Preface: A Letter

To my friends, Professors Franco Aspesi, Gioachino Chiarini and Mario Negri[1]

Distinguished professors and dear friends,

As you have followed my research into the astronomical underpinnings of the Numan calendar right from the start, I send you a monograph that I have written to address multiple objectives.

First of all, the essay brings together the fruits of several years' study, as illustrated in my books *Le Feste di Venere* and *Astronomy and Calendar in Ancient Rome*,[2] supported by the indispensable writings of authors of antiquity and astronomical calculations. This essay also draws on fresh calculations and analyses to build on my previous work and illustrates more recent developments, including a new approach here and there. Last but not least, the essay opens up a number of avenues for further research which—I am the first to admit—a sense of satiety with the work I have undertaken thus far leads me to believe will be for someone else to pursue. I am only too happy to sketch out these avenues so that fresh blood may consolidate and advance research into the now burgeoning discipline of Etrusco-Roman astronomy.

I would, however, like to take this opportunity to make a few remarks regarding the point at which, I believe, we have arrived.

First, the sum of astronomical and astrological knowledge held by the anonymous inventor of the Numan calendar is codified in the temporal rhythms of the year's festivities, fitted into an appropriate system of intercalation.

Second, the rhythm of these cadences, associated with reading and interpreting the myths and rites associated with the festivities, allows us to track backwards to real astral movements.

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[1] This letter, written in 2003 for the first edition of *Astronomia etrusco-romana* (*Etrusco-Roman astronomy*), was also sent to Vittorio Castellani, who passed away in 2006.

[2] See, respectively, Magini 1996 and Magini 2001.

Third, the astronomical knowledge thus codified includes: the motion of Venus; the periodicity of solar and lunar eclipses; the revolution of the line of lunar nodes; the passage of nodes from the Points of Aries and Libra, and the effect that this has on the motion of the Moon; the revolution of the line of apsides; and the relation between the synodical and sidereal periods of the superior planets. I touch only briefly on areas where certainty remains elusive: the rhythm of the motion of the superior planets, particularly Jupiter and Saturn, and the position of zero degrees Aries. Lastly, work still needs to be done to clarify the astronomical significance of the nundinal letters, the true significance of the days of Agonalia (March 17, May 21, December 11 and January 9), and of the opening of the *mundus* (August 24, October 5 and November 8).

Fourth, we know without a shadow of doubt that there was an astrological tradition in Rome, among other things, because of the protection afforded to women—the guarantors of the continuity of the species—by the two most "feminine" of celestial bodies since the proto-history of astrology: the Moon and Venus. This tradition is further evident in the bonds between the public exchequer and the Temple of Saturn from 497 BCE (at the very latest) onwards.

Fifth, last, and most important of all, the very rhythm of public and private life during the time of the Roman Kingdom was regulated by the motion of celestial bodies. Public life was ruled by the *Vestalia,* the *Regifugium* and the *interrex*, and by the *October Equus,* the *Fordicidia* and the *Parilia*.[3] Private life was wholly ruled by the celestial bodies. Conception, the seventh month of pregnancy, preparation for birth, birth itself, namegiving, all of the rites of passage associated with puberty, marriage and conception anew, all of which are notable life landmarks—particularly in the lives of women—were cadenced by celestial movements and the rhythm of their associated festivities: *Matralia* and *Carmentalia, Matronalia* and *Liberalia*, *Tigillum sororium* and *Anna Perenna, Veneralia* and, once again, *Matralia*.[4] Indeed, the circularity of human life on Earth reflects the circularity of the motion of the celestial bodies in the heavens.

Having established these foundations, our enquiry must shift to their origins. An initial hypothesis is that these foundations descend directly from the prehistory of the Roman people. Such a hypothesis, however, flies in the face of the entire weight of tradition, which has it that King Numa was responsible for establishing the calendar, intercalation,[5] and a great many of the feast days. There is also the matter of explaining why no other ancient Italian population, despite significant similarities in many respects, was able during the same period of time to achieve a similar level of astronomical and calendar knowledge. Indeed, how could it have been possible in historical times for the Romans to "misplace" the origins of a

[3] See Magini 2001, pp. 59–67 and 93–104; these topics are covered, respectively, in Chaps. 16 and 17.

[4] See Magini 1996, *passim*; in this book, the topic is covered in Chaps. 10 and 11.

[5] Brought in *sacrorum causa*, "for religious feast days"; see Valerius Antias, fr. 5 Peter apud Macrobius, *Saturnalia*, 1.13.20.

cultural and intellectual heritage acquired through endless years of research and complex mental processes, ever since prehistoric times?

An alternative hypothesis would lead us to a source from outside the Roman sphere. Possible solutions may be found in similarities between the *Regifugium-interrex-Vestalia* and the *sar puhi,* the "substitution of the king" ritual from Ancient Babylon, where the same landmarks in astronomical knowledge were attained a number of centuries earlier. If this association proves to be correct, the question arises as to how this knowledge and its vast store of rituals and conceptions managed to reach Rome, leapfrogging the Greek world.

It is my personal belief that the answer lies elsewhere. I believe that the answer is to be found in the Etruscan origin of the names of the great many festivities associated with astronomical timings. The Etruscans had the *Nonae*, the name *Ides,* the *nundinae,* the *clavus annalis*, and—this is the clincher—the Capitoline triad of Jupiter, Juno and Minerva. This is where we should seek the "barbarian superior to Pythagoras" who, according to Plutarch, put the finishing touches to educating the Roman king. And yet this adds a further layer of complexity, for Pythagoras himself is complex enough: known as "Tyrrhenian" by birth and upbringing, Pythagoras studied geometry, mathematics and astronomy in Egypt and Mesopotamia, before reputedly teaching so much to Numa—though not, it turns out, the calendar to which the king would lend his name.[6]

The picture only becomes much clearer if we accept that the Etruscans hailed from the Orient—from Lydia, as Herodotus claims. This would appear to be confirmed by "the sale of Sardians", that is to say, the Etruscans whom Romulus captured at Veio.[7] First, the Mesopotamian/Anatolian area had achieved a whole sequence of scientific achievements and an elaborate worldview that was the culmination of at least two millennia of development. Thereafter, over what can in no way be described as a brief period of time, an educated and cultured élite belonging to a population living on the fringes of this area acquired these notions of astronomy and astrology, along with a worldview that gave them a rounded meaning. Finally, as events unfolded, this population—including its élite—travelled to Italy, defeated Rome, and as conquerors imposed a calendar that, far from being "agricultural/pastoral" as has long been claimed, was based on a surprisingly sophisticated accretion of astronomical

[6] On the barbarian, see Plutarch, *Life of Numa*, 1.
On the birth and upbringing of Pythagoras, see Aristoxenus of Tarentum, fr. 1, in F. H. G., p. 272; Diogenes Laertius, 8.1; Neanthes of Cyzicus, fr. 30, in F. G. H. 3, p. 10 (the Tyrrhenians/Pelasgians of Samos and Lemnos, to whom these three authors refer, are the Eastern branch of the Tyrrhenians/Etruscans; these branches were united not just by language but by their iron technology).
On his education, Plutarch, *Conviviales Quaestiones* 8.727B; on P.'s knowledge, Giamblicus, *Vita Pytagorae*; on relations between P. and Numa, Plutarch, *Numa*, passim.

[7] Herodotus, *Histories*, 1.94.
On the "Sardians for sale", Plutarch, *Romanae Quaestiones*, 53; Sardis was the capital of the kingdom of Lydia.

knowledge. This knowledge was initially held by the élite; given its complexity, it was impossible to pass it down through the ensuing centuries.

Pursuit of this line of enquiry—which today would be validated by examination of "the genetic data of the populations in potential areas of origin", to quote Cavalli-Sforza[8]—would also explain the sudden step change in the Roman calendar, from the mysterious, cobbled-together 304-day Romulean Calendar (unless behind this astronomically meaningless number lies a 61-day interval between significant astronomical phenomena, but then what phenomena would they be?)[9] to the complex and sophisticated calendar adopted by the following generation (i.e. Numa's generation), which was light years ahead of the preceding simple—and basic—lunar calendar.

I believe that the same path was followed by other customs, beliefs and ideas regarding the relationship between men and divinities or, more specifically, the life of man and celestial messages. I refer to haruspicy: divination through the examination of sheep livers, the various parts of which represented parts of the heavens ruled by the planets and constellations, each of which in turn represented a divine being; I refer to brontoscopic calendars, in which every day of the year corresponded to a particular sign belonging to a particular god; and I refer to the "the curse of the number nineteen". Indeed, in Ancient Babylon, where every single month was 30 days long, the number 49 was bad luck: "The week of weeks was determined by the 49th day after every new Moon—in a 30-day month, that meant that it ran from the 19th day of the following month. Hemerologists considered this nineteenth day to be an *umu limnu,* an inauspicious day… The Babylonians avoided the ill-omened 19th, and even went so far as to write the number as XX.I.lal, i.e. 20 *minus* 1."[10]

This credence may have resurfaced in Etruria;[11] I say "may have"—with the stress on its uncertainty—because as with almost everything to do with Etruria, studies in the field, most especially in Italy, have suffered from the calamitous impact that ideology is capable of having on science. The credence, however, certainly does reappear in Ancient Rome, in the form of *undeviginti,* literally "one-away-from-twenty", despite the fact that Rome had no need for such counting tricks, given that it had no residual trace either of the concepts of a "week of weeks", nor of 30-day months…

Above all, I believe it impossible to attribute such a path of transmission—from the East to Etruria and on to Rome—to a fashion for "orientalizing". Fashion and

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[8] Cavalli Sforza 2000, p. 705.

[9] A putative answer is presented in Chaps. 26 and 27.

[10] On haruspicy, see Nougayrol 1955, pp. 509 and following; also, see Nougayrol 1982, p. 9, no. 7, and pp. 104 and 107; Bottéro 1982, pp. 73–214.
On brontoscopic calendars, see Joannes Lydus, *de ostentis*, passim; Bottéro 1982, pp. 108–11; Pettinato 1998, pp. 196–8.
On the "curse of the number 19", see Schiaparelli 1997–1998, Vol. I, p. 299.

[11] Caffarello 1975, p. 110; with reference to Trombetti, Pallottino and Pfiffig, though in such cases *repetita* not *iuvant.*



Fig. 1 "Orientalizing" patera. Gilded silver, 19.4 cm in diameter, seventh century BCE, Cerveteri, Regolini-Galassi tomb—Vatican Museum, Rome. Courtesy Vatican Museum

bragging have little use for Calendars; Calendars are not Assyrian paterae (Fig. 1) or Urartean cauldrons, as is evident from two thousand years of European calendar history. Fashion cannot explain why people have studied, observed and recorded the movements and rhythms of the stars to try and understand future events; why the planet Venus was considered to be the representative of a feminine divinity of evening love—Ishtar in Mesopotamia and Venus in Rome, and a divine protector of morning warfare—Ishtar once again, plus Mater Matuta; and, with regard to celestial bodies in general—fixed stars and planets, the Moon and the Sun—considering them as heaven's corollaries to the gods, an expression of their desires which it is our lot to interpret.

It could hardly have been turbocharged Villanovans (turbocharged by what, pray tell?)—and I say this in open dispute with the triumphant curators of exhibitions in Bologna and Venice[12]—who came up with the idea of a direct and binding relationship between the macro-cosmos and the micro-cosmos, between

[12] *Principi etruschi tra Mediterraneo ed Europa*, conceived and curated by G. Bartoloni, F. Delpino, C. Morigi Govi, and G. Sassatelli, Museo Civico Archeologico, Bologna, October 2000—April 2001. *Gli Etruschi*, curated by M. Torelli, Palazzo Grassi, Venice, November 2000—April 2001.

the motion of the celestial bodies across the sky and the life of men on this Earth. If, as Seneca writes in historical times,

> This is the difference between us Romans and the Etruscans […]: We believe that lightning is caused by clouds colliding, whereas they believe that clouds collide in order to create lightning. Since they attribute everything to gods, they are led to believe not that events have a meaning because they have happened, but that they happen in order to express a meaning,[13]

it is clear that these approaches are so very distant that not even the preceding millennium, with its mingling of Roman and Etruscan peoples and cultures, was able to generate a common conception of the world.

Where we may find such a common conception, however—in my opinion, though perhaps not in yours—is in the way that Seneca depicts the Etruscans, and the way that the Babylonians are portrayed in the "Diviners' Manual":

(23) […] their good and their evil portents are in harmony (i.e. confirming each other).
(24) the signs in the sky just as those on the Earth give us signals […]
(37) […] their good and evil portents
(38) are in harmony. The signs on Earth just as those in the sky give us signals.
(39) sky and Earth both produce portents:
(40) though appearing separately, they are not separate (because) sky and Earth are related.
(41) a sign that portends evil in the sky is (also) evil on Earth,
(42) one that portends evil on Earth is evil in the sky […]
(53) […] in summa 25 tablets with signs (occurring) in the sky and on Earth
(54) whose good and evil portents are in harmony (?)
(55) you will find in them every sign that has occurred in the sky
(56) (and) has been observed on Earth […][14]

There is no need for me to repeat here words pronounced by others—far more eloquently than I could possibly manage—regarding the pre-scientific value (in the sense of preparatory to a scientific approach) of a mental outlook of this nature: Pannekoek (a historian of science) and Bottéro[15] (a historian of civilization) have expounded upon this in exemplary and illuminating fashion.

What I would like to do, however, is offer some observations on Bottéro's comment: "The Greeks were not born into a world of Primates, in a kind of barren, cultural vacuum; borrowing an expression uttered by an Ancient Greek on a

[13] Seneca, *Naturales Quaestiones*, 2.32.2: *Hoc inter nos et Tuscos […] interest: nos putamus, quia nubes collisae sunt, fulmina emitti; ipsi existimant nubes collidi, ut fulmina emittantur. Nam cum omnia ad deum referant, in ea opinione sunt tanquam non, quia facta sunt, significent, sed quia significatura sunt, fiant.*

[14] Oppenheim 1974, pp. 197–211.

[15] Pannekoek 1989, pp. 36–81; Bottéro 1982, pp. 187–211.

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