Isaac Newton's Temple of Solomon and his Reconstruction of Sacred Architecture

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Chapter 2
Chronology, *Prisca Sapientia* and the Temple

Apart from *Reports as Master of the Mint*, which were published between 1701 and 1725, Newton published only scientific manuscripts in his lifetime. *Principia* published in 1687, which consisted of three volumes, defined the three laws of motion and gravitation which lay down the foundation of classical mechanics, and in the formation of this theory he developed the mathematical field of calculus. Newton added material and revised the *Principia* in 1713 and 1726. His second contribution to science was *Opticks*, which considered the properties and the refraction of light, and was published in 1704. These two books had established Newton as the most significant scientist of his time. However, science was not his only interest and in fact Newton's library consisted of only 52 volumes, or 3% of the whole library, on mathematics, physics and optics.[67]

At the time of Newton's death, his library consisted of approximately 2100 volumes of which 1763 had been accounted for in a study made by John Harrison published 1978.[68] Newton did not make inventories of his library as was the fashion of the day by professional book collectors[69]; his books were working books – tools. They were often heavily annotated and showed excessive use. The most heavily annotated book in his library was his English Bible which had been bound together by the Book of Common Prayer and a version of Psalms. The Books of Daniel and Revelations showed the most frequent use and the most marginalia.[70] William Stukeley in his reminiscences of Newton claimed that "No man in England read the Bible more carefully that he did, none study'd it more. . .the Bible which he commonly used, thumbed over, as they call it, in an extraordinary degree, with frequency of use".[71] There are 477 volumes in his library, or 27.5% of the whole library, on theology. This is more than any other subject.[72] The rest of the library was a mixture of chronology, history, classical history and commentaries, philosophy, alchemy, twenty-four volumes that dealt directly with Judaism, and many others that contained Jewish history.[73] Two of the earliest purchases that Newton made on arriving at Cambridge University in 1661 were Hall's *Chronicles* and Johann Sleidan's *Four Monarchies,*[74] and the Sleidan remained in his library for the rest of his life.[75] Chronology, particularly associated with prophecies, remained a life-long interest.

Robert Hooke had written to Newton in Cambridge in November of 1679 asking Newton's opinion on his and others' theories of celestial motions of the planets.[76]

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Newton had been in Lincolnshire attending to a family matter after the death of his mother and he replied to Hooke on his return to Cambridge. He claimed that

> I have had no time to entertain Philosophical meditations or so much as to study or mind any thing else but country affairs. And before that, I had for some years past been endeavouring to bend my self from Philosophy to other studies in so much that I have long grouched the time spent in that study unless it be perhaps at idle hours sometimes for a diversion.[77]

His interest in *Prisca Sapientia*, or ancient wisdom, is reflected in his library. His studies on alchemy and in his unpublished papers reveal a reverence for the ancient wisdom of the *veteres* (ancients). The existence of Newton's writing on theology, ancient philosophy and mythology was known by his Scottish friend David Gregory and Archibald Pitcaire in at least 1694–95.[78] Newton applied his knowledge to consider the chronology of ancient civilizations and in particular the development of these civilizations. Chronology was a subject that was an established scholarly genre.

Kings had genealogies drawn up that linked them to heroic and mythical characters such as Aeneas of Troy to establish not only their claim to the throne, but also their impressive and divine linage.[79] Chronology could be used to prove a nations antiquity.[80] In 1689, Olof Rudbeck's *Atlantica* was published. In it he claimed that his home country Sweden was Atlantis and thus was the cradle of civilization.[81] In the seventeenth century, there was a strong interest in the chronology of world history. Sir Walter Raleigh's *History of the World,* published in 1614, was a massive work in two volumes which remained popular throughout the seventeenth century and was reprinted in its original and abridged form eight times in the next hundred years. James Ussher's *The annals of the World*, published in 1658, was a highly significant book that considered the origins, along with the sacred and profane history, of the ancient world. Newton worked on the chronology of the ancient world and he attempted to put it on a scientific footing. At the time his interest in chronology was known, but it was considered by many that his output on this subject was minimal; that it was a very secondary study compared with his study of science. After all, he was the man who understood and revealed the mechanics of the universe. In fact, his unpublished manuscripts showed that there were close to 200,000 words on chronology[82] and he continued to work on the chronology of the ancient world until the end of his life. It also drew him into controversy which continued beyond his life time.

The Short Chronicle

In 1716 Princess Caroline, an admirer of Newton, persuaded him to give her a copy of his chronology. Although he delayed giving it to her with excuses that it was "imperfect and confused" he had little choice but to comply with the royal command.[83] He drew up an "Abstract" of his chronology, which was barely twenty pages long and was primarily comprised of a list of names and dates with no justification of how those dates were worked out. There had been other interests in obtaining a copy

of the "Abstract" from Abate Conte Antonio Conti, a Viennese nobleman commonly known as Abbé Conti, but Newton refused to provide a copy.[84] Abbé Conti approached Princess Caroline who requested that Newton should supply him with a copy. Again Newton complied with the royal command. Newton did, however, request that Abbé Conti keep the work private.[85] At this stage, Newton must have thought that that was the end of the "Abstract".

Despite promising to keep the "Abstract" a secret, once Abbé Conti had left England, a year later, he broke this promise. He showed it around to the "learned circles of Paris". Amongst the learned authorities of ancient chronology that he showed it to was the Jesuit Priest Etienne Souciet. Souciet had many queries about the Newton chronology and these were shown to Newton by an Oxford astronomer, John Keill, in 1720,[86] so Newton was aware the copies of the "Abstract" were being circulated. Furthermore, there is evidence that Newton himself gave copies to others who, in turn, generated more copies.[87] There are three surviving handwritten copies in Cambridge.

By 1724 the chronology passed into the hands of Nicolas Fréret, an eminent scholar of antiquities at the Académie des Inscriptions et Belles-Lettres in Paris. He was highly critical of Newton's scheme, claiming it to be too limited. Fréret translated it into French and he wrote a critical commentary entitled *Abrégé de la chronologie* (Summary of the Chronology). Then he began to arrange to have it published.[88]

There had been little in the way of archaeological evidence to support any chronology of the ancient civilisations in the early eighteenth century. The spectacular finds unearthed at Herculaneum did not begin until 1749[89] and the Egyptian hieroglyphs were not translated until Jean-Francois Champollion deciphered them in 1824.[90] Prior to the early eighteenth century, the most significant find, as far as chronology was concerned, was the Parian Marble. The Parian Marble was acquired by the Earl of Arundel and shipped to England in 1627. It listed the dates for a number of kings and chief magistrates of ancient Athens from 1582 BC to 264 BC. The Parian Marble dated major events such as the invention of corn by Demeter to 1409/8 and the fall of Troy to 1209/8.[91] Chronologist believed it to be the missing link that would make sensible the other material that they had collected.[92] Otherwise, most chronologies were composed with the aid of literary texts. These included the work by Herodotus, Apollodor, Theodotus, Josephus, Diodorus, Strabo, Plutarch and the Bible.

In the early chronologies, myths were reality and marked major events in history. In Newton's "Abstract" he listed the dates of key events in history such as:

> 989 (BC) Dædalas and his nephew Talus invent the saw, the turning-lath.
> 988 Minos makes war upon the Athenians for killing his son Androgeus.
> 987 Dædalas kills his nephew Talus, and flies to Minos.[93]

Although Newton did not mention the Minotaur the existence of the mythical characters of Dædalas, Talus, Minos and many others throughout his chronology, and the surrounding events, were not in question. He believed that the figures of mythology were in fact "heroes" of past history. Although their actions had been embellished in the telling, over time they had existed and there was some truth to their

actions. The dates of these heroes marked important turns in history; particularly, technological developments such as the invention of the saw and the turning lath. Only a few criticized Newton for this use of mythology in his chronology, one being William Whiston, former pupil and successor to Newton as Lucasian Professor at Cambridge. He claimed "that tho' it be a work of vast learning and very uncommon sagacity, yet is it built, not upon ancient evidence, and the testimonies of historical authors; but partly upon the poetic stories of Mythologists".[94] After the English publication of his chronology there was a comparison made in a contemporary journal of the chronology of Bishop Cumberland and that of Newton.[95] Much of the discussion generated was not over the fact that Newton and Cumberland had both based their arguments on mythology, but rather which one of them presented the correct chronology of mythology.

The major criticism of Newton's system was the dating of these events, and not the inclusion of the myths. Newton had dated the Argonautic expedition to 936 BC, 43 years after the death of Solomon,[96] and the fall of Troy to 76 years after the death of Solomon.[97] He shortened the accepted Greek history by at least 300 years. He had also shortened the duration of the Egyptian Empire and claimed that they had overstated their antiquity beyond the age of the world.[98]

Fréret's French translation of the "Abstract" and his commentary came into the hands of a Parisian Printer Guillaume Cavelier who immediately wrote to Newton, requesting any remarks he had on Fréret's translation and commentary, or corrections or additions, before he published it.[99] He wrote twice without any reply from Newton, the third time he stated that since he had written twice previously that if he did not hear from him he would take Newton's silence as confirmation of his consent.[100] Although Newton did eventually write withholding his permission to publish, Cavelier claimed that he received Newton's letter too late to stop the publication of it. It was published in 1725 as the *Abregé de la Chronologie* and Newton received a copy from Cavelier on 11th November 1725.[101]

Newton reacted by writing "Remarks on the Observations made on a Chronological Index of Sir Isaac Newton"; this was translated into French by the Observer and published in Paris (with exceptional speed) in December 1725 in *Philosophical Transactions of the Royal Society.*[102] In "Remarks" he stressed that there was no permission from him to print the work and observed:

> as if any man could be so foolish as to consent to the publishing of an unseen translation of his papers, made by an unknown person, with a confutation annexed, and unanswered at the first appearance in public.[103]

This was followed by a refutation of several of the observations which had been added to the French translation by Fréret. He primarily blamed Abbé Conti for the entire situation. The "Remarks" was ill-considered and it displayed all the malice that he revealed in his treatment of John Flamsteed, the first Astronomer Royal of England (Clark and Clark, 2000)[104] and in the debate over calculus with Leibniz.[105] His "Remarks" also caused as much controversy as the *Abregé de la Chronologie*.

In the controversy with Gottfried Wilhelm Leibniz who had invented calculus, there was a clear division of opinion between the continent and England. With this

new controversy, the division was not so clear. Newton's dates contradicted all of the established chronological works including the work of Bishop Ussher. Ussher had established the date of creation to be 6.00 PM 22nd October, 4004 BC.[106] In 1701, Ussher's chronology was given the blessing of the Church of England[107] and this date was printed into the Bible as the date of creation until the turn of the twentieth century.[108] But it was not the date of creation that Newton contradicted; it was in the dating of the historic events that Newton moved away from accepted convention. Ussher had established the date of the Trojan War to be 1184 BC as compared with Newton's date of 903 BC. Even Newton's closest allies had difficultly supporting his dates. Stukeley claimed that Newton's "chronology was somewhat very particular, and likewise solid. But whilst he has justly shortened the years of the world, he appears to me to have done it a little too much".[109] He was more critical in his personal letters. In a letter to Antiquarian Roger Gales dated 1728 he stated "Mr Conduitt has sent me Sir Isaac Newton's Chronology: I don't admire his contracting the spaces of time; he has pursued that fancy too far".[110]

As the controversy began to rage, more commentaries came out against Newton's "Abstract", which had been re-titled "A Short Chronicle". Father Souciet joined in by claiming that "M Newton's Chronology cannot stand. . .he has made an error of about 530 years. . .mine on the contrary is correct".[111] The amount of years that Newton had shortened the chronology was in dispute, but generally it was accepted that he had shortened it far too much.

The "Short Chronicle" was only a list of names and dates but these dates were not justified. If Newton was to silence his critics he needed to establish his system with proofs. To this end he spent the rest of his life working day and night on the chronology. But he died with the chronology unfinished and the controversy was still raging in 1727 and continued to rage well into the nineteenth century.[112]

The Chronology of Ancient Kingdoms Amended

From the hundreds of unpublished manuscripts left by Newton after his death, apart from a couple of mathematical manuscripts, his literary executive Thomas Pellett found only two groups of works suitable for publication.[113] The first was a set of manuscripts on chronology and the second were two manuscripts on prophecies. Although Pellet claimed that the prophecies were imperfect, they were nevertheless worthy of publication. No publishers could be found to buy these works of prophecy, however, and they were finally prepared for press by Newton's nephew Benjamin Smith[114] and published in 1733 as *The Observations upon the Prophecies of Daniel and the Apocalypse of St John*. The set of manuscripts of Newton's justification for his chronology was compiled and arranged by John Conduitt and published in 1728 as *Chronology of Ancient Kingdoms Amended*.

As stated in the previous chapter, later biographies have assumed that his work on his *Chronology* was the work of an ageing Newton who had lost his taste and ability for science as a result of the nervous breakdown he suffered in 1693.[115] Although

1693 was indeed a black year for Newton, he did continue to research and add to the science of his day, albeit to a lesser degree than in the productive years of his youth. In 1695, he was appointed Warden of the Mint; in 1699 he became Master of the Mint overseeing the great recoinage of England and in 1703 he became the president of the Royal Society. The overseeing of the recoinage depended not only on Newton's excellent command of mathematics but also on vast organisational skills that entailed streamlining the mint by establishing country branch Mints[116] (White, 1998). In John Conduitt's "Memoirs of Sir Isaac Newton" he claimed that in his employment at the Mint Newton "had frequent opportunities of employing his skill in mathematics and chemistry, particularly in his table of assays of foreign coins, which is printed at the end of Dr Arbuthnott's book of coins".[117] Furthermore, the second edition of the *Principia* was revised and published in 1713 with a new improved version of his lunar theory.[118] These were not the works of an ageing and perhaps senile Newton and these works were in progress when he was attempting to complete work on the *Chronology.*

The *Chronology of Ancient Kingdoms Amended* is a curious and tedious book. David Castillejo claimed that the *Chronology*, on first reading, "is so thick and boring as to be almost impenetrable".[119] The book cannot be considered to be a success and is exceptionally dull. However, John Conduitt did compile and arrange it from unfinished manuscripts.

Newton attempted to put *Chronology* on a scientific footing and he approached chronology in a new way. Firstly, he provided an incisive critique of the ancient chronologists who he mostly rebuked for "their erroneous calculations and their ignorance of fact".[120] Secondly, he used proofs that were based upon astronomy to fix certain dates; these events were reported by the ancient chronologists, but Newton carefully and with extensive proof corrected their "poor and ignorant calculations".[121] Finally, he considered the entire literary evidence of the chronologies of the ancient kingdoms that he had collection from theologians, genealogists, poets, dramatists and from the Bible, which Newton considered to be the oldest and the most reliable document of all time.[122] Yet despite this apparent detail, one of the major criticisms of his work is his lack of proofs and references.

In the Preface to a 1770 edition of *Chronology,* which was in the form of a correspondence between Dr Hunt and the Bishop of Rochester, the Bishop reiterated to Dr Hunt the controversy that surrounded the publication of the "Short Chronology". He claimed that after Newton's death, sixteen drafts of the Chronology were found. The Bishop expressed his concerns about Newton's methods of writing:

> It is a pity, that he took so much of the same method in his chronology which he took in his Principia & c: concealing his proofs and leaving it to the sagacity of others to discover them. For want of these, in some instances what he says on chronology does not sufficiently appear at present to rest upon any thing but his assertions;. . . But proofs he may have had, which he chose to conceal, though what now stands in the Margin in those few places may have come from another hand, and may not amount to a full proof, as it pretends to do.[123]

The main theme of this strange and rather negative Preface for the book is that Newton did not finish the book himself and that he did not intend to publish it himself

until the last years of his life and only then because he wanted to justify it in the light of the controversy surrounding this work. In the many years that he had worked on it and in the many redrafts of it, he made "few alterations in it, for the sake of shortening it. . ., and leaving out in every later copy some of the authorities and reference, upon which he had grounded his opinions".[124] The Bishop of Rochester claimed that it was he who had persuaded Newton to prepare the *Chronology* for publication to defend himself against the critics. However, the Bishop clearly blamed the editors and the number of drafts for the failures in the book.

Newton's insistence upon changing the dating of civilization is strongly proclaimed throughout the book. The "Short Chronicle" is in front of the book, followed by six chapters:

Chapter 2 – Of the Chronology of the First Ages of the Greek
Chapter 3 – Of the Empire of Egypt
Chapter 4 – Of the Assyrian Empire
Chapter 5 – Of the Two Contemporary Empires of the Babylonians and Medes
Chapter 6 – A Description of the Temple
Chapter 7 – Of the Empire of the Persians

Chapter 2 begins with "All nations, before they begun to keep exact accounts of time, have been prone to raise their Antiquities".[125] He claimed that the Greeks had "no public table or inscription older than the Laws of Draco".[126] Thus, according to Newton, the Greeks had no written records before the early seventh century BC. As for the Parian Marble acquired by the Earl of Arundel that had been hailed as the missing link of chronologies in the early seventeenth century, Newton dismissed it and stated that it had been composed 50 years after the death of Alexander the Great and the chronology had been reckoned backwards from that time. Also, the Greek chronologies claimed that the kings who had ruled before the times of the Persian Empire reigned for 35–40 years each. For Newton, in

> the ordinary course of nature kings reign, one with another, about eighteen or twenty years a-piece: and if in some instances they reign, one with another, five or six years longer, in others they reign is much shorter: eighteen or twenty years is a medium.[127]

In short, Newton claimed that the Greeks had doubled their antiquity.

Newton carefully assessed and compared the Greek chronologies and restructured the dates accordingly. He began dating the Greek chronology from two historical events; the first Olympiad, which he dated to 784 BC and more importantly the death of King Solomon which he dated to 982 BC. For example, he placed the return of Bacchus from India about 10 years after the death of Solomon[128]; the Argonautic expedition was 43 years after the death of Solomon[129]; the coming of the Danaus into Greece was about 40–45 years after the death of Solomon[130]; Prometheus had been left on Mount Caucasus 44 year after the death of Solomon[131]; the fall of Troy about 76 years after the death of Solomon[132]; the era of Nabonassar began 96 years after the death of Solomon[133]; the return of the Heraclides in Peloponnesus, 159 years after the death of Solomon,[134] the forty-ninth Olympiad was 397 years after the death of Solomon[135] and many others are dated from this point. Also the Greek hero Theseus

was born in the thirty-third year of Solomon's reign.[136] Thus, the actions and events of the ancient Greek heroes were measured and dated by the death of a king of another nation.

It is not only the Greek Empire that Newton accused of exaggerating their antiquity. He claimed that the Egyptians, who had expanded their Empire eastwards to India and westwards to the Atlantic Ocean, "out of vanity have made this monarchy some thousands of years older than the world".[137] With the exception of the Old Testament, Newton was very circumspect on Egyptian chronology before Herodotus. He claimed that "Herodotus whose history the more I examine it the truer I find it, gives the best account of the ancient state of this nation".[138] But it was the Old Testament that was the oldest and the most reliable source for the Scriptures which "are by far the oldest records now extant"[139] and these Newton believed had been compiled from older books and records that were now lost.[140] There was "no instance of letters for writing down sounds before the days of David, in any other nation besides the posterity of Abraham".[141] He claimed that the written records of the Jews had been undisturbed until the fall of the Temple, but even with this disruption their records were relatively unscathed compared to the Gentile records.

The original religion, he believed, was revealed to the primordial people at Creation and this religion was preserved under the government of Noah and his sons. They were

> of one language, one society, and one religion: and then they divided the earth, being perhaps… forced to leave off building the tower of Babel: and from thence they spread themselves into the several countries which fell to their shares, carrying along with them the laws, customs and religion.[142]

This religion was passed through Abraham to the Jews. It was the religion of Moses and the prophets. "This was the morality and religion of the first ages, still called by the Jews, 'The precepts of the sons of Noah'." Furthermore "this is the primitive religion of both Jews and Christians, and ought to be the standing religion of all nations".[143] In his *Chronology*, this original religion was corrupted by kingship, and the veneration of kings was the source of superstition. In addition, the primitive religion of the Jews and Christians who worshiped the one God – this primitive monotheism – predated all Christian revelation; particularly, the revelations of the Trinity which Newton disagreed with.

For Newton, the Kingdom of Israel was the first significant political society that could be truly called a civilisation. However, Newton did have trouble justifying this against the accounts in the Old Testament, which he had claimed to be the oldest existing records of any civilisation. In the Book of Exodus, it clearly reveals Moses leading the Israelites out of a large and powerful Egyptian Empire. Yet Newton diminished it to a country of little city kingdoms that was not united into a great Empire until the reigns of Ammon and Sesac.[144] In the Short Chronicle, Newton dated Ammon 1034 BC[145] and Sesac 1014 BC[146] both postdate the reigns of David (1059 BC)[147] and Solomon (1019 BC).[148] According to these dates, Egypt was not an Empire until after the establishment of the Kingdom of Israel. Throughout the chapter on the Egyptian Empire, Newton again used the Death of Solomon as a point of

reference in dating reigns of Egyptian Kings, but to a lesser extent than he had for dating the Greek Empire.

Despite the importance that Newton gave to the Kingdom of Israel and the key focal point for dating the Empires of Greece and Egypt being the death of Solomon, there is no chapter on the Kingdom of Israel, and the description of the Temple of Solomon is curiously placed between the chapters "Of the Two Contemporary Empires of the Babylonians and Medes," and "Of the Empire of the Persians". In the "Short Chronicle", the beginning of Solomon's Reign in 1019 BC and the founding of the Temple in 1015 BC are given as key dates.[149] Yet the beginning of the chapter is quite dismissive: "The Temple of Solomon being destroyed by the Babylonians, it may not be amiss here to give a description of that edifice".[150] The only link with the previous chapter, and rationale of its position, was the Temple's destruction, which Newton dated 588 BC.[151] The chapter consists of a brief description of its floor plan and is barely 3,000 words long, with three illustrated floor plans. There is no mention of the style of architecture, its splendour or its significance. The analysis lacks any enthusiasm and is a highly clinical description. This along with its brevity appears to contradict the importance given to Solomon throughout the Greek and Egyptian chapters. Furthermore, its architectural description has problems and there are parts that do not make structural sense.[152]

Stukeley noted his disappointment with the plan in the *Chronology*, claiming that Newton "has come pretty near my ground plan of the Temple of Solomon, but he gives no uprights".[153] Babson MS 0434 is the only surviving manuscript that clearly considers the architecture of the Temple in detail. There are a few other manuscripts that outline the Temple, but none of these give the detail that Babson MS 0434 does. Conduitt would have had possession of Babson MS 0434 as it came into the Portsmouth collection via his daughter. Yet it shows no notes or corrections by Conduitt, as do the other manuscripts, in the course of editing for the *Chronology.*[154] Furthermore, the floor plan of the *Chronology* is distinctly different from the floor plans of Babson MS 0434,[155] making it clear that it is not the text used or adapted for the *Chronology.*

At Christmas in 1725, at the height of the controversy over the "Short Chronicle," Stukeley recalled a discussion he had with Newton about Solomon's Temple. Newton showed him some drawings of the Temple,[156] and it is possible that this was Babson MS 0434 that Newton showed Stukeley; although in the course of this conversation, recalled by Stukeley, they discussed a style of architecture which is not mentioned in Babson MS 0434.

Stukeley claimed that although they had not discussed the details of the Temple, they both agreed that it was not like any other design. According to Stukeley, Newton claimed that Solomon's Temple was the oldest temple and it was the original model for all subsequent temples. He argued that the workmen on the Egyptian temples had come from Jerusalem and that they imitated the Temple of Solomon and also that the Greeks had borrowed their style of architecture from Solomon's Temple. Stukeley claimed that the style of the Temple was Doric and that Newton agreed with him saying that "the Greeks advanced it (Doric) into the Ionic and the Corinthian, as the Latins into the Composite".[157] But this is not stated in Babson MS 0434 or anywhere else in his manuscripts. According to Newton, the Temple of Solomon was the model

for Herod's Temple, which was Corinthian and Doric. In Herod's Temple, this model was preserved in the colonnade of Solomon which was a part of the ancient structure.[158] Furthermore, Newton claimed that Herod had also maintained the magnitude of the columns, their number, and the triple row in the atrium of the Temple[159]; that he copied the details of what had been preserved of the Temple of Solomon. However, Newton did not state directly that Solomon used Corinthian columns, only that the model was preserved in Herod's Temple, but he clearly did not mention that was was Doric. Stukeley's reminiscences appear to support his own concept of architectural development rather than that of Newton.

Newton had placed Israel in the forefront of civilization and this civilization was the first to be built using all the science and art available. Although letters, astronomy and the trade of carpenters had been invented by the merchants of the Red Sea out of necessity, the Israelites had not only retained ancient knowledge, but also used these inventions to advance their civilization. For there had been no mention of the trade of carpenters or good architecture before Solomon sent for Hiram the King of Tyre to supply him with such artificers.[160] Newton confidently stated that "I meet no mention of sumptuous Temples before the days of Solomon: new kingdoms begun then to build Sepulchers to their founders in the form of sumptuous Temples; and such Temples Hiram built in Tyre, Sesac in all Egypt, and Benhadad in Damascus".[161] He had made the Temple the point of reference for all the temples to follow and subjugated the other "new" civilization to the Kingdom of Judea. There were no Temples before Solomon for "Temple began in the days of Solomon".[162] More importantly, in the understanding of Babson MS 0434, the Temple not only was the beginning of cultured civilization which retained ancient knowledge and wisdom, but was also a blueprint for Biblical prophesy.

Principia and *Prisca Sapientia*

In 1887, *The Times* wrote:

> It may be asserted without fear of contradiction that of all the anniversaries celebrated this year none is noteworthy more than the bicentenary of the publication of Newton's 'Principia'. No single work has ever been published which has exerted a more signal influence on science and on the progress of civilisation.[163]

Newton, however, believed that the advancement of civilisation had already been made by the ancients and had been subsequently lost. His role was to uncover the lost *Prisca Sapientia* or ancient wisdom. In the 1690s, Newton began to write some scholia (notes) which claimed that natural philosophy was "rediscovered" from ancient wisdom. He wrote:

> The most ancient opinion of the Philosophers was that the fixed stars stood motionless in the highest parts of the world, and that the planets revolved about the Sun beneath these stars; that the Earth likewise is moved in an annual course, as well as with a daily motion about its own axis, and that the Sun or hearth of the Universe rests quietly at the centre of all things. For this was the belief of Philolaus, of Aristarchus of Samos, of Plato in his riper years, of the sect of the

> Pythagoreans, and (more ancient than these) of Anaximander and of that most sage king of the Romans, Numa Pompilius. The latter erected a temple to Vesta, round in form, and ordained perpetual fire to be maintained at its centre, to symbolize the round shape of the Orb with the solar fire at its centre. It is very probable that the Egyptians disseminated this opinion, however, for they were the oldest observers of the stars. It seems that the Greeks, a race more given to philology than to philosophy, obtained this philosophy which was the oldest and soundest of all from the Egyptians and neighbouring peoples; and the rites of Vesta speak of the spirit of the Egyptians, who depicted their mysteries in rites, ceremonies and hieroglyphs far surpassing the understanding of the vulgar. Afterwards Anaxagoras, Democritus and several others taught that the Earth stands unmoved in the middle of the world.[164]

Although this Scholium was written for the second edition of the *Principia*, it was not published by Newton but appeared in the introduction of David Gregory's *Astronomiae Physicae & Geometricae Elementa* published in 1702.[165]

According to Newton, this "Copernican" theory had been known and taught by the ancient philosophers. Newton considered himself to be not only rediscovering the mathematical principles of the ancient philosophers in his *Principia,* but also rediscovering the ancient geometrical methods. In an intended preface for the second edition written in 1710, Newton attributed knowledge of universal gravitation to the ancient Chaldaean and claimed that Pythagoras imported it to the Greeks and Romans.[166] According to Newton, the role of Pythagoras in the transmission of ancient wisdom to the Greeks was an important one. Pythagoras had learnt from Egypt and Phoenicia the original and pristine religion of Noah, with all its knowledge of Natural Philosophy, including gravitation and the musical harmonies of the planets.[167] The intended preface reveals the relationship between Newton's "philosophical and mathematical classicism":

> The ancient geometers investigated things sought through analysis, demonstrated them when found out through synthesis, and published them when demonstrated so that they might be received into geometry. Once analysed they were not straightaway received into geometry: there was need of their solution through composition of their demonstrations. For the force of geometry and its every merit lay in the utter certainty of it, and that certainty in its splendidly composed demonstrations. In this science regard must be paid not only to the conciseness of writing but also to the certainty of things. And on that account I in the following treatise synthetically demonstrated the propositions found out through analysis.[168]

The geometry of the *Principia* adheres to the ancient methodological approach of presenting the theorems by synthesis.

In a draft for the second edition of the *Principia,* scholia were added to some of the propositions in Book III: The System of the World. In propositions IV–IX, Newton began with the gravitation of the Moon in its orbit to the inverse-square law generalised to include the all the bodies in the physical universe. Table 2.1 lays out these propositions along with the contents of the drafted scholium and the principal author cited by Newton.

In the draft of proposition VIII, Newton measured the distance of the planets through their ancient harmonic ratios:

> The ancients have not sufficiently explained by what proportion gravity decreases by moving away from the Planets. Yet they do appear to have adumbrated it by the harmony of the celestial spheres, by designating the Sun and the remaining six planets, Mercury, Venus,

Table 2.1 The contents of the drafted scholium[169]

Proposition	Content of the scholium	Principal author cited
IV – The gravitation of the Moon in its orbit	The Moon another Earth, like the other heavenly bodies	Plutarch, *De facie in orbe lunae, De placitis;* Diógenes Laertius; N Conti; Galileo
V – The mutual gravitation common to the planets and satellites	The various centres of gravity of the celestial bodies	Plutarch, *De facie in orbe lunae;* Democritus from Origen; Lucretius
VI – The gravity of bodies upon the planets is proportional to the masses of the same body	Proportionality of the mass and gravity	Lucretius; the atomists from Aristotle; Plutarch, *De placitis*
VII – Universal gravitation in the ratio of the masses of the heavenly bodies	Gravitational attraction and magnetic attraction	Plutarch, *De facie in orbe lunae;* Lucretius
VIII – The law of the inverse-square of the distances in the case of two bodies	The ratio between gravity and distance and musical scale	Pythagoras from Macrobius; Pliny; Proclus; Eusebius; Macrobius
IX – The law of inverse-squares generalized	Universal attraction and its cause according to the ancients	Thales from Diogenes Laertius; Pythagoras from Arisotle; the myth of Pan and the Orphic hymns from N. Conti; Macrobius

> Earth, Mars, Jupiter, Saturn, by means of Apollo with the Lyre of seven strings, and measuring the intervals of the spheres by the intervals of the tones... For Pythagoras, as Macrobius attests, by stretching the intestines of sheep or the tendons of an ox by attaching various weights, and from this he learned the ratio of the celestial harmony. Thus, by means of such experiments he ascertained that the weights by which all tones which are of equal strings . . . were equal as the squares of the lengths of the string by which the musical instrument emits the same tones. [170]

The harmony of the spheres propagated by Pythagoras measured the distances between the planets. This harmonic measurement was in direct relationship with the inverse-square law. Thus, through Pythagoras's experimentation, the harmony of two strings when the tensions are equal is to the squares of their lengths. For Newton, this relation measured the distance and weights of the planet from the Sun, and thus the gravitational attraction between two planets could be understood in these terms. This ancient knowledge of natural philosophy had been lost over subsequent generations and Newton was attempting to recover this lost knowledge of natural philosophy.

Newton also practiced alchemy and studied ancient alchemical texts. Keynes MS 27 and 28 held at Kings College contains Newton's translations of and commentaries on the *Emerald Tablet* and *Seven Chapters,* two alchemical texts which are attributed to Hermes Benjamin Robert. In the seventeenth century, Hermes Trismegistus was considered to be an Egyptian priest who lived before Moses. His works contains the expressions such as "Son of God" and "the Father". Thus, Hermes Trismegistus was perceived as an important Gentile prophet who foresaw the coming of Christianity.[171]

The first of Newton's translations was the *Emerald Tablet* that dates to the early 1680s. It is one of the best-known alchemical texts. Betty Jo Teeter Dobbs has undertaken a study of Newton's translation and commentary. She claimed it was

> Of indeterminate but great antiquity, it was long supposed to encapsulate in its mysterious phrases all the occult wisdom of the ancients regarding divine actions in the creation of the world and regarding the alchemist's actions in the great work of alchemy, which was of course widely considered to be a little replication of divine creativity.[172]

In the early 1670s, prior to translating the *Emerald Tablet*, Newton experimented with sulphur and quicksilver. These experiments were conducted over a small furnace; he experimented with the heating, cooling and mixing of sulphur and quicksilver and recorded his experiments and observations. In one of his papers entitled "Of Natures Obvious Laws & Processes in Vegetation",[173] he claimed that the animals and minerals draw from the vegetable spirit the "material soul of all matter". All things are born, live and die that "ferment and principle of all vegetation". [174]

In the 1680s, Newton translated Hermes' text as:

> Tis true without lying, certain & most true.
>
> That w^{ch} is below is like that w^{ch} is above & that w^{ch} is above is like y^{t} w^{ch} is below to do y^{e} miracles of one only thing.
>
> And as all things have been & arose from one by y^{e} mediation of one: so all things have their birth from this one thing by adaptation.
>
> The Sun is its father, the moon its mother, the wind hath carried it in its belly, the earth is its nurse. The father of all perfection in y^{e} whole world is here. Its force or power is entire if it be converted into earth.
>
> Separate thou y^{e} earth from y^{e} fire, y^{e} subtle from the gross sweetly wth great industry. It ascends from ye earth to heaven & again it descends to y^{e} earth & receives y^{e} force of things superior & inferior.
>
> By this means you shall have y^{e} glory of y^{e} whole world & thereby all obscurity shall fly from you.
>
> Its force is above all force. For it vanquishes every subtle thing & penetrates every solid thing. So was y^{e} world created.
>
> From this are & do come admirable adaptations whereof y^{e} means (or process) is here in this.
>
> Hence I am called Hermes Trismegist, having the three parts of y^{e} philosophy of y^{e} whole world
>
> That w^{ch} I have said of y^{e} operation of y^{e} Sun is accomplished & ended.[175]

In Newton's commentary on this text he claimed sulphur and quicksilver were united; they acted on each other and are mutually transmuted into each other to create a nobler offspring.

> And just as all things were created from one Chaos by the design of one God, so in our art all things, that is the four elements, are born from this one thing, which our Chaos, by the design of the Artificer and the skilful adaptation of things. And this generation is similar to the human, truly from a father and mother, which are the Sun and the Moon. And when the Infant is conceived through the coition of these, he is borne continuously in the belly of the wind until the hour of birth, and after birth he is nourished at the breasts of foliated Earth until he grows up. This wind is the bath of the Sun and the Moon, and Mercurius, and the Dragon, and the Fire that succeeds in the third place as the governor of the work: and the earth is the nurse, Latona washed and cleansed, whom the Egyptians assuredly had for the nurse of Diana and

> Apollo, that is, the white and red tinctures. This is the source of all the perfection of the whole world. . . And just as the world was created from Chaos through the bringing forth of the light and through the separation of the aery firmament and of the waters from the earth, so our work brings forth the beginning out of black Chaos and its first matter through the separation of the elements and the illumination of matter. Whence arise the marvellous adaptations and arrangements in our work, the mode of which here was adumbrated in the creation of the world.[176]

Newton also showed interest in the thirteenth century Hermetic philosopher Ramon Lull. There is a small unfinished manuscript on the work by Lull, the first heading being "Ex Raymundi Seu de Quintessentiji" which is a set of notes on the separation of the elements. This is followed by "Ex Raymundi Lulli Libro Mercuriorum". Under this heading are some notes and the beginnings of an alchemical recipe, but it finishes in mid-sentence.[177] Further interest in Lull is shown in *Experimenta Raymundi*[178] and in the astronomico-alchemical symbolism of Lull and other Hermetic writers in *Tabula Smaragdina and Hieroglyphica Planetarum.*[179] Newton also translated[180] into Latin from French the Hermetic philosophy of Limojon de Didier's *Triomphe Hermetique* in a manuscript entitled *Epistola ad verso Hermetis Discipulos continens Claves Sex Principales Philosophiae Secretae.*[181]

Newton strongly believed in *prisca sapientia* and that the ancients had understood the true system of natural philosophy. However, he believed this knowledge had been lost through the subsequent corruption of the true religion. Since he believed that the *Emerald Tablet* was a text that was dated to the times before Moses, Newton considered it to be less corrupt and closer to the pure knowledge of the original religion of Noah. Because of this, such texts were significant both scientifically and theologically.

Science and theology came together because according to Newton's commentary on the *Emerald Tablet* in the alchemy of Hermes they have

> three parts of the philosophy of the whole world, since he signifies the Mercury of the philosophers, which is composed from the three strongest substances, and has body, soul, and spirit, and is mineral, vegetable, and animal, and has dominion in the mineral kingdom, vegetable kingdom, and the animal kingdom.[182]

Dobbs considered Newton's interest to be in the structure of matter and in proving that the science of alchemy demonstrated its changing form, and also that the theology of alchemy was its animating and activating spirit. There is also a striking similarity in the use of the word "dominion" to that of the General Scholium in the *Principia* with reference to God.[183] Newton closely associated the vegetable spirit that animated the mineral and the animal world with the light of the Sun – the hearth of the world.[184] His alchemical experiments supported his belief that the ancients such as Hermes had a perfect understanding of natural philosophy and that this knowledge had been lost with the corruption of the original religion.

In his General Scholium, Newton claimed that Numa Pompilius, the legendary second king of Rome and friend of Pythagoras, had erected a round temple to Vesta "and ordained perpetual fire to be maintained at its centre, to symbolize the round shape of the Orb with the solar fire at its centre".[185] For Newton this building preserved the ancient wisdom of the natural philosophy. In the architecture was

encoded the wisdom of the ancients but this understanding had also been lost through time. However, this knowledge had also been recorded by the prophets of the Old Testament, Daniel and Ezekiel; and in the New Testament in Revelation of John the Divine. In the writings of these three prophets, the Temple of Jerusalem is a key element of their prophecies and the understanding and reconstructing of the Temple was part of the decoding of that knowledge.

Conclusion

Throughout the *Chronology*, the Kingdom of Israel clearly was the benchmark for understanding other civilizations. Its importance, however, is not recognised by its own chapter in the *Chronology,* but its importance is only acknowledge in relation to other civilisations, which makes the position and size of the chapter on Solomon's Temple even more curious, being placed after the civilisation that had destroyed it.

Many of the original manuscripts that became the *Chronology* are extremely difficult to read. Newton reused receipts and letters as paper for some of his manuscripts. The opening page of "The Original of Monarchies", one of the manuscripts that became *Chronology,* has writing going in four directions.[186] Many of the manuscripts are not ordered or dated and some were unfinished and fragmentary. The dating of the manuscripts is made more difficult by Newton's recycling of paper; he seemed to have kept paper for decades so the dates of the letters or watermarks can give no indication of the date of the manuscript.[187]

The placement of the chapter on Solomon's Temple after the Empires of the Babylonians and Medes in the *Chronology* does appear to be a curious decision by Newton. He sets out this chapter structure at the end of his life with a very reduced description of the Temple.[188] Babson MS 0434, which is a much fuller description of the Temple, has no additions and deletions by Conduitt that are evident in the other manuscripts used in his compiling of *Chronology.* However, although superficially there is a similarity of the floor plans of *Chronology* and Babson MS 0434, there are nevertheless significant differences. Elements are added in the plans of the *Chronology* that do not exist in Babson MS 0434. At the time of the publication of *Chronology* in 1728, the controversy over the Short Chronology was still raging and it is possible that Conduitt consciously decided to downplay the significance that Newton had given to the Temple of Solomon. However, the significance of the Temple of Solomon to Newton's philosophy is understated in the *Chronology* given its important in his manuscripts.

Newton's search to uncover ancient wisdom was not unique to him. However, Newton was not interested in just uncovering this lost knowledge – "his goal was the truth".[189] But his work on the chronology, ancient wisdom, alchemy and the Temple in his manuscripts should not be considered in isolation. His manuscripts on chronology and ancient wisdom were interlinked with his manuscripts on prophecy. In these manuscripts, the Temple takes an important role and the understanding of its structure and its architecture is of great significance.

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