In memoriam
John Phillips Britton
(6 December 1939 – 8 June 2010)

John Phillips Britton, renowned historian of science and scholar of Babylonian astronomy, died at his home in Wilson, Wyoming on 8 June 2010 of cardiac arrest. He was 71 years old.

The rich mixture of talents with which John Britton was gifted clearly shows up in his career. After obtaining Bachelor of Arts degrees in History and Physics (1961) and a Philosophical Doctorate in the History of Science (1966), both from Yale University, he entered the investment management business and eventually founded his own asset management firm. But in the 1980s, his scientific side started itching and—now being a man of independent means—he decided to follow his heart and to go back to the passion of his youth: history of science. And in a manner typical of the intensity and drive with which he did things, he was successful again. He went back to Yale, took classes in Akkadian and Sumerian, the languages of ancient Mesopotamia written in cuneiform script on clay tablets, and over the next two decades developed into one of the world's experts in Babylonian Astronomy and its transmission to the Hellenistic world.

In his doctoral thesis, submitted to Yale University in September 1966 and carried out under the supervision of Asger Aaboe, John analyzed the way in which the famous ancient Greek astronomer Claudius Ptolemy (second century AD) arrived at the parameters of his solar and lunar theories from observations.[1] After obtaining his degree he left the field, but an adapted version of the first chapter of his thesis was published three years later as a paper [1969] in the Festschrift at the occasion of the 70th anniversary of Otto Neugebauer, one of his teachers and one of the examiners at his thesis defense. It may be considered not only a sign of the quality of Ptolemy's but also of John's work that a somewhat updated version of his thesis was published as a monograph 25 years later [1992]. In the meantime, a heated debate had raged in the literature triggered by the publication of R. R. Newton's book *The Crime of Claudius Ptolemy* in 1977. Contrary to the accusations made by Newton, and

[1] There is a list of John Britton's publications on pages 255–257.

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160 years earlier by J. B. Delambre in his famous *Histoire de l'astronomie ancienne*, John [1992] came to the scholarly and balanced judgment that while

> it does not seem reasonable to accept Ptolemy's solar observations as the results of careful, independent observations

nevertheless

> the *Almagest* should be seen as a great, if not the first, scientific treatise.

This awe for the intellectual achievements of the ancients, both the Babylonians and the Greeks, is a recurrent theme in many of his papers.

The second paper [1987] that John wrote, and the first one after having returned to the history of science, was on column Φ, the first column in Babylonian lunar ephemerides of system A and most probably one of the oldest elements of Babylonian lunar theory. This paper also appeared in a Festschrift, this time at the occasion of Aaboe's 70th anniversary, John's greatly admired teacher and intellectual father figure.

Function Φ and lunar theory more generally would remain central themes in John's research. Much of his early work is based on digesting and further elaborating previous discoveries by Aaboe. This holds for his extensive study [1989] of lunar nodal motion based on Text S, which treats an early variant of system A eclipse theory, and also for his paper [1990] on the possible relation between the 19-year solar calendar cycle and function Φ based on Text E. The research published in these papers also assisted in the formation of his ideas about the gradual development of Babylonian lunar theory, the topic of his review [1993a] presented in 1991 at a symposium held in Graz, Austria. In this review, he also included results from two forthcoming publications [1991b, 1994] on the Saros cycle (the lunar eclipse cycle of 223 synodic months discovered by the Babylonians).

In the early 1990s, John also published two interesting papers on texts from the fourth century BC, one [1991a] on an early model of the planet Venus (with C. F. B. Walker) and the other [1993b] on a mathematical text containing a list of fourth powers of regular numbers (products of powers of 2, 3 and 5). These are the first papers in which he actually got involved with transcribing, translating, and interpreting cuneiform texts himself. The analysis of the Venus text

further shows the impressive grasp of Babylonian astronomy that John had acquired in the decade since returning to the field. This also clearly shows up in his paper [2000] (with A. Jones) on a first century AD papyrus from Oxyrhynchus in Greco-Roman Egypt containing a Babylonian model of the planet Jupiter, in the popularizing chapter [1996] on Babylonian astronomy and astrology that he wrote with C. B. F. Walker in the British Museum publication *Astronomy before the Telescope*, and in his critical review [1998] of *The Babylonian Theory of the Planets* by N. M. Swerdlow.

Around the turn of the century, the term of his apprenticeship was over and the phase of his master craftsmanship could begin. This is very much noticeable in his review papers, where he addresses the same themes as before but now put in broader and deeper perspective. The emphasis on the historic context and the broad picture, his superb command of the English language and his fluent elegant style of writing make his papers quite stimulating reading. Still, some of the arithmetical detail both in his writing and in his oral presentations, originating in his conviction that the Babylonian mind was first and foremost a mathematical one, could be somewhat overwhelming at times. In his papers, the use of spreadsheets is a common feature consistent with his remark that 'the spreadsheet was a Babylonian invention'.

Starting with his review papers, 'Lunar Anomaly in Babylonian Astronomy' [1999] and 'Treatments of Annual Phenomena in Cuneiform Sources' [2002a], John embarked on a program to unveil and understand in detail the road followed by Babylonian scholars in the fifth and fourth centuries BC when Babylonian lunar theory was developed step by step into the sophisticated systems A and B that we know from the lunar ephemerides of the Seleucid period. Many of the basic ideas on which this reconstruction is based derive from Aaboe's fundamental contributions, further extended and worked out by John in several of his papers in the 1980s and 1990s. Preceded by a paper on corrections for solar anomaly in Babylonian lunar theories [2004a], this eventually led to a series of papers entitled 'Studies in Babylonian Lunar Theory', of which parts 1–3 [2007a, 2007f, 2010] were published or in press at the time of his death. It is fascinating to follow him on this intellectual journey which shows his great knowledge of the intricacies of Babylonian lunar theory and

which illustrates his conviction that clever mathematical manipulation of combinations of lunar and solar periods forms the foundation on which the theories are built.

In addition to this systematic study of Babylonian lunar theory, John managed to publish a number of interesting papers over the last 10 years on a variety of other topics: a late theoretical Venus text [2001a], an early observational Mars text [2004b], two early 'lunar-six' texts [2007b, 2007d] (one co-authored with P. J. Huber), a late lunar procedure text [2007c] (with W. Horowitz and J. M. Steele), and an interesting review [2007e] of the gradual improvement of the calendar in Mesopotamia, with special emphasis on the progress in the estimate of the year-length, paralleling the increase of astronomical knowledge in Babylon during the last seven centuries BC. The last paper [2011] in his bibliography (with C. Proust and S. Shnider) on the famous mathematical tablet Plimpton 322 is a prime example of John's erudite scholarship, of his desire to understand the Babylonian mind, and of his ambition to put the subject matter of a text in the proper historical and cultural context.

John Britton was an independent scholar not permanently affiliated to any university or academic department, but during his career as a historian of science he held several visiting positions at institutions of higher learning: the history of science departments of Yale University (1984–1991) and Harvard University (1994–1995), the Dibner Institute at M.I.T (2003–2004) and the Institute for the Study of the Ancient World at N.Y.U. (2008–2010).

The fact that more than one quarter of his papers are contributions to Festschrifts of colleagues and friends is very much in line with the fact that John was a very personable man: he did not get acquainted, he entered into relationships. This was partly due to the delightful mixture of cordial joviality and New England reserve that was one of his trademarks. He was also very generous in sharing his views and ideas with students and colleagues, stimulating them in their own research, even sometimes materially supporting their endeavors. He could openly admire the work of others; but he could also be quite critical, in particular when his own views were at stake, however always remaining polite and respectful, gentleman as he was. His open mind and his keen sense of humor were essential elements of his natural charm. One of his characteristic jokes to friends who

expressed admiration for his work was that he could just be making it all up and there was nobody alive who would know the difference.

During his lifetime, John developed into the world's expert in Babylonian lunar theory. Here he made his most seminal contributions. He greatly admired the arithmetical skills of the ancient Babylonian scholars and their impressive achievement of having successfully modeled the motions of the Sun, Moon and planets. In a colloquium talk entitled 'Babylonian Lunar Theory and the Invention of Science' that he gave at the Dibner Institute in Cambridge, Massachusetts on 30 September 2003, he ended his presentation as follows:

> In closing, I would hope to leave with you two thoughts. The first is that this was no trivial development or merely a clever manipulation of simple numbers as sometimes asserted, but rather a persistent and profoundly disciplined exercise in theoretical and practical analysis. The second is that its author, whoever he was, possessed an intellect of uncommon power, deserving perhaps to be ranked among the best.

Maybe the last phrase also applies to John Britton. For his intellectual power and generosity, but above all for his warm personality, he will be greatly missed by all his Babylonian friends and colleagues.

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