

2014

Issac Newton and the Origin of Civilization by Jed Buchwald and Mordechai Feingold

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Recommended Citation

Bowler, Richard (2014) "Issac Newton and the Origin of Civilization by Jed Buchwald and Mordechai Feingold," *International Social Science Review*: Vol. 89: Iss. 1, Article 7.

Available at: <http://digitalcommons.northgeorgia.edu/issr/vol89/iss1/7>

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Buchwald, Jed and Mordechai Feingold. *Isaac Newton and the Origin of Civilization*, Princeton and Oxford: Princeton University Press, 2012. xvi + 528 pages. Cloth, \$49.50.

Posthumously published in 1728, Isaac Newton's *Chronology of the Ancient Kingdoms Amended* excited great controversy with its innovative methodology and radical re-dating of ancient history, challenging traditional lines of interpretation that had been advanced by historians, chronologers, and theologians. Many found it difficult to believe that Isaac Newton, now long famous for exposing the true system of the world in his magisterial *Principia mathematica* (1687), had pored over ancient myths and passages of Scripture to reconstruct the emergence of civilization after the Deluge. Some suggested that the demands of such an endeavor exceeded Newton's competency, despite his genius for mathematics and natural philosophy. Newton himself appeared to downplay these investigations. In the *Chronology* he claimed his explorations in these matters were simply a diversion to refresh himself when weary with other studies.

Building on the pioneering work of the historian Frank E. Manuel, who explored Newton's religious studies in both *A Portrait of Isaac Newton* and *The Broken Staff*, historians Jed Buchwald and Mordechai Feingold show that we can dismiss the idea that Newton conducted chronological research for relaxation. They demonstrate that Newton became devoted to studying ancient history by the 1680s, which was increasingly supplemented by work in technical chronology after 1700. Newton's research convinced him that elaborate kingdoms and city life emerged only slowly after the Flood (dated by the chronologer James Ussher at 2340 BCE), largely because the "course of nature," as evidenced by the primitive demography of his time, did not allow a suitable reproduction in the immediate postdiluvian period for a rapid repopulation, as many assumed. By synchronizing ancient, pagan sources with the Hebrew Scriptures, Newton delayed the development of Egypt and Greece until after the reign of Solomon (d. 980 BCE), thereby believing he had properly situated the origins of civilization within the constraints posed by the natural rhythm of human procreation and the general confines of Masoretic (Biblical) time reckoning. His tenuous identification of the Egyptian king Sesostrius with the Biblical Sesac enabled him to contract traditional Egyptian history by at least six hundred years. Since Newton believed the emergence of Greek civilization hinged on the creation of a powerful Egyptian kingdom, he accordingly postponed its development by some five hundred years.

Buchwald and Feingold have worked with an astonishing array of sources, notably a vast stock of unpublished manuscripts, to reconstruct the complex formulation of Newtonian chronology, making clear that in his chronological studies (as in everything else he did) Newton stands out as a unique product of his age. He shared with his contemporaries an intense devotion to the revealed truth of Scripture, believing, for example, in the reality of the Creation, the Flood, and the way Biblical prophecy, properly (and only retrospectively) understood, made manifest divine efficacy in human affairs. Newton also adopted the Euhemerist conviction, common in his day, which allowed ancient deities and myths to be correlated with Biblical personalities and events.

Newton, however, appears to have been unusually skeptical about sources of knowledge. The unaided senses were irremediably flawed; instruments and experimentation had their limits; observation and measurement inevitably produced discrepant data; literary sources and oral testimony were the worst of all. That said, Newton was hardly the categorical skeptic: he admitted that truth could be discovered, but only after careful analysis, comparison, and

synchronization of all the relevant sources; in this way, error would effectively cancel itself out. Discrepant measurements, for example, could be remedied by taking the average, a practice still in its infancy when Newton deployed it. Newton's cautious treatment of testimony while serving as Warden of the London Mint after 1696 provides another illustration. Charged with the task of re-coining the British currency, Newton hunted down and prosecuted coin-clippers and counterfeiters who were contributing to the problem of currency debasement. Newton extracted information from gangs of unsavory characters, balancing out their untrustworthy and conflicting statements in order to find culprits (including the notorious William Chaloner) and see them hang.

Buchwald and Feingold examine in detail Newton's single-minded eagerness to transform textual evidence into numbers. Noteworthy here is their analysis of how Newton dated the Argonautic Expedition by correlating it with the passage of the colures, the meridians of the celestial sphere that intersect each other at the poles and pass through the equinoxes and solstices, respectively. Newton's argument assumed the creative, some claimed absurd, idea that the *Commentary* of the Greek astronomer Hipparchus (composed ca. 130 BCE) transmitted the ancient observations of star collections (asterisms) originally formulated by Chiron the Centaur, a legendary figure who accompanied the Argonauts. Confident he could use these apparent observations to fix the passage of the colures at the time of the expedition, Newton calculated its date to be ca. 939 BCE, based on the precession of the equinoxes.

Newton had his supporters, but his conclusions struck many of his contemporaries as misguided and fanciful, igniting a robust debate. Of course, few today would subscribe to his chronology. Nevertheless, Buchwald and Feingold cogently analyze and contextualize Newton's chronological research, showing how he came to regard his conjectures as definitive, and why so many of his contemporaries were opposed to them. The book's astronomical arguments and calculations will probably intimidate most readers, but those with the interest and expertise will delight in the technical explanations offered by the appendices. Readers of this journal will likely find engaging the parallel drawn between Newton's chronological research and his studies in natural philosophy. Dubbed the "Newtonian style" by the historian of science I. Bernard Cohen, this method triangulated data and theory in a way that was unique to Newtonian science. In their reconstruction of Newton's reasoning about ancient history, Buchwald and Feingold discern a similar disposition: "the production of numbers out of a single discordant set, the manipulation of data to turn it into workable evidence, the tenacious hold on a working hypothesis, as well as its modification in the light of further data—every one of these characteristics...applies to Newton's attempt to rework ancient chronology." (p. 106)

The study of chronology is now a thing of the past, having been firmly supplanted by the precepts and practices of modern historical research. Despite his devotion to the subject, Newton appears to have contributed to its demise. Newton hoped to delineate the gradual emergence of postdiluvian civilization, based upon the "course of nature" and careful, yet imaginative, interpretations of pagan sources, all the while hoping to maintain the timeframe of the Masoretic text of the Hebrew Scriptures. In his attempt to reconcile sacred chronology with profane history, Newton seems to have suggested their incompatibility.

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