrew Ellicott** (born 1754, died 1820) in surveying the new federal territory that would become the District of Columbia (Catharine Van Cortlandt Mathews, 1908, p. 85-86). In *the Life of Benjamin Banneker: The First African-American Man of Science* (1999 [first edition 1972]) historian of science Silvio A. Bedini offers the following quotation from the 12 March 1791 *Georgetown Weekly Ledger*:

Some time last month arrived in this town Mr. *Andrew*

Ellicot, a gentleman of superior astronomical abilities. He was

employed by the President of the United States of America, to lay off a tract of land, ten miles square, on the Potowmack, for the use of Congress;—is now engaged in this business, and hopes soon to accomplish the object of his mission. He is attended by *Benjamin Banneker*, an Ethiopian, whose abilities, as a surveyor, and an astronomer, clearly prove that Mr. Jefferson’s concluding that race of men were void of mental endowments, was without foundation. (Bedini, p. 127)

During summer and fall of 1791, the sixty year old farmer calculated and sold astronomical ephemerides for the year 1792 to Baltimore almanac printer-editors William Goddard and James Angell, and to almanac printers in Philadelphia and in Alexandria. These printers placed Banneker’s name at the front of the almanac title, as did other almanac printers who purchased ephemerides from Banneker for “at least twenty-eight known editions” (Bedini., p. 206) for the years 1792 through 1797.

In original letter casing, the full title and subtitle of the Goddard-Angell-Banneker almanac for the year 1792 is:

*Benjamin Banneker’s PENNSYLVANIA, DELAWARE,
MARYLAND and VIRGINIA Almanack AND EPHEMERIS FOR
THE YEAR OF OUR LORD 1792; Being BISSEXTILE, or LEAP-
YEAR, and the SIX-TEENTH YEAR OF AMERICAN*

INDEPENDENCE, which commenced July 4, 1776.

CONTAINING, the Motions of the Sun and Moon, the true Places and Aspects of the Planets, the Rising and Setting of the Sun, and the Rising, Setting and Southing, Place and Age of the Moon, &c.

—The Lunations, Conjunctions, Eclipses, Judgment of the Weather, Festivals, and other remarkable Days; Days for holding the Supreme and Circuit Courts of the United States, as also the usual Courts in Pennsylvania, Delaware, Maryland, and Virginia.—

ALSO, several useful Tables, and valuable Receipts.—Various Selections from the Commonplace-Book of the Kentucky Philosopher, an American Sage; with interesting and entertaining Essays, in Prose and Verse—the whole comprising a greater, more pleasing, and useful Variety, than any Work of the Kind and Price in North-America.

Like titles of other almanacs of the farmer's type; the title of this 1792 Banneker almanac affirms the reality of the divine Creator (by referring to "the Year of Our Lord") and celebrates liberty (by referring to "the Sixteenth Year of American Independence, which commenced July 4, 1776").

The Goddard-Angell-Banneker almanac for 1792 contains astronomical predictions concerning "the Motions of the Sun and Moon, the true Places and Aspects of the Planets, the Rising and Setting of the Sun, and the Rising, Setting and Southing, Place and Age of the Moon, &c.—The

Lunations, Conjunctions, Eclipses” (front cover) and more. Plus, this almanac includes a well-known epitaph intended for Sir Isaac Newton in Westminster-Abbey by Alexander Pope (born 1688, died 1744) [Pope is not named], and an astronomy essay—“Planetary and Terrestrial Worlds” by Joseph Addison (born 1672, died 1719). [Addison is not named; and for the obvious reason of being in a Banneker almanac, his essay has been wrongly attributed to Banneker (Charles Cerami, 2002, pp. 222-224; Walker, 2004, pp. 17-18).] Both the Pope epitaph for Newton and the astronomy essay by Addison are deity-affirming. Also, this almanac includes lyrics from a traditional “HYMN” proclaiming that the divine Creator “form’d the concave sky” and “all the glorious orbs on high” (almanac for 1792, pp. 34-35 [author unknown]).

David Rittenhouse

In the preface to the Goddard-Angell-Banneker almanac for 1792, William Goddard and James Angell wrote that Benjamin Banneker’s ephemeris “met the Approbation of several of the most distinguished Astronomers in America, particularly the celebrated Mr. Rittenhouse” (p. 2).

David Rittenhouse (born 1732, died 1796) was America’s foremost astronomer, an accomplished surveyor, and the first director of the United States Mint. Among his many notable achievements, he constructed the first research quality telescope on western side of the Atlantic, and he was perhaps the first to observe and record in 1768 that planet Venus has an atmosphere. In 1784 he served with James Madison and Andrew Ellicott in completing the survey of the Mason-Dixon Line. He became a “fellow surveyor” and “lifelong” friend of Ellicott (Bedini, 1999, p. 109; Mathews, 1908, pp. 47, 50, 57-58). Also, like surveyor-astronomers Ellicott and

Banneker, Rittenhouse calculated and sold astronomical ephemerides. Rittenhouse sold ephemerides for the years 1773 through 1786 (Brooke Hindle, 1964, pp. 91-92; Dodge, 1997), Ellicott for the years 1781 through 1793, and Banneker for 1792 through 1797.

On the whole, the editorial selections made by Goddard and Angell for their Banneker almanac for 1792 reflect a philosophy of astronomy that had been famously expressed by Rittenhouse in 1775.

II. Philosophy of Astronomy

Astronomy as Liberty-oriented “Useful Knowledge”

On 24 February 1775 Rittenhouse delivered a lecture—“*An Oration*” [abbreviated title] on astronomy at a meeting of the “American Philosophical Society, Held at Philadelphia, for Promoting Useful Knowledge.” Accordingly, Rittenhouse promoted astronomy as “useful knowledge.”

The members of this Society included Benjamin Franklin (first president of the Society; Rittenhouse would be the second), Thomas Jefferson (third Society president), George Washington, John Adams, Alexander Hamilton, Thomas Paine, Benjamin Rush, James Madison, and others. After having judged that Rittenhouse’s *Oration* contained “knowledge” that was “useful” to their impending struggles; the Society members sponsored its printing, and presented copies of *An Oration, Delivered February 24, 1775, Before the American Philosophical Society,*

Held at Philadelphia, For Promoting Useful Knowledge (Philadelphia: John Dunlap, September 30, 1775) by David Rittenhouse to “the Delegates of the Thirteen United Colonies, Assembled in Congress at Philadelphia, To Whom the Future Liberties, and Consequently the Virtue, Improvement in Science and Happiness, of America, Are Intrusted” (*An Oration*, p. 4). And thus, the delegates to the Congress that authorized the American Revolution were advised of the usefulness of viewing their struggles for liberty in astronomical-cosmological context.

Visions of Space Travel

Rittenhouse held that we are “indebted to Astronomy” because without astronomy, “we should infallibly have supposed the earth by far the most important body in the universe” (Rittenhouse, *An Oration*, 1775, p. 17). This astronomy-indebted lesson in humility was further advanced by imagining a trip to Mars, from whence planet Earth is “less bright than our Evening Star” (Ibid., p. 17-18). Then, Rittenhouse called upon his audience to imagine being transported “to the orb of Jupiter” where “the earth and all the inferior planets will vanish, lost in the sun’s bright rays;” and next, to imagine “if borne on the wings of a comet we should travel with it to the remotest parts of its orbit, our whole planetary system would disappear, and the sun become a star” (Ibid., p. 18-19).

In the year 1775, long before photographic images of our “pale blue dot” (Sagan, 1994), Rittenhouse called upon his audience to imagine seeing our planet from outer space, and our solar system from the most distant parts of cometary orbits. And no doubt, for New England colonials awed by imperial wealth and power, mentally traveling into outer space and

imaginatively viewing planet Earth from Mars, Jupiter, and beyond was empire belittling. Accordingly, astronomy-inspired visions of space travel were “useful” for encouraging revolutionary struggles for liberty.

Visions of Extraterrestrial Intelligence

Given life on our planet, some 17th and 18th century astronomers reasoned that there is life on other planets in our solar system, and on unseen planets revolving around other stars. This “doctrine of a plurality of worlds,” said Rittenhouse, is “inseparable from the principles of Astronomy” (1775, p. 19). Rittenhouse employed this doctrine to produce a further lesson in liberty-oriented social ethics by speculating about “How far indeed the inhabitants of the other planets may resemble man” (Ibid.). **How far do inhabitants of other planets resemble us?**

In contrast to fallen earthlings, said Rittenhouse, we may hope that some—“if not all”—of “the inhabitants of the other planets ... still retain their original rectitude,” and that such planets are “peaceful seats of innocence and bliss” where the inhabitants govern themselves “according to the dictates of that reason their creator has given them, in such manner as to consult their own and each other’s true happiness on all occasions” (1775, p. 19). According to Rittenhouse, the unfallen inhabitants of other planets should be very happy that vast distances protect them from being “doomed to endless slavery by us in America, merely because *their* bodies may be disposed to reflect or absorb the rays of light, in a way different from *ours*” (1775, p. 19-20, original italics). Rittenhouse used this vision of intelligent life on other planets to criticize earthly colonialism and slavery.

Astronomy—and astronomy-inspired visions of space travel and extraterrestrial intelligent life—provided a perspective from which to expose the folly of human pretensions to grandness (Rittenhouse, 1775, p. 17-18), the moral wrongness of slavery (Ibid., p. 19), and the “*tyranny*” that constantly followed Europeans (including “the unfeeling British nabob” and “the haughty Spaniard”) questing for “*luxury*” (Ibid., p. 20, original italics). Those who devalue astronomy in times of social crisis should be advised that during and after the American Revolutionary War, Rittenhouse’s 1775 *Oration* on astronomy as “useful knowledge” encouraged revolutionary and abolitionist struggles for liberty from colonialism and slavery.

Science Fiction

Similar to Rittenhouse’s 1775 vision of extraterrestrial intelligent life, in “The Planetary and Terrestrial Worlds Comparatively Considered,” the unnamed author (Joseph Addison) envisioned other planets as “abodes of intellectual life” (Goddard-Angell-Banneker almanac for 1792, p. 19). Such astronomy-inspired and liberty-oriented visions may have inspired the emergence of modern socially critical science fiction.

[In England, according to *Visions of the Future: Almanacs, Time, and Cultural Change 1775-1870*, the prophecies, prognostications, and “visions of the future”—that were systematically discouraged by government-sponsored almanac reform efforts—came to be imaginatively expressed in a new 19th century genre—science fiction (Perkins, 1996, pp. 119-122).]

Astronomer Abolitionists

In the preface to the Goddard-Angell-Banneker almanac for 1792, William Goddard and James Angell noted that Banneker's ephemeris "met the Approbation of several of the most distinguished Astronomers in America, particularly the celebrated Mr. Rittenhouse" (p. 2). By offering a public "approbation," Rittenhouse and several distinguished astronomers, including Andrew Ellicott, were witnessing against a putative justification for enslaving black Africans and black African-Americans.

Slaveholders claimed that black persons were not able to do advanced mathematics because they were intellectually inferior to white people, and black intellectual inferiority justified slavery. The fact that Banneker—a black person—calculated astronomical ephemerides falsified that claim. This was important to the abolitionist movement to abolish slavery.

In his 20 August 1791 letter introducing Banneker to Goddard and Angell, a letter fully reproduced in their almanac for 1792, statesman James McHenry (born 1753, died 1816) for whom Fort McHenry was named, wrote:

... I consider this Negro as a fresh proof that the powers of the mind are disconnected with the colour of the skin, or, in other words, a striking contradiction to Mr. Hume's doctrine, that 'the Negroes are naturally inferior to the whites, and unsusceptible of

attainments in arts and sciences' ... (McHenry, almanac for 1792, p. 3-4).

Similarly, the claim that black persons are not capable of highly artistic expressions was falsified in the Baltimore-Angell-Banneker almanac for the year 1794 by appealing to the published works of black poetess **Phillis Wheatley** (born 1753, died 1784) and printing a portion of her 1772 poem—"On the Works of Providence." And just as a formal legal *attestation* signed by eighteen of "the most respectable characters in Boston" was required to prove—by an oral examination of Wheatley—that Wheatley was the actual author of said poems in 1772 (Henry Louis Gates Jr., 2002); Rittenhouse and several distinguished astronomers attested to Banneker's work in 1791-1792. Hence, the Banneker almanacs were abolitionist documents; and the distinguished astronomers were making an abolitionist statement.

Moreover, the Goddard-Angell-Banneker almanac for 1792 includes two abolitionist paragraphs, both inside quotation marks [no author named] under the heading "On Negro Slavery, and the Slave-Trade: An Extract from the Columbian Magazine." In the first paragraph, "*David Rittenhouse*, Esquire" is said to have spoken of people "doomed to endless slavery by us—merely because *their* bodies may be disposed to reflect or absorb the rays of light in a way different from *ours*" (almanac for 1792, p. 33). This precise wording from Rittenhouse's 1775 *Oration* on astronomy as "useful knowledge" was reused—in the Goddard-Angell-Banneker almanac for the year 1792—to encourage the abolition of slavery.

Banneker's own abolitionist sentiments were famously expressed in the next year's edition of the same almanac series. The Goddard-Angell-Banneker almanac for 1793 contained the full text of a letter sent in August 1791 from Banneker to the then Secretary of State Thomas Jefferson. This open letter to Jefferson covered Banneker's handwritten ephemeris for the upcoming almanac for the year 1792. Upon receiving this letter and ephemeris, the slave-owning Jefferson (who held that blacks are inferior [and who had expressed doubts about Wheatley's poetic achievements (Gates, 2002)]) found himself holding primary evidence against the doctrine of black intellectual inferiority used to justify slavery. Furthermore, in this letter, Banneker called upon Jefferson to commit himself to the abolitionist cause. Banneker's letter is followed by Jefferson's appreciative, though noncommittal, letter of reply.

III. Astro-Theology and Liberty

Astro-Theology

Traditionally, astronomy met religion and political ethics in almanacs. As presented in early New England almanacs of the farmer's type, astronomy was deity-affirming and liberty-oriented. The old English label for astronomy that affirms theology was "astro-theology" (Derham, 1715).

*Astro-Theology: Or a Demonstration of the Being and Attributes of G*d, From a Survey of the Heavens* (1715) was written by the highly eminent English astronomer-scientist-clergyman **William Derham** (born 1657, died 1735). Like Rittenhouse, Ellicott, and Banneker; Derham knew clock making. [See *the Artificial Clock-maker: A Treatise of Watch and Clock-work ...*

(1696) by William Derham, which includes a time-measurement-related argument for the existence of a divine Creator. Also, he made the first relatively accurate measurement of the speed of sound.]

In *Astro-Theology* (1715), Derham argued from astronomy to affirmative theology. He argued that “modern” (p. 8) telescope-assisted astronomy enables us to see “manifest signals of a divine hand” (p. 100), and that “the great CREATOR hath provided for the good of our Planet” (p. 160). , And of course the Introduction to his “Survey of the Heavens” started with Psalm 19:1—“the Heavens declare the Glory of G*d” (p. 1).

Astro-Liberation Theology

Thought not in 18th century English almanacs (Perkins, 1996; Timothy Feist, 2005); in early New England farmer’s almanacs, astro-theology was strongly oriented towards liberation. Accordingly, early New England astro-theology can now be labeled *astro-liberation theology*.

This 21st century label is appropriate because 18th century New England almanac printers and the astronomer-surveyor-clockmakers who calculated ephemerides used astronomical knowledge to demonstrate the glory of the Creator (astro-theology), and to encourage liberation from colonialism and slavery (astro-liberation theology). As expressed by Rittenhouse in 1775 and apparent in Banneker almanacs for 1792 through 1797, the philosophy of astronomy as “useful knowledge” was theological, revolutionary, and abolitionist.

The idea that astronomy and cosmology are “useful” to theology and black liberation has reemerged in two books by black theological ethicist Barbara A. Holmes: *Race and the Cosmos: An Invitation to View the World Differently* (2002); and *Liberation and the Cosmos: Conversations with the Elders* (2008). Holmes observes that in recent decades “the energy for liberation has dissipated and the impetus for justice has stalled” (2002, p. 4); and, in significant part, this is because we have not been inspired by appreciating our cosmic context. We have been myopic, inattentive to the cosmos. Holmes invites us to “view the world differently” (2002) by appreciating relations to other planets, stars, galaxies, and the cosmos; and also by appreciating relations to microscopic, molecular, atomic, subatomic, and quantum aspects of reality. Cosmic and quantum myopia can yield only false or oppressively inadequate views of the world. Hence, for the sake of liberty, we require “cosmic orientation” (Long, 1963, p. 18; Eliade, 1974).

The conversations with elders and ancestors—about liberation and the cosmos—prescribed and advanced by Holmes (2008) should include the voices of ancestral astronomers such as William Derham, David Rittenhouse, Andrew Ellicott, and Benjamin Banneker. Listening to such voices may inspire us to resuscitate astro-theology and recreate astro-liberation theology.

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