

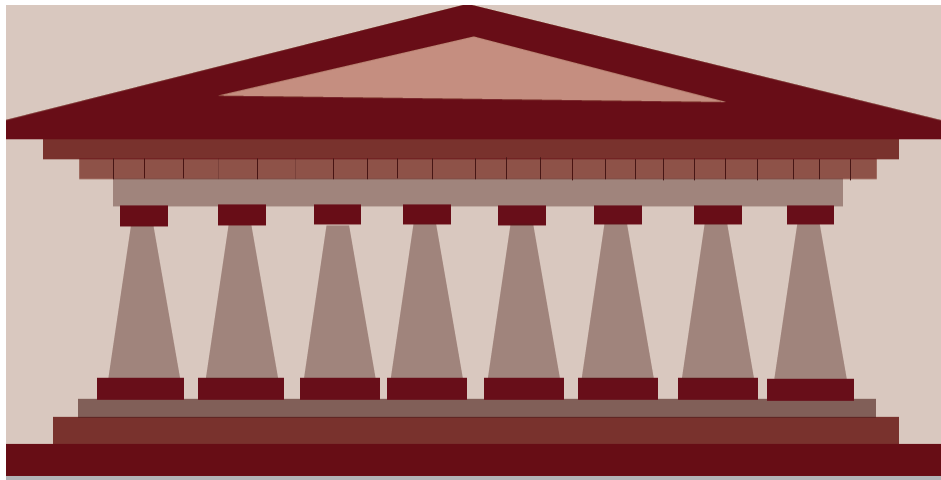
Athens Journal of History

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Japanese Colonial Archaeology in Korea (1905-1940): From the Premises to the Large-Scale Excavation Programs in Pyöngyang and Kyöngju

*By Arnaud Nanta**

Transformed into a Japanese protectorate in 1905 after the victory in the war against Russia (1904-1905), Korea was annexed to Japan in 1910. The period of the protectorate (1905-1910) was central in setting the framework for the investigations and work that took place in colonial Korea until the end of the 1930s. Among these, archaeology came to the fore, just as everywhere in a colonial context, in the Mediterranean territories or in East Asia. Indeed, archaeology is a fundamental source of knowledge about conquered territories; moreover, the stakes involved in controlling the past were increased in the case of countries such as Korea or Cambodia, which were former ancient States. This paper will provide an overview of the genesis and organs of Japanese archaeology and colonial museums in Korea during the first half of the 20th century, based on primary sources as well as Japanese and South Korean historiography. We will first discuss an initial period - dating back to pre-colonial times - of intellectual construction of the Japanese gaze upon the peninsula, a period that also saw the emergence of a Japanese fascination with the peninsula's past, as well as the formation of a discourse legitimizing the annexation of Korea in the name of the past. Secondly, we will describe the elaboration of colonial institutions: the Museum of the Japanese Government-General of Korea and the regional museums, the Commission for the Study of the Ancient Remains of Korea, which was the equivalent in colonial Korea of EFEO in French Indochina. Then, we will describe the realization of major five-year excavation programs and their focus on the two sites of Lelang (near Pyöngyang) in the north, and Kyöngju in the south. Finally, we'll look at some of the best-known publications, both in books and scientific journals, and question their legacy after decolonization in 1945 and the foundation of North and South Korea in 1948.

Introduction

Transformed into a Japanese protectorate in 1905, the Empire of Korea – the Kingdom took the name of empire in 1897 – was annexed to Japan in 1910, to form the jewel in the crown of the Japanese colonial empire, built up from the end of the 19th century and which included Taiwan, Korea, Sakhalin (Karafuto), Liaodong in northeastern China and the Micronesian islands.¹ Colonial territories were the scene of numerous investigations in humanities and social sciences. Among these, imperial Japan was fascinated with the ancient history of Korea

*Professor, French National Center for Scientific Research (CNRS), France.

1. R. Myers, and M. Peattie, *The Japanese Colonial Empire 1894-1945* (Princeton: Princeton University Press, 1984); P. Duus, *The Abacus and the Sword: The Japanese Penetration of Korea (1895-1910)* (Berkeley: University of California Press, 1995).

from the end of the 19th century, then throughout the colonial period.² Japanese archaeological and historical works also profoundly modified the traditional writing of Ancient History in Korea, during the colonial period.

The history of archaeology, a discipline established in the 19th century, needs to be approached differently depending on whether we are considering national or colonial research. Archaeology was central to the development of national identities within the new Nation-States. But it also made its mark in colonial context, particularly in the Mediterranean area or in East Asia, in which cases it was fundamental to grasp the conquered territories. The challenges of controlling the past were exacerbated in the case of countries that were former States with deep roots, such as Cambodia or Korea, and where the question of national identity was bound to resurface because of colonial archaeology, as the case of the *École française d'Extrême-Orient* has shown with Angkor.³

The aim of this paper is to provide an overview of the genesis and development of Japanese archaeology and colonial museums in Korea during the first half of the 20th century. While archaeological work was a scientific enterprise, it was also an activity carried out by a foreign power, in a dominated country, through ad hoc institutions created by the colonial power and from which nationals were excluded. The colonial context of Korean archaeology determined its practice, and for this reason, the legacy of this archaeology is still debated today as a problem in the two Koreas founded in 1948 in the north and south of the peninsula. We will also briefly evoke the post-colonial issues, and the controversies surrounding the demands for restitution of Korean heritage.

The protectorate period (1905-1910) was central in building the framework for the investigations and work that took place in colonial Korea until the end of the 1930s. The question of archaeology in colonized Korea concerns not only the history of knowledge or the understanding of ancient Korea, but also the history of power and of the specific context in which this archaeology was carried out before 1940.

This contribution will be based on primary documentation as well as Japanese and South Korean historiography. The relationship between modern humanities and colonization is one of the long-standing issues in Japanese research, and the same is true in South Korea, where Japanese colonial knowledge is an important topic within the historiographical research on colonization. The history of the archaeological discipline in the Korean peninsula was first described by the colonial power and the colonial researchers themselves,

2. S. Tanaka, *Japan's Orient* (Berkeley: California University Press, 1993); H. I. Pai, *Constructing "Korean" Origins* (Harvard: Harvard University Press & Hallym, 2000); A. Nanta, "Colonial Historiography in Taiwan and Korea under Japanese Rule. 1890s-1940s", in *Politika* (2020).

3. P. Singaravélou, *L'École française d'Extrême-Orient ou l'institution des marges (1898-1956)* (Paris: L'Harmattan, 2000).

before and after 1945, notably by Fujita Ryōsaku,⁴ who was for a long time in charge of the colonial Museum of the Government-General of Korea (see part 3 below), or Umehara Sueji⁵ from the Imperial University of Kyōto. This history did not become the subject of critical historical research until the 1960s, with the development of Japanese academic research on Japan's colonial past, notably with the pioneering work of Nishikawa Hiroshi⁶ in the pages of the *Bulletin of the Japanese Society for the History of Korea* (founded in 1959), alongside the works led by Korean historians in Japan,⁷ and those published by a number of Japanese archaeologists⁸ – Japanese archaeology publishes continuously on its own history. On the South Korean side, there was a shift from publications praising the 'Japanese colonial major achievements' in the 1960s and 1970s (e.g., Choi)⁹ to more clearly critical works after the country's democratization in 1987, in particular the major synthesis by the historian Yi Sunja.¹⁰ These two bodies of research, Japanese and South Korean, need to be completed by a number of North American works, actually centered around Korean researchers based in the United States, in

4. R. Fujita 藤田亮策, "Chōsen koseki chōsa" 朝鮮古蹟調査 (A study of Korean remains), Compiled in Fujita R (1963) *Chōsengaku ronkō* 朝鮮學論考 (Selected Papers in Korean Studies) (Tōkyō: Fujita sensei kinen jigyō kai, 1963 [1953]): 67-88. The family name precedes the first name in all East-Asian countries (China, Japan, South and North Korea, Taiwan, Viet Nam).

5. S. Umehara 梅原末治, *Kōkogaku rokujū nen* 考古学六十年 (Sixty years of archaeology) (Tōkyō: Heibonsha, 1973).

6. H. Nishikawa 西川宏, "Nihon teikoku shugi ka ni okeru Chōsen kōkogaku no keisei 日本帝国主義下における朝鮮考古学の形成 (The formation of the archaeology of Korea under Japanese imperialism), in *Chōsenshi kenkyūkai ronbunshū* 朝鮮史研究会論文集7 (1970): 94-116.

7. S. Lee 李成市, A. Nanta (Organizers), *The Research on Ancient History in Colonial Korea under Japanese Rule. Archaeology, History and Heritage Policies in East Asian Modern History*, International Conference, Waseda University & Maison Franco-Japonaise, Tōkyō, April 22-23, 2016; Lee, *Tōsō no ba to shite no kodai shi – Higashi Ajia shi no yukue* 闘争の場としての古代史—東アジア史のゆくえ (Ancient History as a Battleground – The destiny of East Asia History) (Tōkyō: Iwanami, 2018).

8. M. Saotome 早乙女雅博, "Shiragi no kōkogaku chōsa hyaku nen no kenkyū" 新羅の考古学調査100年の研究 (A hundred years of archaeological studies of Silla), in *Chōsenshi kenkyūkai ronbunshū* 39 (2001): 53-106; *Kōkogaku jōnanaru* 考古学ジャーナル (**The Archaeological Journal**) (2010). Special issue about the history of archaeology in Korea (*Chōsen kōkogaku shi* 朝鮮考古学史, 2; H. Yoshii 吉井秀夫, "Chōsen koseki chōsa jigyō to Nihon" kōkogaku" 朝鮮古蹟調査事業と「日本」考古学, in *Kōkogaku kenkyū* 考古学研究239 (2013): 17-27.

9. K. Choi, "Compilation and Publication of Korean Historical Materials under Japanese Rule (1910-1945)", in *The Developing Economies* 7, no 3 (1969): 380-391.

10. S. J. Yi 이순자, *Il'che kangjōm-gi kojōk chosa saōp yōngu* 일제강점기 고적조사사업 연구 (Seoul: Kyōng'in munhwa-sa, 2009).

particular Pai Hyung-Il,¹¹ who has highlighted the links between identity construction and archaeology in present-day South Korea, or the project on Early Korean history led by Mark Byington,¹² or by a few European publications.¹³

In the following pages, colonial archaeology in Korea will be examined in four parts. First, we'll briefly present the themes and issues at stake. This will be followed by an overview of the first period of research, up to 1915, including the colonial research institutions. Thirdly, we will address the excavation programs and their locations. Finally, we will briefly present a few prominent publications and results of this research.

The Shift of the Ancient History Paradigm on Korea

Unlike other Japanese colonial territories, the ancient past of the Korean peninsula fascinated Japanese scholars, especially sinologists such as Shiratori Kurakichi 白鳥庫吉 (1865-1942) from the Imperial University of Tōkyō (founded in 1877) and Naitō Konan 内藤湖南 (1866-1934) from the Imperial University of Kyōto (founded in 1897). Such fascination was rare in a colonial context. As written above, we can evoke the Mediterranean area for the Greco-Roman past, or the Indochinese peninsula under French colonization (1887-1954) with the archaeological studies conducted by the École française d'Extrême-Orient (EFEO). In the Korean case, archaeology was an auxiliary science to historiography, similar to the Mediterranean research such as in the case, for example, of Schliemann's excavations. This means the ancient history of Korea was known before all through ancient texts: the Japanese 8th century histories, the Chinese histories, the Korean texts of *Samguk sagi* 三國史記 (12th century) or *Samguk yusa* 三國遺事 (13th century). The ancient history of Korea corresponds to two major periods: the time of the Han colonization in the north of the peninsula with the Chinese commanderies, especially Lelang 樂浪郡 (Nangnang 낙랑군) (-108 to 313); then the Three Kingdoms of Korea period (in Korean: *Samguk sidae* 삼국시대 三國時代), which are Koguryō 高句麗 (37 BC to 668), Paekche 百濟 (-18 to 660) and Silla 新羅 (-57 to 935), from the 1st century BCE to the 10th century.¹⁴

11. H. I. Pai, *Constructing "Korean" Origins* (Harvard: Harvard University Press & Hallym, 2000); H. I. Pai, *Heritage Management in Korea and Japan: The Politics of Antiquity and Identity* (Washington: University of Washington Press, 2013).

12. M. E. Byington (Ed.), *The Han Commanderies in Early Korean History* (Cambridge, MA: Harvard University Press, 2013).

13. A. Nanta, "L'archéologie japonaise en Corée coloniale. Trajectoires, terrains et représentations", in *Hespéris Tamuda* 101 (2022): 555-584.

14. K. B. Yi 李基白, and K. D. Yi 李基東, *Kodae p'yŏn* 古代篇 (The Ancient Times), *Hanguk sa kangjwa* 韓國史講座 (Courses in Korean History), Volume 1 (Seoul: Iljogak, 1982); M.E. Byington, *The Han Commanderies in Early Korean History* (Cambridge, MA: Harvard

The “problem of ancient history” emerged in Japan at a time of Japanese nation-building. For this reason, the discovery of the stele of King Kwanggaet’o of Koguryō Kingdom (Kwanggaet’o wang nŭng-bi 廣開土王陵碑) at the border between Korea and Manchuria in 1884, by a gendarme of the Japanese diplomatic contingent, provoked a great fervor in Japan.¹⁵ For commentators of the time, the inscription on this stele from Koguryō, built during the 4th century to record the war against the “Wa”, seemed to demonstrate the historical reality of the “Japanese” military victories of the legendary empress Jingū 神功皇后 (r. 201-269) reported in the Japanese historical text *Nihon shoki* 日本書紀 (720). It is no coincidence that these topics resurfaced in a context of tensions surrounding Korea in the 1880s and 1890s, notably during the Sino-Japanese war (1894-1895), nor that Japan highlighted the empress Jingū, who became a true icon of the new Japanese State in the Meiji era (1868-1912). The links between these visions of the ancient past and the aspirations of the new Japanese State were eminently political. As historian Stefan Tanaka wrote, about the representations of Korea developed in Japan during the 1890’s,

“According to Shiratori, Japan’s activities [in the peninsula] were not imperialistic, for the past shows that Korea ‘has returned to our protection’ [...] History provided the precedent for this return: protohistoric Japan, after all, had been asked for aid from the ancient Korean kingdoms of Paekche, Kaya and Silla in their fight against Koguryō. [...] Moreover, he expressed no doubt that he considered the Sei-Kan [conquer Korea] movement of the early Meiji period to ‘open Korea’ and impose Japanese ‘aid’ during the twentieth century in a similar vein.”¹⁶

At the same time, Japan was developing its national history, following the book *Kokushigan* 國史眼 (A Look at National History) published in 1890, through the creation in 1895 of the Historiographical Institute – which took its actual name *Shiryō hensanjo* 史料編纂所 in 1929 – within the Imperial University of Tōkyō.¹⁷ When we speak of national history, it means a continuous history of a single “people” (*Volk* in German) in a single territory, a people defined by blood or by “race” (ethnicist view). At the same time, the first national history of Korea was published in 1892 with the work *Chōsen tsūshi* 朝鮮通史 (Complete History of Korea) by the Japanese sinologist Hayashi Taisuke 林泰輔 (1854-1922), professor

University Press, 2013); M. Shin, *Korean History in Maps: From Prehistory to the Twenty-First Century* (Cambridge: Cambridge University Press, 2014).

15. A. Saeki 佐伯有清, *Kōkaido ō hi to sanbō honbu* 公開土王碑と参謀本部 (The Japanese Military Staff and the issue of Kwanggaet’o King’s stele) (Tōkyō: Yoshikawa Kōbunkan, 1976); A. Schmid, *Korea between empires, 1895-1919* (New York: Columbia University Press, 2002): 1-22. A life-size reproduction of this 6.3-meter-high stele stands at the entrance to the War Memorial of Korea, in Seoul.

16. S. Tanaka, *Japan’s Orient* (Berkeley: California University Press, 1993): 244.

17. W. G. Beasley, and E. G. Pulleyblank (Eds.), *Historians of China and Japan* (London: Oxford University Press, 1971): 264-287.

at the Tōkyō Normal School. In this book, Hayashi described the history of the peninsula from its origins, calling with only one name (Chōsen 朝鮮) all the States that had existed within the peninsula.¹⁸ In other words, the history of the peninsula was, for the first time, seen as the history of a single country from its origins to the present day.

Japanese archaeology in Korea was to focus on Han (Chinese) sites, and Korean ancient sites i.e. the period of the Three Kingdoms of Korea. Of the latter, the Koguryō Kingdom, which occupied the north of the peninsula and the southern half of “Greater Manchuria”, and the Silla Kingdom which occupied the south of the peninsula – notably its capital city Kyōngju 慶州 – were particularly studied in detail, including the period when Silla politically unified the peninsula between 676 and 935. This was ancient archaeology in the broadest sense, and not prehistoric archaeology. The Korean founding myth of the original ruler Tan’gun 檀君, meanwhile, was to be deconstructed, while the Han presence in the north of the peninsula was asserted as a historical period in its very own right, and even as “the beginning of the history” of Korea, according to an alter-referential vision typical of colonialist discourse.

Precolonial Research and the Japanese Institutions in Charge of Colonial Archaeology

The first period of Japanese research in Korea took place between 1902 and 1915. Researchers from the Imperial University of Tōkyō played there a leading role. In particular the art historian Sekino Tadashi 關野貞 (1867-1935), the anthropologist and archaeologist Torii Ryūzō 鳥居龍藏 (1870-1953), as well as the anthropologist and archaeologist Yagi Shōzaburō 八木奘三郎 (1866-1942), and the historian and archaeologist Imanishi Ryū 今西龍 (1875-1932), future professor at the Imperial Universities of Kyōto and Keijō (the colonial name of Seoul). This first period, which began before the formal colonization of Korea, was characterized by global field surveys, that aimed at charting and mapping the remains of the peninsula’s various historical periods.

At the same time, independent Japanese researchers living in Hansōng (the precolonial name of Seoul) or in the harbour town of Inch’ōn played an important

18. T. Hayashi 林泰輔, *Chōsen tsūshi – zen* 朝鮮通史 全 (Complete History of Korea – Final Edition) (Tōkyō: Toyama-bō 富山房, 1912); H. Hakoishi, 箱石大, “Kindai Nihon shiryōgaku to Chōsen sōtoku-fu no Chōsen-shi hensan jigyō ” 近代日本史料学と朝鮮総督府の朝鮮史編纂事業 (Archivistical works in modern Japan and the colonial program of compilation of Korean history), in M. Satō 佐藤信 *et alii* (Ed.), *Zen-kindai Nihon rettō to Chōsen hantō* 前近代日本列島と朝鮮半島 (The Japanese archipelago and the Korean peninsula during the pre/modern era) (Tōkyō: Yamakawa shuppan-sha, 2007): 241-263; A. Nanta, “Colonial Historiography in Taiwan and Korea under Japanese Rule. 1890s–1940s”, in *Politika* (2020).

role in mobilizing Korean historical sources dating from the Koryŏ 高麗 (935-1392) and Chosŏn 朝鮮 (1392-1897) periods.¹⁹ In 1903, these researchers founded the Kankoku kenkyūkai 韓國研究會 (Korean Research Group) in Inch'ŏn, a private society that published dozens of 17th- and 18th-centuries Korean documents within a few years, and produced a working edition of the 12th-century *Samguk sagi*, the Koryŏ official history of the Three Kingdoms period.

Sekino began studying Korean architectural heritage in 1902, which he referred to in particular as *ko-kenchikubutsu* 古建築物 (ancient buildings). He focused heavily on data from the medieval Koryŏ period, which led him straight to the palatial sites.²⁰ Palatial sites, which are the best documented by philology, were later to be favored by colonial archaeology to the prejudice of a broader research on the traces of the past in the peninsula. Sekino published a *Survey Report on the Architecture of Korea* in 1904, followed by his book *Studies in the Arts of Korea* in 1910.²¹ Although Sekino played a central role in building the definition of Korean heritage, the terminology was slow to settle.²²

Torii, for his part, adopted a more paradoxical approach to his fieldwork. Benefiting from the active collaboration of the army in colonial lands and occupied territories, and as he was a personal acquaintance of governor Terauchi Masatake 寺内正毅 (1852-1919), and also because he defended the colonial regime after the March First, 1919, Korean national movement, Torii was the only person to carry out a vast field survey of the peninsula's prehistoric sites. Of course, prehistoric archaeology did not concern the time of the Three Kingdoms.

19. K. Choi, "Compilation and Publication of Korean Historical Materials under Japanese Rule (1910-1945)", in *The Developing Economies* 7, no 3 (1969): 380-391; A. Nanta, "Colonial Historiography in Taiwan and Korea under Japanese Rule. 1890s-1940s", in *Politika* (2020).

20. H. Nishikawa 西川宏, "Nihon teikoku shugi ka ni okeru Chōsen kōkogaku no Keisei" 日本帝国主義下における朝鮮考古学の形成 (The formation of the archaeology of Korea under Japanese imperialism), in *Chōsenshi kenkyūkai ronbunshū* 朝鮮史研究会論文集7 (1970): 98-99.

21. T. Sekino 關野貞, *Chōsen geijutsu no kenkyū* 朝鮮藝術之研究. (Studies in the Arts of Korea) (Keijō: Chōsen sōtokufu, 1910); A. Nanta, "L'archéologie japonaise en Corée coloniale. Trajectoires, terrains et représentations", in *Hespéris Tamuda* 101 (2022): 555-584.

22. Sekino did not use a unified concept to designate cultural heritage, but instead spoke of "Korean culture" (*Chōsen bunka* 朝鮮文化), which could be divided into "objects" (*ibutsu* 遺物) and "historical remains" (*shiseki* 史蹟). With regard to archaeological sites, Sekino first referred to the "ancient architecture" (*ko-kenchiku* 古建築物) of Korea in 1910, then to the "sites" (*iseki* 遺蹟) of Korea in 1911, and finally to the "ancient remains" (*koseki* 古蹟) of Korea in 1914. The expression "cultural property" (*bunkazai* 文化財), which comes from American English, appears in Fujita Ryōsaku's works. But a more precise semantic analysis would be necessary.

Although Torii visited Korea six times between 1911 and 1916, his work on the peninsula had no posterity.²³

Colonial research institutions were established between 1915 and 1924. This process was possible because of all these earlier works in architectural history and philology, then archaeology, but also because the Japanese colonial power had gathered the Korean historical documents. By 1907, the colonial authorities had taken control of the archives of the Kyujanggak 奎章閣 Royal Library. In 1915, the Museum of the Government-General of Korea – a Museum of history and archaeology – was established. Then, in 1916, the Commission for the Study of the Ancient Remains of Korea (Chōsen koseki chōsa iinkai 朝鮮古蹟調査委員會, transformed into Chōsen koseki kenkyūkai 朝鮮古蹟研究會 in 1931, see below part 3) was created.²⁴

Also in 1916, “Regulations for the Conservation of Ancient Relics and Artifacts” in Korea (Koseki oyobi ibutsu hozon kisoku 古蹟及遺物保存規則), revised in 1933, were promulgated. This regulation preceded mainland Japan law of 1919²⁵ and in this sense, it has a particular importance within the Japanese history of heritage protection, beyond its colonial context. Its Article 2 stipulated an obligation for the colonial authorities to register objects and sites discovered, while Article 3 created an obligation for discoverers to notify a police station within three days, while categorically prohibiting any modification whatsoever to the condition of the site or objects discovered. Article 5 established a conservation mission, and prohibited any modification of the site or objects once they have

23. T. Sakano 坂野徹, *Teikoku Nihon to jinruigakusha* 帝国日本と人類学者 (The Anthropologists of Imperial Japan) (Tōkyō: Keisō shobō, 2005); A. Nanta, “Torii Ryūzō : terrains et discours d’un anthropologue et archéologue japonais du début du XXe siècle”, in *Bulletin et Mémoires de la Société d’Anthropologie de Paris* 22 (2010): 24-37.

24. **Chōsen sōtokufu 朝鮮總督府 (Ed.)**, *Shisei sanjū nen shi* 施政三十年史 (A 30-years History of our administration) (Keijō: Chōsen Sōtokufu, 1940); H. Nishikawa, 西川宏, “Nihon teikoku shugi ka ni okeru Chōsen kōkogaku no keisei” 日本帝国主義下における朝鮮考古学の形成, in *Chōsenshi kenkyūkai ronbunshū* 朝鮮史研究会論文集7 (1970): 94-116; H. I. Pai, *Constructing “Korean” Origins* (Harvard: Harvard University Press & Hallym, 2000); S. J. Yi, 이순자, *Il’che kangjōm-gi kojōk chosa saōp yōngu* 일제강점기 고적조사사업 연구 (Seoul: Kyōng’in munhwa-sa, 2009): 90-98; S. Lee 李成市, *Tōsō no ba to shite no kodai shi – Higashi Ajia shi no yukue* 鬪争の場としての古代史 – 東アジア史のゆくえ (Ancient History as a Battleground – The destiny of East Asia History) (Tōkyō: Iwanami, 2018): 181-204; A. Nanta, “L’archéologie japonaise en Corée coloniale. Trajectoires, terrains et représentations”, in *Hespéris Tamuda* 101 (2022): 555-584.

25. T. Inada 稲田孝, *Nihon to Furansu no iseki hogo. Kōkogaku to hō, gyōsei, shimin undō* 日本とフランスの移籍保護 考古学と法、行政、市民運動 (The protection of ancient remains in France and Japan. Archaeology, law, administration, public movements) (Tōkyō: Iwanami, 2014).

been registered with the Government-General authorities. Article 8 specified the penalties for offenders of Articles 3 and 5.²⁶

Finally, the Imperial University of Keijō (Keijō teikoku daigaku 京城帝國大學), the name of colonial Seoul, was established in 1924; its faculties opened in 1926. A parallel commission in Korean history was set up at the same time, in 1922, reformed in 1925.²⁷

The 1916 archaeological commission brought together many of Japan's leading academics. Let's mention Sekino, Imanishi, Torii, as well as the famous Hamada Kōsaku 濱田耕作 (1881-1938) and his colleague Umehara Sueji 梅原末治 (1893-1983) from the archaeology laboratory at Imperial University of Kyōto, which was also active in China.²⁸ Or the famous historian Kuroita Katsumi 黒板勝美 (1874-1946) from the Historiographical Institute in Tōkyō,²⁹ and the archaeologist Fujita Ryōsaku 藤田亮策 (1892-1960). Fujita headed the Museum in Keijō from 1922 until 1941; he was also professor on one of the two Korean history chairs at the university from 1932, where he taught Korean archaeology, and he published numerous articles and books alongside the publications of the two commissions.³⁰

26. On the limits of these Regulations, see G. Y. Yi 李龜烈, *Nihon shinryaku-ka no Kankoku bunkazai hiwa* 日本侵略下の韓国文化財秘話 (Secret History of the Korean Cultural Properties during the Japanese Invasion) (Tōkyō: Shinsensha, 1993 [1973]); S. Arai 荒井信一, *Koroniarizumu to bunkazai. Kindai Nihon to Chōsen kara kangaeru* コロニアリズムと文化財近代日本と朝鮮から考える (Colonization and Cultural Properties: from the case of modern Japan and Colonial Korea) (Tōkyō: Iwanami, 2012).

27. S. Kim 김성민, "Chosŏn-sa p'yŏnsuhoe ūi sosik kwa unyong" 朝鮮史編修會の組織과 運用 (The Institute for the compilation of Korean history: organization and works), in *Hanguk minjok undongsa yŏngu* 한국민족 운동사 연구3 (1989): 121-164; H. Hakoishi, 箱石大, "Kindai Nihon shiryōgaku to Chōsen sōtoku-fu no Chōsen-shi hensan jigyō" 近代日本史料学と朝鮮総督府の朝鮮史編纂事業 (Archivistical works in modern Japan and the colonial program of compilation of Korean history), in M. Satō 佐藤信 et alii (Ed.) *Zen-kindai Nihon rettō to Chōsen hantō* 前近代日本列島と朝鮮半島 (The Japanese archipelago and the Korean peninsula during the pre/modern era) (Tōkyō: Yamakawa shuppan-sha, 2007), 241-263; A. Nanta, "Colonial Historiography in Taiwan and Korea under Japanese Rule. 1890s–1940s", in *Politika*, 2020.

28. The archaeological research network of the Imperial University of Kyōto also conducted surveys in China and Manchuria, via the East-Asian Archaeological Society (Tōa kōko gakkai 東亜考古學會).

29. L. Yoshikawa, *Making History Matter. Kuroita Katsumi and the Construction of Imperial Japan* (Cambridge: Harvard University Press, 2017).

30. R. Fujita 藤田亮作, "Chōsen koseki chōsa" 朝鮮古蹟調査 (A study of Korean remains), compiled in Fujita R (1963) *Chōsengaku ronkō* 朝鮮學論考 (Selected Papers in Korean Studies) (Tōkyō: Fujita sensei kinen jigyō kai, 1963 [1953]): 67-88.

Programmed Excavations and Regional Museums

Five-year excavation programs were carried out from 1916 onwards, as soon as the archaeological commission was set up, with successive objectives focused on a given region or period. Most of the excavations carried out in Korea were programmed excavations. The topics, sites and results were presented in sixteen excavation reports of varying size, published almost annually between 1917 (for year 1916) and 1940 (for year 1938). Another series of seven special reports was published in parallel with the normal series and concerned specific excavations, which saw a concentration of efforts and teams on a particular site or vestige.³¹

The first program continued Sekino's unfinished work on architecture, and focused under his co-direction on the four Han Chinese commanderies. These are known in Chinese as Han si jun 漢四郡, a term referring to the Chinese presence in the north of the Korean peninsula and in southern Manchuria during the Han dynasty (202 BC to 9 AD, 25-220 AD). Of these four commanderies, that of Lelang (located near Pyŏngyang) was repeatedly studied under Sekino's monitoring. It was given a central importance as the "beginning of the history of the peninsula". In all, Lelang was the subject of three waves of excavations, under Sekino in the 1910s, then in the 1920s, finally under Fujita in the 1930s.

The Kyŏngju region (in southeastern Korea) was also repeatedly excavated. Beyond the fortress remains, the masonry mounds in particular (initially thought to exist only in the north of the peninsula) were studied by Hamada, Umehara and Koizumi Akio 小泉顯夫 (1897-1993) in 1922 and in 1924, following a striking discovery due to construction work conducted by Japanese settlers (see below). These same sites were then studied by Arimitsu Kyōichi 有光教一 (1907-2011) in 1931, followed by Kayamoto Kamejirō 榎本龜治郎 (1901-1970) in 1932 and Saitō Tadashi 齋藤忠 (1908-2013) in 1934.

From the earliest research programs, the objects discovered during the excavations were handed over to five specially-created museums at central and local levels. The Museum of the Government-General of Korea was originally created to house the objects collected by Sekino and Torii. In addition to exhibitions, "the [Government-General] Museum was also responsible for excavating and investigating the remains, carrying out restoration work on them and recording them, while classifying buried objects [*maizōbutsu* 埋藏物]; it was thus the central body concerning ancient cultural properties [*ko-bunkazai* 古文化財]" in Korea,

31. **Chōsen Sōtokufu** 朝鮮總督府 (**Government-General of Korea**) (Ed.) *Koseki chōsa hōkoku* 古蹟調査報告 & *Koseki tokubetsu chōsa hōkoku* 古蹟特別調査報告 (Excavation Reports and Special Excavation Reports, years 1916 to 1938), 2 series, 23 volumes (Keijō: Chōsen Sōtokufu, **1917-1940**); **R. Torii** 鳥居龍藏, "Heian Nandō, Kōkaidō koseki chōsa hōkokusho 平安南道黃海道古蹟調査報告書" (Research Report about the ancient sites in Pyŏng'an Namdo and Hwanghaedo), in Chōsen Sōtokufu (Ed.), *Taishō go nendo koseki chōsa hōkoku* 大正五年度古蹟調査報告 (Reports on Ancients Remains, Taishō year 5 [1916]) (Keijō, Chōsen Sōtokufu, 1917): 767-859.

Fujita explained in 1953.³² The Central Museum was housed in the grounds of the Kyōngbok Palace, in the north of Seoul, alongside the Palace of the Government-General. It was the successor to the Korean Imperial Museum (Chesil pangmungwan 帝室博物館, established in 1908), an art museum built in the tradition of 19th-century European, American or Japanese museums before Japan's annexation of Korea. The collection of the Museum of the Government-General of Korea, built up after 1915, numbered 8,400 items in 1921, 12,329 in 1930, then 14,157 in 1938.³³

The Museum of the Government-General was joined by the Pyōngyang Museum located in the former capital city of the Kingdom of Koguryō and also near Lelang's sites, and also by the Museum of Kaesōng, the former capital city of the Kingdom of Koryō. Two branches of the Museum of the Government-General were also founded in Puyō and Kyōngju. The Kyōngju branch (1926) in particular was the centerpiece of the colonial museums network for the southeast of the peninsula; this branch housed the gold crowns discovered during the excavations conducted in 1922 and 1924 by Umehara at the eponymous mounds (the Golden Crowns Mounds: Kinkan-zuka / Kūmgwan-ch'ong 金冠塚). The excavation of these mounds was also the scene of serious clashes between the archaeologists and the Japanese settlers, who discovered these sites and who seriously damaged them. The current Korean Kyōngju National Museum (Kungnip Kyōngju pangmungwan 국립경주박물관 國立慶州博物館) has its origins in this museum.

The direction of the commission's work was transferred in August 1931 to the newly created Institute for Research on Ancient Remains in Korea (Chōsen koseki kenkyūkai 朝鮮古蹟研究會), while in 1933 the Government-General set up a structure dedicated to the protection of heritage.³⁴ These two decisions seem to have been motivated by budgetary reasons. Another explanation may lie in the Government-General's doubts about the usefulness of archaeological work for its policy. Article 2 of the August 1931 regulation setting up this Institute delimited

32. R. Fujita 藤田亮作, "Chōsen koseki chōsa" 朝鮮古蹟調査 (A study of Korean remains), compiled in Fujita R (1963) *Chōsengaku ronkō* 朝鮮學論考 (Selected Papers in Korean Studies) (Tōkyō: Fujita sensei kinen jigyō kai, 1963 [1953]): 67-88; S. Oide 大出尚子 "Nihon no kyū shokuminchi ni okeru rekishi, kōkogaku kei hakubutsukan no motsu seijisei" 日本の旧植民地における歴史・考古学系博物館の持つ政治性", in *Tōyō bunka kenkyū* 東洋文化研究 14 (2012): 1-28.

33. S. J. Yi, 이순자. *Il'che kangjōm-gi kojōk chosa saōp yōngu* 일제강점기 고적조사사업 연구 (The studies on Korean sites during the occupation by the Empire of Japan) (Seoul: Kyōng'in munhwa-sa, 2009): 321-351.

34. Chōsen sōtokufu 朝鮮總督府 (Ed.), *Chōsen sōtoku-fu kōpō* 朝鮮總督府官報 (Federal Register of the Government-General of Korea), August 9th (Keijō: Chōsen Sōtoku-fu, 1933), 1-2. The August 9, 1933 revision of the 1916 regulations established an Institute of the Government-General of Korea for the Protection of Treasures, Ancient Relics, Famous and Picturesque Places or Monuments (Chōsen sōtokufu hōmotsu koseki meishō tennen kinen-butsumu hozon-kai 朝鮮總督府寶物古蹟名勝天然記念物保存會).

narrowly the sites and regions that research should target. Henceforth, only the regions of Pyöngyang (Lelang) and Kyöngju (Silla) were concerned, because they were then considered sufficient in order to “shed light on the process of development of the Korean culture.” This new Institute was funded to a greater extent by both imperial universities of Tökyö and Kyöto, which in return were able to expand their own collections; by the Japan Society for the Promotion of Science (Nihon gakujutsu shinkökai 日本學術振興會) from 1933, and then from December 1938 via its Korea Committee (Chösen iinkai 朝鮮委員會); by the Japanese Ministry of the Imperial Palace, i.e. the emperor; and finally by the (collaborating) Korean royal family. It was in this context that the Yi Royal Family Art Museum was established in 1938. This reorganization finally saw the development of a pyramid structure comprising three regional research centers integrated within the museums, while the Institute’s offices were located inside the Museum of the Government-General of Korea in Keijö.³⁵

The Rewriting of the Past

Official publications consist of several series. These include the excavation reports already mentioned, the large work *Chösen koseki zufu* 朝鮮古蹟圖譜 (Illustrated Compilation on the Ancient Remains of Korea),³⁶ which presents museums collections and private collections, or the work *Chösen-shi* 朝鮮史 (History of Korea) which is the magnum opus of the Historical Commission (see part 2).

The *Chösen koseki zufu* was published in Japanese and English between 1915 and 1935, in a luxurious edition featuring numerous photographs. This book does not, however, present any historical questions, but was an art history in a form reminiscent of a heritage inventory. This publication was part of a logic of highlighting Korea’s national past, which served to reinforce the colonizer’s position. It may come as a surprise to learn that, although at the time of its publication, almost no actual field excavations had yet taken place, this book was later emphasized as a “great colonial archaeological work”. Of the fifteen volumes in this series, the five dealing with Lelang and the Three Kingdoms period were published between 1915 and 1917, in other words before the completion of the first field research five-year program.

Given the timeline of publication of this famous book series, it is clear that its presentation of Korea’s archaeological and architectural heritage has little to do with scientific research. The composition of the book once again demonstrates

35. R. Fujita 藤田亮作, “Chösen koseki chösa” 朝鮮古蹟調査 (A study of Korean remains), compiled in Fujita R (1963) *Chösen-gaku ronkō* 朝鮮學論考 (Selected Papers in Korean Studies) (Tökyö: Fujita sensei kinen jigyo kai, 1963 [1953]): 82-84.

36. Chösen sötokufu 朝鮮總督府 (Ed.), *Chösen koseki zufu* 朝鮮古蹟圖譜 (Ösaka: Sögakusha, 1981 [1915]).

Japan's keen interest in Korean ancient history, the weight of architectural history and art history, as well as the predominance of a predefined 'vision' of the ancient history of Korea, which had been developed since the 1890s, even before the time of the protectorate.

Chōsen koseki zufu was given to a number of Western and Japanese institutions (including the Guimet Museum in France), and had a strong influence on them. In 1961, this book was still quoted as an essential source of information alongside Andreas Eckardt's *History of Korean Art*³⁷ in the History of Art volume on the "non-Christian world" in the famous French collection La Pléiade. All the Korean terms and place names were mentioned there, in Jean Buhot's chapter, with their Japanese readings, a fact which underlines the "unavoidable" dimension of Japanese mediation up to the 1960's.³⁸

In parallel, between 1932 and 1938, the aforementioned 1922/1925 Colonial Historical Commission published the *Chōsen-shi* 朝鮮史 (History of Korea) series, in thirty-five volumes for a total of 24,000 pages.³⁹ In this work, protohistory and the Chinese commanderies of Lelang and Daifang on the one hand, the period of the Three Kingdoms of Korea on the other, are presented in three large volumes detailing the ancient written documentation on these periods. But this *History of Korea* series - a chronicle that was in fact written in a monarchical, State-centered style - took as its real starting point the unification of the peninsula by Silla, during the reign of King Munmu in the 7th century. In fact, we can consider this series not as a historical study of the peninsula, but rather as a work designed to end Korea's reign as a independent State, with the rule of the Japanese colonizer.

Mention should also be made here of the bibliographies and documentary surveys produced for the Government-General. For ancient history, in particular: the major bibliographies compiled by the philologist and historian of the Silla Kingdom Suematsu Yasukazu 末松保和 (1904-1992), who was professor at the colonial Imperial University of Keijō, where he held one of the two chairs of Korean history.

And also, of mainland Japan publications. In 1933, the Japanese publisher Iwanami, still one of the country's most prestigious academic companies, published

37. A. Eckardt, *A History of Korean Art / Geschichte der Koreanischen Kunst* (London: Goldstone. Leipzig: Hiersemann, 1929).

38. J. Buhot, "L'art de la Corée", in *Histoire de l'art 1. Le Monde non-chrétien* (Ed.) P. Devambez (Paris: Gallimard, 1961): 1442-1458.

39. H. Hakoishi, 箱石大, "Kindai Nihon shiryōgaku to Chōsen sōtoku-fu no Chōsen-shi hensan jigyō" 近代日本史料学と朝鮮総督府の朝鮮史編纂事業 (Archivistical works in modern Japan and the colonial program of compilation of Korean history), in M. Satō 佐藤信 *et alii* (Ed.), *Zen-kindai Nihon rettō to Chōsen hantō* 前近代日本列島と朝鮮半島 (The Japanese archipelago and the Korean peninsula during the pre/modern era) (Tōkyō: Yamakawa shuppan-sha, 2007): 241-263; A. Nanta, "Colonial Historiography in Taiwan and Korea under Japanese Rule. 1890s–1940s", in *Politika* (2020).

the first edition of its *History of Japan* (*Nihon rekishi Iwanami kōza* 日本歴史岩波講座) series. Numerous versions of this series have been published up to the latest in 2015. The first edition contains seven chapters dealing with Korea (then part of Japan) or with Japanese-Korean relations over time, out of a total of 130 chapters. Among these, Fujita wrote a chapter on “Ancient Korean Culture”, demonstrating the place of Japanese archaeology of Korea within the mainland publications.⁴⁰

The *Archaeological Journal* (*Kōkogaku zasshi* 考古學雜誌), published by the Japanese national Archaeological Society (established in 1895),⁴¹ always opened its pages to work carried out in colonial territories. It was in the *Archaeological Journal*, in Tōkyō, and not in Korea, that Hamada published in 1924 a synthesis on “The ancient mounds of Korea”.⁴² In the aftermath of the March First, 1919, Korean national movement, he also published in the journal *Minzoku to rekishi* 民族と歴史 (Peoples & History), founded and edited by historian Kita Sadakichi 喜田貞吉 (1871-1939). Kita was one of the forerunners of social history in Japan, and also a powerful supporter of the annexationist ideology of imperial Japan at the time. In 1921, his journal published a thematic issue on “Korean-Manchu studies” (*Senman kenkyū* 鮮満研究), in which Hamada presented the results of archaeological surveys carried out inside the Korean peninsula. Hamada considered there Korea to be “our country’s Irish question”. And he set out his views on Japanese archaeological research in colonized Korea as follows.

“Japan has been led to take over the administration of Korea, a country that in the past possessed a culture worthy of respect, and [the study of its ancient remains] is a duty that we must fulfil as a civilized nation. Our country has never failed in this duty. Even if Korea were to manage itself on its own in the future, or gain independence, or become the territory of another country, there is no doubt that Japan would receive eternal thanks from the whole world and from the people of Korea for fulfilling its duty as a civilized nation.”⁴³

This discourse on Japan’s ‘civilizing role’ in Korea was a constant feature of the discourse of the archaeologists (or other scientists) who worked there; it is also echoed by Fujita, the director of the Museum. After the Korean War (1950-1953),

40. R. Fujita 藤田亮作, “Chōsen kodai bunka” 朝鮮古代文化 (The Culture of Ancient Korea), in Kokushi kenkyūkai 國史研究會 (Society for National History) (Ed.), *Iwanami kōza Nihon rekishi* 岩波講座日本歴史 (Iwanami courses in Japanese history), fasc. 12 (Tōkyō: Iwanami, 1934).

41. The Japanese Archaeological Society (which official English name is The Archaeological Society of Nippon) is the most ancient research Society in archaeology in Japan, and still exists today, alongside the Japanese Archaeological Association established in 1948 and which federates all regional associations or societies.

42. K. Hamada 濱田耕作, “Chōsen no kofun” 朝鮮の古墳, in *Kōkogaku zasshi* 考古學雜誌 XIV-15, no 302 (1924): 1-18.

43. K. Hamada, 濱田耕作, “Chōsen no koseki chōsa” 朝鮮の古蹟と調査 (Research on the ancient remains of Korea), in *Minzoku to rekishi* 民族と歴史 6-1 (1921): 70.

this stance was one of the reasons why negotiations to normalize diplomatic relations between Japan and South Korea were so difficult to conclude.

Concluding Remarks

As the first attempt to modernize knowledge in Korea, at the time of king Kojong 高宗 (r. 1862-1907) and of the movement of reformist patriots at the end of the 19th century, unfortunately failed, Japanese archaeology was the first to systematically investigate Korea's ancient past throughout the Korean peninsula. Japan thus laid the scientific foundations for this knowledge in Korea. However, its limitations were many: like European archaeology of the same period, ancient Japanese archaeology was guided by philology, i.e., by ancient Korean, Chinese and Japanese texts. And this archaeology was essentially limited to the study of "already known" sites, notably at Lelang and Kyōngju.

In this contribution, we have seen how the paradigm of history writing about Korean past was transformed at the end of the 19th century, when Japanese historians and sinologists grasped for the first time the history of the Korean peninsula as that of a single country, from its origins to present day. Secondly, we have described the transition from pre-colonial times to the institutions established by the Government-General in the 1910s and 1920s. We then presented the main orientations of the excavation programs during the three decades (1910, 1920, 1930) they were carried out. Finally, we have briefly touched on some particularly important publications.

As far as publications are concerned, those issued by Korean resisters such as Sin Ch'aeho 申采浩 (1880-1936) should also be discussed. In his *History of Korea High Antiquity*.⁴⁴ Sin attempted a response to the Japanese researchers, in which he argued, despite archaeological evidence, that Han commanderies had never been located inside the Korean peninsula, which had never been "colonized" by "the Chinese" in the past. This theory, which held that the Han commanderies had in fact been located in China's Liaodong peninsula, had no scientific basis. However, it can be said that Sin tried to project onto these ancient archaeological sites the Korean national feeling of the colonial period, when the country had lost its sovereignty. The same can be said about Korean historian Ch'oe Namsŏn

44. C. H. Sin 申采浩, *Chosŏn sanggo-sa* 朝鮮上古史 (A History of Korea High Antiquity), in *Tanjae Sin Ch'aeho chŏnjip* 丹齋申采浩全集 (Completes Works by Tanjae alias Sin Ch'aeho) (Seoul: Hyŏngsŏl ch'ulp'ansa, 1972), 4 volumes, vol. 1 (1931): 8-346; K. B. Yi 李基白 (Ed.), *Kŭndae Hanguk sa nonsŏn* 近代韓國史論選 (A Selection of historical articles from modern Korea) (Seoul: Samsŏng munhwa chaedan, 1973); H. H. Em, "Minjok as a Modern and Democratic Construct: Sin Ch'aeho's Historiography," in G. W. Shin, and M. Robinson (Eds.), *Colonial Modernity in Korea* (Cambridge Ma: Harvard University Press, 1999).

崔南善 (1890-1917)'s Purham culture theory, which was an attempt to define an ancient Korean culture dominating East Asia before the ancient Han empire.⁴⁵

And, at last, remains the question of the legacy of this Japanese archaeology in North and South Korea, which is an important, still unresolved, topic.⁴⁶ While the knowledge produced remains, Japanese archaeologists did not train Korean students – unlike Japanese professors in the Faculty of Medicine for example. Thus, Japanese archaeologists were replaced by Koreans trained in Austria or Germany during the 1930s and 1940s, notably To Yuho 都宥浩 (1905-1982) who then become professor in North Korea, or Kim Ch'aewon 金載元 (1909-1990), who replaced Fujita in 1946 as director of the Museum in Seoul. Then another generation, trained in the United States, appeared around the 1970s (Pai 2000). In addition, the problem of the restitution of stolen goods was complicated by the creation of two competing States in the north and in the south in 1948, while Japan normalized its relations with South Korea alone in 1965.⁴⁷

Japanese archaeology in colonized Korea was both a scholarly and a colonial enterprise. It served both as an attempt to understand ancient Korea and to legitimate the Japanese presence within the peninsula, while at the same time nourishing the nationalist discourses of the Korean resistance. This eminently hybrid and complex legacy was never resolved after Korea's independence in 1945, mainly because of the partition of the peninsula, but also because Japan never attempted to settle an issue that it considered to be part of Japan's 'positive achievements' in Korea.

The history of the legacy of this colonial archaeology is, to a large extent, that of the fate of Korean heritage, scattered abroad and in Japan, between public and private collections.

In 1965, as Japan and the Republic of Korea (South) normalized their relations, parallel treaties concerning Korean heritage were also signed. Japan recognized South Korea as the sole holder of Korean sovereignty over the entire

45. N. S. Ch'oe 崔南善, "Fukan bunka-ron" 不咸文化論, in *Chōsen oyobi Chōsen minzoku* 朝鮮及朝鮮民族 1 (1927): 1-58.

46. A. Nanta, "The postcolonial rewriting of the past in North and South Korea following independence (1950s-1960s)," in S. Gorshenina, P. Bonnet, M. Fuchs, and C. Rapin (Eds.), *Masters and Natives. Digging the Others' Past* (Berlin/Boston: de Gruyter, 2019): 307-321.

47. Munhwajae kwalliguk 문화재관리국 (National Office of Korea for the Administration of Cultural Properties) (Ed.), *Hae'oe sojae Hanguk munhwajae mongnok* 해외 소재 한국 문화재 목록 (Seoul: Munhwajae kwalliguk, 1986); G. Y. Yi 李龜烈, *Nihon shinryaku-ka no Kankoku bunkazai hiwa* 日本侵略下の韓国文化財秘話 (Secret History of the Korean Cultural Properties during the Japanese Invasion) (Tōkyō: Shinsensha, 1993 [1973]); L. Flutsch, and D. Fontennaz, *Le pillage du patrimoine archéologique. Des razzias coloniales au marché de l'art, un désastre culturel* (Paris: Favre, 2010); S. Arai, 荒井信一, *Koroniarizumu to bunkazai. Kindai Nihon to Chōsen kara kangaeru* コロニアリズムと文化財 近代日本と朝鮮から考える (Tōkyō: Iwanami, 2012).

peninsula, and as the sole rightful owner of the entire peninsula's cultural heritage. At the same time, the expelled North Koreans denied that the Lelang sites (located near Pyŏngyang) were on Korean territory, echoing Sin Ch'aeho's 1931 theory. Here, the dozens of precise excavation reports produced before 1940 are the only scientific sources available today, that allow us to approach the sites of the Han commandery of Lelang, as shown by the recent work directed by Mark Byington, as these sites were extensively damaged after the founding of the Democratic People's Republic of Korea in the North.

In other regions, such as the Mediterranean area, collaborations emerged. However, the continuing Cold War in East Asia is also a factor blocking the development of new peaceful relations.

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Discoveries within the Roman and Early Byzantine Fortress of Sucidava (Celeiu), Romania

*By Elena Ene Drăghici-Vasilescu**

Interesting findings are continuously coming to light on the archaeological site of the former Roman fortress of Sucidava that is located on Danube in the West of today Romania. The Romans were present there between the first and the sixth centuries AD – that includes the early Byzantine period. Objects dating to the above-mentioned time exist within the museum belonging to this archaeological site and are recorded all the time. Many of these are introduced and described – along with their images –in my article; among the most recently unearthed items are the pieces of ceramic from July 2024, Figure 15 (An interpretation of the incidence of these discoveries in Sucidava is attempted).

Historical Remarks

What is known even today as Sucidava is the old capital of the Dacian tribe of Suci (hence the name *territorium Sucidavense* under the Romans).¹ It is located close to the modern town of Corabia, Olt County, Romania; map at Figure 1. The site was one of the largest Roman forts in Oltenia, on the lower Danube. It is also known as the Castrum of Celeiu (from the name of a former village, which it is now an urban neighbourhood having the same name within Corabia).

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1. Vasile Pârvan “Cetatea Ulmetum. Descoperirile primei campanii de săpături din vara anului 1911. Cu 24 tabele, 24 figuri de text și o hartă”, *Analele Academiei Române*, Seria II, Tom XXXIV, Memoriile Secțiunii Istorice, No. 8, 1912, pp. 1-112 (141 with the tables, illustration, and the map]. In this publication Pârvan mentions Sucidava and also refers to it as the “*territorium Sucidavense*”) on pp. 1-2.

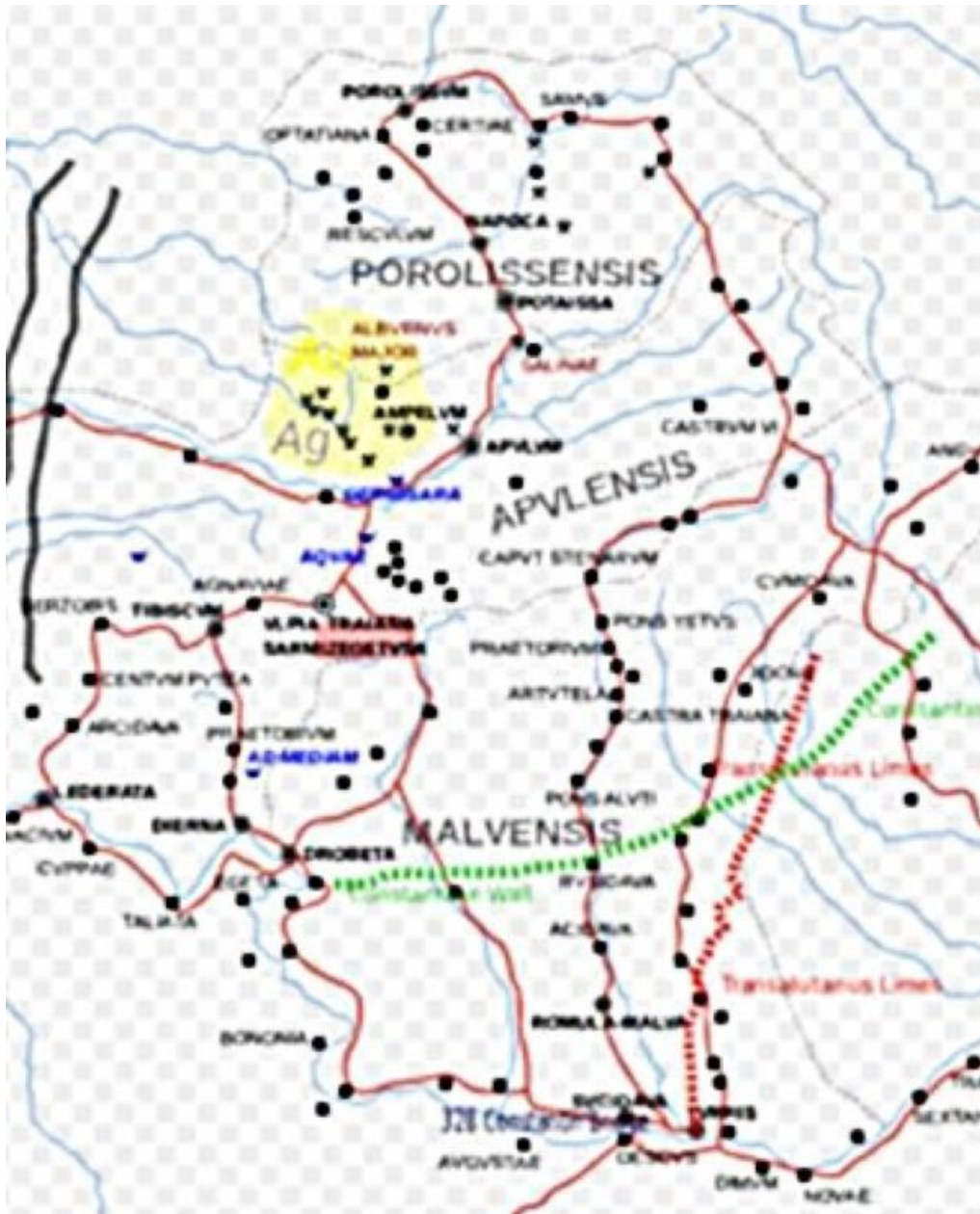


Figure 1. The Map of Western Dacia where Suci Used to Live

Source: <https://danubelimesbrand.patrimoniu.ro> > en > sucidava-oras-corabia-jud-olt ...

Sucidava became a Roman town after 87 AD when the army led by Cornelius Fuscus (d. 87 AD) conquered it.² Fuscus is mentioned by Tacitus in his

2. Cornelius Fuscus (Prefect of the Praetorian Guard 81-86 AD) was a Roman general who fought campaigns under the Emperors of the Flavian dynasty. He first distinguished himself as one of Vespasian's most ardent supporters during the civil war of 69 AD, known as the Year of the Four Emperors. Vespasian's son, Domitian (51-96; ruled 81-96) employed Fuscus as Prefect of the Praetorian Guard, a post he held from 81 until his death. According to the entry dedicated to him by B. Campbell within the *Oxford Classical*

Histories (*Hist.* 2. 86).³ In 86 AD Emperor Domitian dispatched this general (and Prefect of Illyricum) to the north of the Danube with five legions. Although he was initially successful in the campaign against Decebalus' soldiers, eventually Fuscus was defeated by them at the battle of Iron Gates. He was ambushed along with Legio V Alaudae and eventually the entire legion was annihilated and its leader killed. Then Domitian sent Tettius Julianus to fight against the Dacians, but he lost at the first Battle of Tapae (86/87); Tapae was a place on the territory of today Transylvania, Romania.

In 119, when Hadrian divided Roman Dacia into Dacia Superior ("Upper Dacia") and Dacia Inferior ("Lower Dacia"), Sucidava became a part of Lower Dacia, later called *Dacia Malvensis*. During its Roman occupation the town was administered by two *quinquennales*⁴ aided by the *curiales* delegated from the villages around it. In the reigns of Aurelian (214-275; ruled 270-275) and Gallienus (218-268; ruled 253-268) a citadel was constructed over the Roman necropolis. This defensive construction was continually reinforced and restored under the Tetrarchy (293-324) and under Constantine the Great (after 280-337; ruled 306-337). The place flourished after that, and especially after 270s AD, when the Romans built a strong fortress with eight towers over defensive walls (Figures 2-3). They did so because a stronghold was needed to protect the pontoon bridge and the road which the Romans used during their withdrawal from Dacia. A customs post existed between Dacia and Moesia, which was coordinated by two *servi villici* (stewards).⁵ Ruins and paved streets from the second and the third century have been discovered on the site. Remains of the *thermae* have been identified, as well as those of a Christian basilica (V-VI). A *puteus* (well) existed at Sucidava from the second century on.

Dictionary (2016) Fuscus supported the Flavian commander M. Antonius Primus in the invasion of Italy; see Publius Cornelius Tacitus, *Historiae/Histories* (written in c. 100-110), Book ii: Bk. 2, edited by Rhiannon Ash (Cambridge Greek and Latin Classics), Cambridge University Press, 2007. See also *Oxford Research Encyclopedias*, <https://oxfordre.com/acrefores-9780199381135-e-1847>.

3. Tacitus, *Histories*, Book ii.

4. *Quinquennales* were municipal officers who were elected every five years to perform overseeing duties.

5. V. Pârvan, "Știri Nouă din Dacia Malvensis", <http://www.cimec.ro/Arheologie/ParvanArticole/ParvanStiriNouaDinDaciaMalvensis.pdf>.

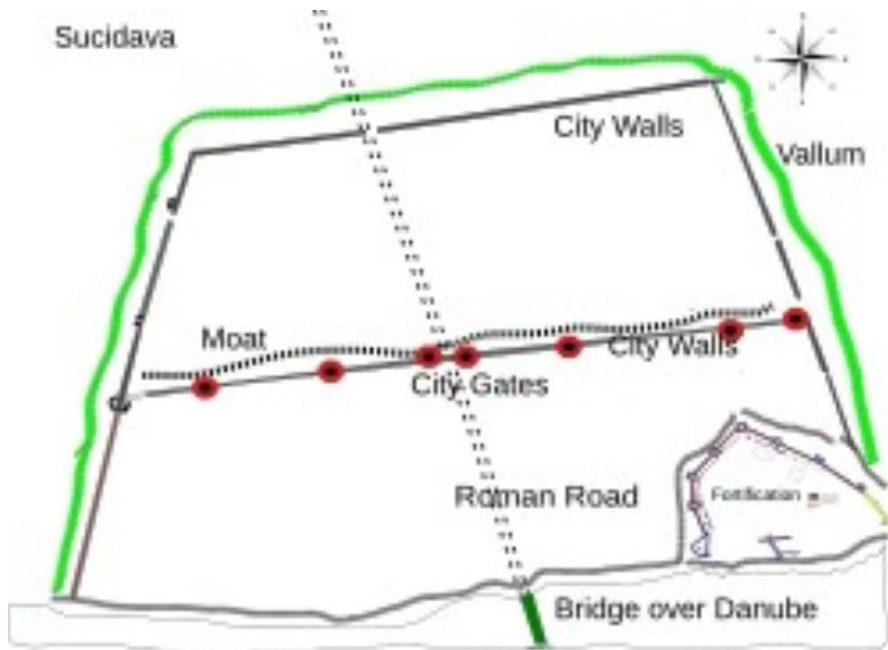


Figure 2. The Plan of the City of Sucidava in the Fourth Century AD

Source: <https://danubelimesbrand.patrimoniu.ro> > en > sucidava-oras-corabia-jud-olt ...

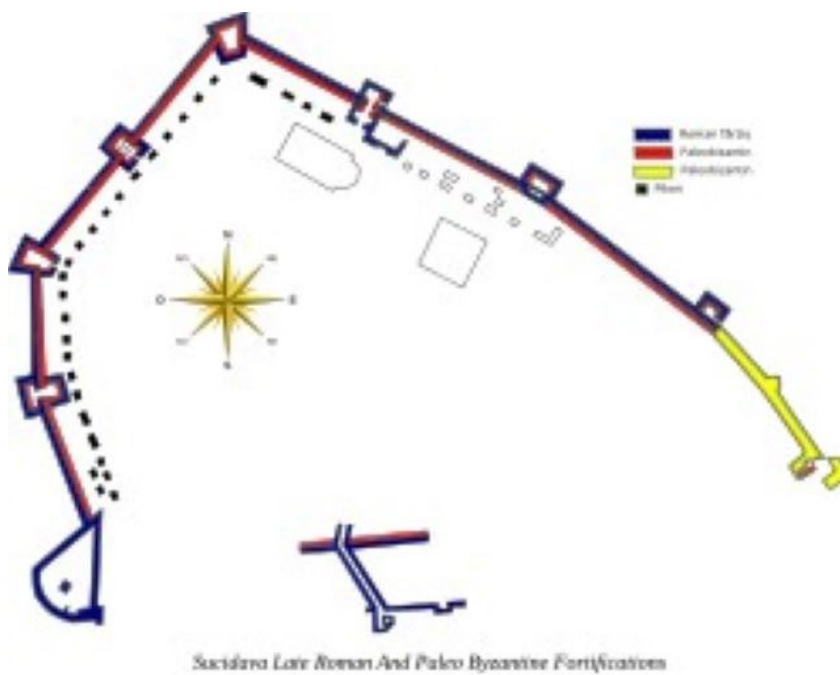


Figure 3. Sucidava's Later Roman and Early Byzantine Fortifications (Fifth-Sixth Centuries)

Source: <https://danubelimesbrand.patrimoniu.ro> > en > sucidava-oras-corabia-jud-olt ...

The underground fountain which existed under the walls of the city – with its spring outside these – has been discovered; its stone reinforcements date to the sixth century, but since no other source of water was discovered there and no mention of one exist in any sources, it is to be assumed that this well is the same as the *puteus* mentioned above. The secret fountain was discovered in 1958 and restored, with a long corridor leading to it, in 1968. The well has been well preserved and still provides fresh drinking water today (Figure 4 a, b, c, d, e; Figure 5).





Figure 4 a, b, c, d, e. *The Secret Fountain as it is Now* (Nowadays one needs to go underground in order to access its water. That explains why today it is called 'the secret fountain'.)



Figure 5. *The Reconstruction of a Part of the Roman Fortress with the Access to its Fountain in View*

Source: Image inside the Museum in Sucidava.

The Romans repaired the road that went from Sucidava to Romula (*milliarium*) in 328, during the reign of Constantine the Great. The same emperor ordered the construction of a bridge over the Danube, very close to the fortress, because he wanted to reconquer Dacia himself (the ruins of the structure, Figure 6). The bridge was also completed in 328; it connected Sucidava with the fort of Oescus in Moesia (today Ghighen in Bulgaria). At 2,437 meters (1137 m above the water) it was the longest such construction of its time, and it is very probable that Constantine attended its official opening on 5 July 328 AD.⁶ The bridge was modelled after that designed by Apollodorus of Damascus at Drobeta.

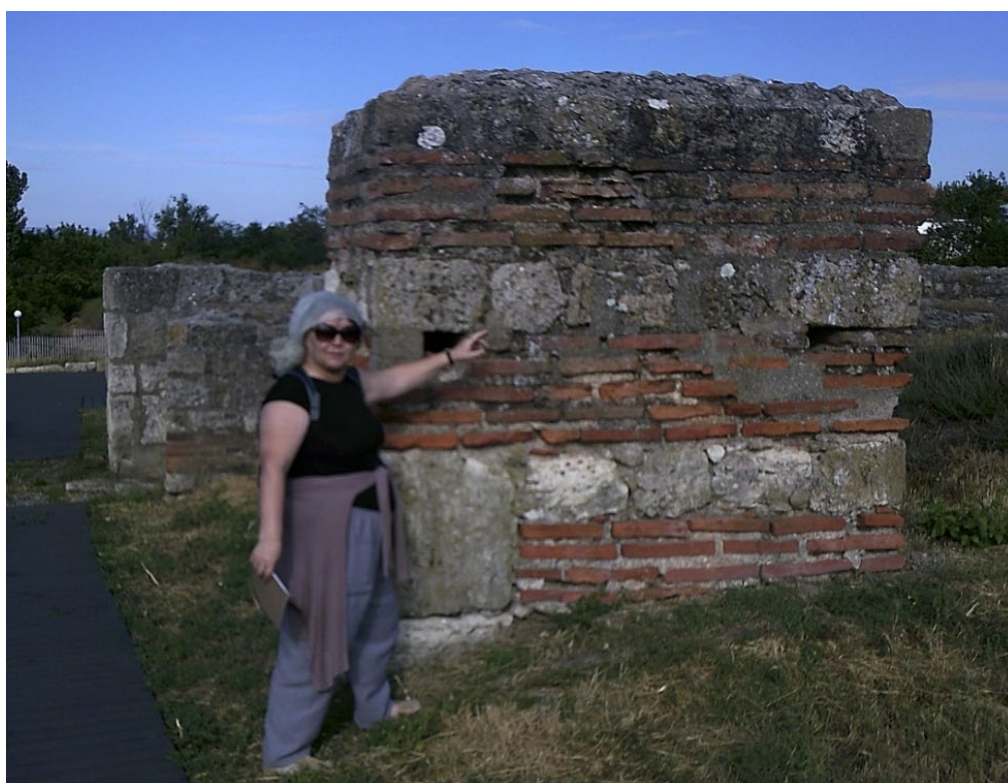


Figure 6. *The Remains of Constantine's Bridge at Sucidava*
(The quality of the cement between its stones is to be admired.)

Source: Photo of the article's author by Mircea Negru.

The bridge at Sucidava might have been conceived by the architect Teofilus Patricius (who projected the nearby bridge at Constantiana Daphne fortress, close

6. Ioan C. Opreș, Alexandru Dan Ionescu, Adrian Constantin Surleanu, Andrei Eugen Stănișteanu, Mihai Dragomir Cătălin George Simion Alexandru Ioan Cercel Vicențiu Speriatu Cătălin Dobrinescu Adrian Șerbănescu Vlad Călina, "Pons per Danuvium ductus. Date noi despre podul lui Constantin cel Mare dintre Oescus și Sucidava"/*Pons per Danuvium ductus. New data for the bridge of Constantine I between Oescus and Sucidava*, in *Cercetări Arheologice* 29.2, 2022, 631-664, <https://doi.org/10.46535/ca.29.2.11>.

to today Oltenița).⁷ The former remained in use for four decades; the Romans benefitted from it especially when they fought against the Germanic people who attacked the region. An important city developed around the fort after the bridge became functional. The scholar and Prince of Moldavia Dimitrie Cantemir (1673–1723; ruled 1693, 1710–1711) references this structure in his *Hronicul vechimei a romano-moldo-olahilor/The Cronicle about the past of the Romanian-Moldo-Walachians* as follows: “[The Romans] built a bridge over the Danube. But as much as I tried, I was unable to find out where; the historians do not know”.⁸ As we shall see further, since Cantemir’s time the remains of the bridge have been discovered.

Procopius of Caesarea mentions Sucidava as Skibidi/Skedevà in *De Aedificiis/On Buildings (De aed., IV. 7)* when he refers to the restoration work Justinian carried out on the Lower Danube.⁹ Also the *Notitia Dignitatum* (ca 395–413), in its first part, refers to Dacia along the River [Danube], i.e. ‘riparian Dacia or Moesia prima’.¹⁰ *Tabula Peutingeriana* attests the existence of the site, as the map in Figure 7 shows.¹¹

7. Daphne was a Roman fortification inaugurated, most probably in 327, on the left bank of the Danube, across Transmarisca, in the delta of the Argeș River.

8. “Au zidit pod peste Dunăre. Iară unde și în ce loc să fie zidit acel pod, pre cât a noastră nevoie a să întinde au putut, la istorici afla n-am putut”. Dimitrie Cantemir, *Hronicul vechimei a romano-moldo-olahilor* 3. 2. Dimitrie Cantemir, *Hronicul vechimei a Romano-Moldo-Vlahilor*, 1835, with a text in the Romanian language, but written with Cyrillic letters; the site of the Library of the University of Iași: Biblioteca Universității Iași.

9. Procopius of Caesarea, *De Aedificiis*, “On Buildings”; *De aed.*, IV. 7. See Procopius of Caesarea, *Complete Works*, the Greek ed. by K. W. Dindorf, the Latin trans. by Claude Maltret, *Corpus Scriptorum Historiae Byzantinae Pars II, (Gothic Wars I–IV)*, Bonn: Weber, 1833, vol. 2; and Procopius of Caesarea, *Buildings*, edited and translated into English by H[enry] B[ronson] Dewing, Loeb Classical Library, vol. VII, Cambridge, Mass., Harvard University Press, 1940.

10. Here is the information from *Notitia Dignitatum* that refers to Moesia secunda: “I. Register of the Dignitaries both civil and military in the districts of the East. In [the diocese of] Thrace two: of Moesia secunda; of Scythia. in [the diocese of] Illyricum two: of riparian Dacia; of Moesia prima.”, in William Fairley, *Notitia Dignitatum or Register of Dignitaries*, in *Translations and Reprints from Original Sources of European History*, Vol. VI:4, Philadelphia: University of Pennsylvania Press, n.d, p. 4. Pagination preserved in this text; *Notitia Dignitatum* (thelatinlibrary.com). See also a newest edition of the Roman register, thus: *Notitia Dignitatum*, ed. Robert Ireland, (Teubner, 1999, catalogue no. 1552). Within the Bodleian Library in Oxford there are two manuscripts of *Notitia Dignitatum*. One is MS. Canon. Misc. 378, 1436; digital facsimile online. This manuscript was produced in Basel, Switzerland; miniatures by a French artist, script and initials by an Italian (perhaps Paduan) scribe. The other document is MS. D’Orville 147, 1460–1465 (selected pages online). It is an Italian piece; Cremona, Brescia, and Bologna (?).

11. *Tabula Peutingeriana* (Peutinger’s *Tabula* or *Peutinger Table*) is an illustrated road map (itinerarium) of the Roman roads. Its more recent version is a *thirteenth copy of a Roman map drawn under the direction of the general Marcus Vispanius Agrippa* (after 12 BC), but which was updated in the fourth century AD.

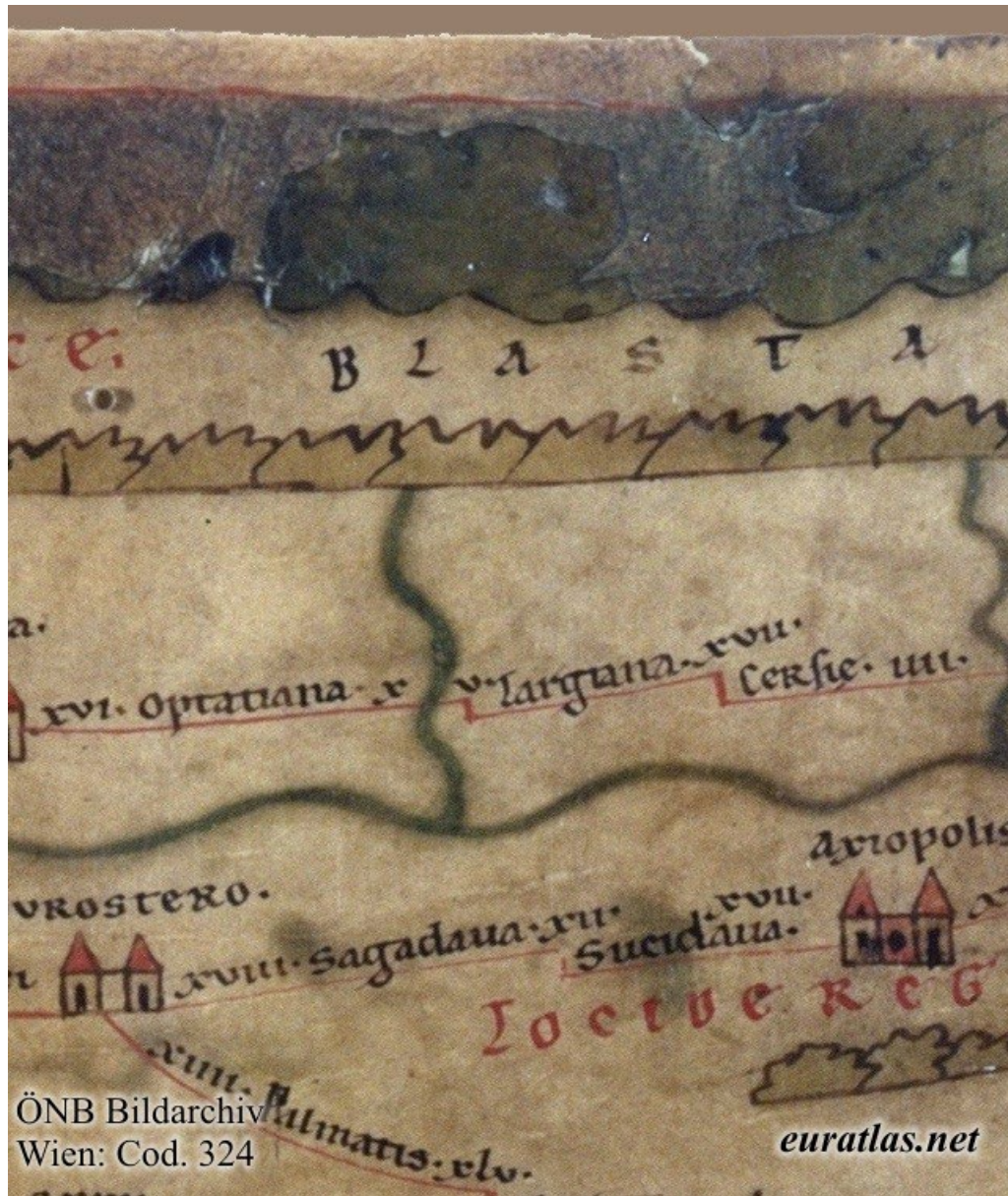


Figure 7. Part of the Map Showing Eastern Carpathians on the Territories of Today Romania and Bulgaria as Well as the Lower Danube Region in These Countries (Sucidava is clearly marked on the lower right side.)

The Romanian historian Vasile Pârvan wrote about Sucidava (of which name sometimes he spells Eucidava) in a few articles. He speaks about the importance of archaeological objects in providing information concerning the lives of the locals, Romans, and Daco-Romans (i.e., the mixture of people in the area after the official withdraw of Rome from it. Some of the former soldiers of the Roman garrisons of Moesia inferior settled in Sucidava and married local women).¹²

12. Pârvan, "Știri Nouă din Dacia Malvensis", <http://www.cimec.ro/Arheologie/ParvanArticole/ParvanStiriNouaDinDaciaMalvensis.pdf>.

Pârvan also mentioned that a strong Roman garrison, Legio V Macedonicae commanded by a Praefectus, was kept at Sucidava even after the abandonment of Dacia.¹³

The Visigots attacked the fortresses along the Lower Danube. Emperor Valens (328–378; ruled 364–378) came personally to the area during three consecutive years to fight against them. In 367 he crossed the Danube *via* the bridge at Constantiana Daphne fortress (today Oltenița). He eventually defeated Athanaric (d. 381), the first king of several branches of the Thervingi or Thervingian Goths (i.e. the Visigoths) at Noviodunum, today Isaccea.

The Huns began their own attacks from 375 on using Constantine's bridge at Sucidava. The archaeological evidence shows that in 443–447 the latter city and the fortress were sacked by these invaders; by this time the bridge nearby was already weakened by their previous actions. The city was restored under Justin I (518–527) or Justinian I (c. 482–565; reigned 527–565). Around 600 it seems that the Roman – by that time Byzantine – garrison abandoned the city. After the departure of the Byzantines this was finally destroyed by the Avars, who reached the lower Danube in late 560s, and by the Slavs (during the sixth century). But Sucidava began a new life as the medieval town of Celei. However, I need to mention that the territories of the Roman and medieval settlements do not completely overlap, and this fact makes the access to the archaeological site reasonably easy. A road that branches from the main highway and goes to the archaeological site via Celei has been recently improved.

During the summer of 2024 I conducted research for this article at the archaeological site of Sucidava; this was when the Limes of the Roman Empire in Central and Southeastern Europe were declared World Heritage objectives by the UNESCO. Sucidava is a part of their chain and I am glad that its historical value has been recognised while I was there – hence my work was also acknowledged. The information from Brussels reached me directly. Figure 8 shows the reproduction of an image concerning this site as it is today; this is displayed by the local museum within its precinct.

13. Ibid.



Figure 8. A Part of Sucidava Fortress as it is Today

Source: My photo of the museum's display, July 2024.

Objects from the Museum in Sucidava

The discoveries at Sucidava date to the period between the second and the sixth centuries AD. I will focus especially on the items produced after the fourth century, as my main speciality is Byzantine culture of which development began at that time. As mentioned at the outset of the article, some of the objects presented here are from the museum that belongs to the archaeological site and some were excavated at the place while I was there, in July 2024. The photographs were taken by myself in that period unless otherwise specified.

Pottery

The **oldest** whole piece of ceramic in Sucidava Museum is a drinking vessel wrought in barbotine technique;¹⁴ Figure 9. This decorating method was known in the area during the middle of the second century.

14. Barbotine is a ceramic decoration technique that involves applying a liquid clay slip layer to a ceramic object before firing it. The technique creates a textured, raised, or 3D effect on the surface of the ceramic



Figure 9. *Roman Drinking Ceramic Vessel Wrought in Barbotine Technique, the Second Century*
Source: Sucidava Museum.



Figure 10. *Byzantine? Amphora, the Sixth Century*
Source: Sucidava Museum.

The most remarkable (the largest well preserved) ceramic piece within the museum at Sucidava is an amphora from the sixth century; Figure 10. Its decoration is unusual.

It consists in a visual motif that seems to be a clover leaf on the left, possible Greek or Dacian¹⁵ lettering on the right. Concerning the latter, an 'H' and an 'v' seem to be the written; perhaps also an 'φ' or 'ω' under the 'H' on the right. These might be the initials of the makers' name and the landmark of their workshop. Other pieces of ceramic are the remains from the second-third centuries of a plate decorated in relief with Medusa visual motif, fig. 11, and vessels from the sixth century. The label for the latter within Sucidava Museum states: "Byzantine-Roman ceramic from the sixth century"; Figure 12. Other Byzantine vessels – pitchers and jugs (Figure 13) and ceramic remains (Figures 14, 15) – are hosted by the above-mentioned museum. The existence of these receptacles – both for food and wine – proves that both cereals and grapes were cultivated in and around Sucidava. The local production of wine is, according to Pârvan, attested by the will of a local landowner engraved on a stone slab;¹⁶ at the time of my work in the town, that was not on display. Some wine was also imported, as there were pieces of *terra sigillata*.¹⁷ In addition to the objects mentioned above, also a piece of limestone with a Latin inscription on it has been found at Sucidava (Figure 16), as well as Byzantine jewellery items; Figure 17.

15. Concerning the Dacian language, see among others: Strabo, *Geographica/The geography of Strabo*, edited by Horace Leonard Jones, translated by Horace Leonard Jones; John Robert Sitlington Sterrett, London: William Heinemann and Cambridge, Mass.: Harvard University Press, Loeb Classical Library 49, 50, 182, 196, 211, 223, 241, 267, 1917–1961, vol. 1; Hadrian Daicoviciu, *Dacii* (in Romanian) [The Dacians] Bucharest, Editura Enciclopedică Română, 1972; Benjamin W. Fortson, IV, *Indo-European Language and Culture: An Introduction*. Oxford: Blackwell Publishing, 2004; Peter Heather, *Empires and Barbarians: Migration, Development, and the Birth of Europe*, Oxford University Press, 2010.

16. Pârvan, "Știri Nouă din Dacia Malvensis", <http://www.cimec.ro/Arheologie/Parvan/Articole/ParvanStiriNouaDinDaciaMalvensis.pdf>.

17. Terra sigillata, also known as Samian ware or red slip ware, was a type of Roman pottery that was popular from the first century BC to the third century AD. It was characterized by a glossy finish, red or orange colour, and fine smooth texture.



Figure 11 a. The Remains of a Plate Decorated in Relief with Medusa Visual Motif **b.** the Details of the Figure 10a, Second-Third Centuries
Source: Sucidava Museum.



Figure 12. Byzantine-Roman Vessels; the Sixth Century
Source: Sucidava Museum.



Figure 13. Various Types of Byzantine Pitchers and Jugs; the Sixth Century
Source: Sucidava Museum.



Figure 14. *More Earthenware Pieces; the Sixth Century*

(Some of these fragments have not only decorations on them, but also parts of inscriptions.)

Source: Sucidava Museum.





Figure 15. *Pieces of Ceramic Excavated on the 3rd of July 2024 on the Archaeological Site of Sucidava*



Figure 16. *A Limestone Fragment with an Inscription in Latin; Sixth Century*
 (The visible content of the inscription is as follows: "...UC ET SAVIA? BRO?..."; i.e. "...uc? and wise bro?..")

Source: Sucidava Museum.



Figure 17. *Byzantine Ceramic and Jewellery; the Sixth Century*

Source: Sucidava Museum.

Coins

Seven hordes of early Roman and Byzantine coins have been excavated at Sucidava and they provide an uninterrupted series from Aurelian (214-275; ruled 270-275) to Theodosius II (401-450; ruled 408-450). There are also some pieces that were found isolated, and these date as late as the sixth century. The coins which are on display within the museum (mostly of copper and silver) are presented here in Figures 18a, b, c and Figure 19. They show the follow emperors: Aurelian (214-275; ruled 270-275), Valerian I (c. 199-after 260/264?; ruled 253-260); Gallienus (218-268; ruled 253-268); Claudius II Gothicus (214-270; ruled 268-270); Constantine the Great (after 280-337; ruled 306-337); Valens (328-378; ruled 364-378); Julian (331/332-363; ruled 361-363); Theodosius I (347-395; ruled 379-395); Honorius (384-423; 393-423); Theodosius II (401-450; ruled 408-450). The few coins found isolated represent Marcian (396-457; ruled 450-457), Leo I the Thracian (401-474; ruled 457-474), Zeno (425-491; ruled 474-491), and Anastasius (c. 431-518; ruled 491-518).





Figure 18 a, b, and c. Roman and Byzantine (Sixth Century) Coins Unearthed at Sucidava

Source: The local museum.



Figure 19. *Reproduction of More Roman Coins at Sucidava*

Source: the original photo belong to the local museum.

Other Objects Discovered at Sucidava

Among other Roman artefacts discovered at Sucidava there are some made of bone (Figure 20) and of lead (Figure 21) in the second and third centuries AD.



Figure 20. *Items Made of Bone*

(The label within the museum in Sucidava states: "Pieces made of bone; Roman period.")



Figure 21. *A Lead Holed Weight for Fishing, Second-Third Centuries AD*

Finding objects wrought in the latter material provides additional evidence that *plumbarii* (workshops to use it) existed in the city; previous diggings on the site discovered more than 100 lead mirror frames.

Today the Roman fortress of Sucidava looks as in the following image (Figure 21), which indicates the good preservation of the site.



Figure 22. *The Roman Fortress of Sucidava as it Looks*

Source: Photo Mircea Negru; July 2024.

Conclusion

The past and current discoveries on the archaeological site of Sucidava provide information that confirms what is known from research conducted on similar finds in the Roman/Byzantine chain of strongholds along the Danube. The castrum discussed here, which during the third century had eight towers instrumental in its defence, was part of an extensive economic and military network that was aided by the existence of a bridge over the Danube, paved streets (of which some survived until now), and a main road that led over the above-mentioned bridge. Not only the army used the transportation links in Sucidava, but also suppliers of wine, ceramic, and other goods.

The research at Sucidava continues; excavations are carried out there every summer.

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Astronomy of the Earth-Moon System and the Eschatological Expectations of the Christian Historians of the 5th Century CE

By Dmitri N. Starostin*

This is a historian's view of how modern astronomy data can be used to discuss the shifting historical worldview of Late Antiquity. In this article an attempt is made to construct an approximate model of how the cycles of astronomical bodies' visible rotation affected the writing of history and self-representation of the Roman Empire's powerful people. It is argued that while rare outstanding events like solar eclipses might have caused a short stir in the minds of the rulers and their environment, long-term cycles based on the synchronization of the Moon's phases with the solar calendar and the cycles of the planets lining up in the same disposition (in relationship to the Moon or without this relationship) were the foundation of astronomy-based Christian chronological system. The emergence of the Christian historical worldview in the 5th century was marked by appearance of a significant eschatological strain in it. Historians paid attention not only to the theology-defined signs of the end of the world, but also, as it has been suggested in modern studies, to the some outstanding celestial phenomena. In this paper I would like to address several criteria which may help understand what in the celestial motions interested the astronomers and historians of the 5th century. This paper uses the first approximation of astronomical data for solving the problem of how relevant the skies were for historians, although all numeric parameters are taken from the up-to-date astronomy reference publications. It is an attempt to understand whether the very basic approximations can be related to what historians know from the array of sources available to them. The analysis suggests that there is a whole array of occasions when the dates of astronomical events, received with the help of these basic approximations, coincide with the data from historical sources.

Since the Ancient period of history timekeeping was an important part of educated peoples' knowledge.¹ Temporality and the counting of time, in addition to the astronomical knowledge, were a significant part of the cultural and mathematical heritage of Mesopotamia.² Studies of the Babylonian tablets that have been conducted since the 1930s suggest that the astronomical heritage of the Ancient Mesopotamia was rich and diverse.³ The available sources suggest that studies of

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astronomy and observation were not solely aimed at resolving problems of practical usage and were in fact conducted because of interest that may be related to the modern notion of “scientific” inquiry.⁴ The Enuma Anu Enlil tables of the 6th century BCE show the consistent effort on the part of the Ancient Babylonian astronomers to find the system in the observation of the skies. Of these tablets twenty-three concern the Moon and twenty the Sun.⁵ The Mesopotamian astronomy has been recently shown to be much more advanced than it had been considered before, because, scholars argued, it came to be based on both computational and planimetric practices.⁶ But the cycles of times had not yet stabilized as recent studies suggest that even in the most consistent datasets as that of the month-lengths, associated with the name of Ammisaduqa, there may be unattested and unrecorded intercalations.⁷ The most attention was drawn by the text MUL.APIN, which discussed the Zodiacal signs before the twelve-sign system appeared.⁸ Alongside to the observational, predictive and mathematical astronomical traditions a new schematic astronomy based on examining and making sense of the Moon-shadow and on the 360-day year appeared and came to be used.⁹ Careful studies of the Mesopotamian calendric practices also suggested that they were deeply rooted in the everyday cycles of agricultural communities and that the constructs proposed by the educated people were grounded in the needs of these communities. The agricultural communities needed to rely on both the solar and the lunar cycles and thus the practices of calculating the time were construed as complex manipulation of both calendars.¹⁰

The Babylonian astral medicine, it was argued, used the real time of 384-day public calendar for describing the symptoms of a disease that had appeared in the

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past, but used the mathematical 360-day calendar to talk about the prognosis.¹¹ In the description of the acts of the king Bin-Dammu one may find an elaborate structure of the year when the important events in the functioning of power and of the community were described against the backdrop of the sequence of the months.¹² An investigation of the tablets related to the people involved in the trade showed how they lived both in short-term and long-term time scales.¹³ In fact, one may suggest that thinking ahead in the blocks of time one could even call eschatological was one of the peculiarities of the perception of time in this period. Only one step separated a regular year from becoming the “year of vengeance.”¹⁴ This highlights and exemplifies the contemporaneity of human experience as the basic aspect of the Mesopotamian perception of time and shows that some periods and moments of time became the crucible, the time of the Apocalypse, or the personal “end of the world”.¹⁵ The educated people in Mesopotamia must have thus been responsible for creating one significant interpretative scheme that, although in indirect ways, contributed to the setting of the linear time-reckoning from Creation to the Apocalypse by the way of the biblical narrative.

Already in Greek tragedy the rise and the inevitable setting of the Zodiacal signs might have become the plot or at least the background setting for the author’s main idea. Agamemnon’s coming from the East when the Pleiades, located within the Taurus constellation, were at the right angle with the ascending Leo, who seemed to have been licking the blood of the fallen king (Aries), are a representation of the inevitable cycle of the rising and setting, of the emergence and death. Thus the stellar events were vividly experienced by those in Ancient Greece who measured the events of human life against the turnaround of

11. Steele, John. “Real and Constructed Time in Babylonian Astral Medicine”. In: *The Construction of Time in Antiquity: Ritual, Art, and Identity*. Ed. by Ben-Dov, Jonathan and Doering, Lutz. Editors. 2017, 80–82.

12. Veenhof, Klaas R. and Eidem, Jesper. *Mesopotamia: The Old Assyrian Period*. Ed. by Wäfler, Markus. *Orbis Biblicus et Orientalis* 160/5. Fribourg, Göttingen, 2008, 86. For the year Habil-kenu the first documented month, V, was the time of the elunnum festival. In month VII a treaty was concluded between Apum and Razama, in which marshal Bin-Dammu was instrumental. In month VIIIb, the intercalary *nigallum*, he helped conclude a treaty between Apum and Razama. The end of the year is marked by the prolonged stay of Bin-Dammu and his followers. The beginning of Amer-Istar sees Bin-Dammu making wine shipments in the month II, prior to the elunnum festival in month III. In early month IV the king of Apum met the king of Kahat. In month XI the king visited Kahat. Thus the two years described in the tablets were marked by three main events, one in the very beginning of the year, another in the time around the equinox, and the third closer to the end of the year.

13. Stratford, Edward. *A Year of Vengeance: Time, Narrative, and the Old Assyrian Trade*. Berlin, 2017, 69, 119–120, 229–230.

14. Idem, *A Year of Vengeance*, 68–75, 129–180.

15. Idem, *A Year of Vengeance*, 316–317.

the Zodiacal signs.¹⁶ Hence the Zodiacal signs' circle in the sky needs to be considered as a significant setting for any cultural representation of society. This representation in the Greek texts is another confirmation of the important role constellations played in the cultural representations in culture since the emergence of the civilization in the Near East and Mesopotamia. The plot of stellar events described in Agamemnon seems to be a representation of the motif of the lion–bull combat that had been found in the Near Eastern artistic representations.¹⁷ This was a motif that lived a long 3000-year life in Mesopotamia.¹⁸ The relief scenes in Persepolis that contain the motif of lion and bull combat suggest that it was one of the critical elements for the legitimation of kingship at Persepolis.¹⁹ Mesopotamian oracle tables also contain other sequences of signs that were related to the gradual change of constellations over the course of time. In these tables Leo, Virgo and Scorpion figure prominently, that suggests the same August to December part of the year that was reflected in the story of Agamemnon.²⁰ Other examples of cuneiform tablets show that the astrological, Zodiacal contents appeared often. Thus the sequence of Gemini, Lion, Libra and Capricorn was found on another tablet.²¹ Diodorus Siculus claimed that the ancient Babylonians already knew the twelve Zodiacal signs, naming them the twelve Masters.²² He took his information from the historian of the “age of Alexander” Berosus.²³ The knowledge of astronomy was omnipresent in the Babylonian texts, because *Marduk's Address to Daemons* contains important information about the constellations and Zodiacal signs.²⁴ The signs related to astronomy and astrology might have been an inspiration to the Mesopotamian board games, like the Royal Game of Ur.²⁵ Thus deep in the minds of the people

16. Pfundstein, J.M. “Λαμπρούς Δυνάστας: Aeschylus, Astronomy and the Agamemnon”. In: *Classical Journal* 98.4 (2003), 401–3.

17. Hartner, Willy. “The Earliest History of the Constellations in the near East and the Motif of the Lion-Bull Combat”. In: *Journal of Near Eastern Studies* 24 (Jan. 1965), pp. 15–6.

18. Hartner, W. and Ettingshausen, R. “The Conquering Lion, the Life Cycle of a Symbol”. In: *Oriens* 17.11 (1964), 170–171.

19. Hart, Cheryl. “Royal Flower Power? An Examination of the Rosette Motif on the Relief Scenes at Persepolis”. In: *Journal of the Archaeology of the Iranian World* 1.1 (2016), 22.

20. Weidner, Ernst. „Ein Losbuch in Keilschrift aus der Seleukidenzeit“. In: *Syria. Archéologie, Art et Histoire* 33.1 (1956), S. 181.

21. Bottéro, Jean. « Deux curiosités assyriologiques (avec une note de Pierre Hamelin) ». In: *Syria. Archéologie, Art et Histoire* 33 (1956) : *Hommage à Charles Virolleaud, Membre de l'Institut*, 31-2.

22. Diod. Sic., II.30.6-7.

23. Schnabel, Paul. *Berosos und die Babylonisch- Hellenistische Literatur*. Leipzig, 1923, S. 107.

24. Wee, John Z. “A Late Babylonian Astral Commentary on Marduk's Address to the Demons”. In: *Journal of Near Eastern Studies* 75.1 (Apr. 2016), 127–167.

25. Becker, Andrea. “The Royal Game of Ur”. In: *Ancient Board Games in Perspective: Papers from the 1990 British Museum Colloquium, with Additional Contributions*. Ed. by Finkel, Irving. London, England, 2007, 11–15; Beerden, K. *Worlds Full of Signs: Ancient Greek Divination in Context*. Religions in the Graeco-Roman World. Leiden, 2013, 37; Finkel, Irving L. “On the rules

the constellations had been arranged into the sequence that corresponded to the cycle of seasons, of which Clytaemnestra spoke when she expected to be warmed in winter by the coming of Agamemnon.²⁶ It is likely that the Mesopotamian theologians and specialists in Zodiac taught the Greeks the complexities of constructing the cycles of time based on the astronomical observations.²⁷

Scholars thus made a conclusion that the calendar created in the Ancient world was already of cyclical nature.²⁸ The development of time reckoning practices in Rome showed the slow and gradual ways in which the fully cyclical calendar gained its place in social surroundings. For initially the Romans did not have the way to count time between December and the Spring, and that only Numa Pompilius introduced the months of January and February.²⁹ The evidence for this fact is of much later origin, however.³⁰ Studies of the festival calendar of Numa Pompilius in the form it was preserved in various later sources suggest that the Romans were aware of the Solar and Lunar cycles as the different ones and that they sought to reconcile the difference every year in the beginning of it. They started the New Year and the month of January with the first full Moon of the year. The third lunar cycle could fall anywhere between 21–23 February and 21–23 March.³¹ The presence of the deity turning the wheel of Fortune on the date determining the day of the equinox suggest that their calendar had the same roots as those of many ancient peoples and that it had the solstices and equinoxes as key turning points for measuring time.³²

Scholars have recently championed the Dead Sea scrolls as important pieces of evidence about time reckoning schemes employed by secretive communities in the period between 3rd century BCE and 68 CE. Moreover, they suggested that the calendar these communities constructed was vastly superior to other calendars of that age because it let combine the Solar year and the count of weeks in radically simpler ways than did the traditional calendars. Fragment 4Q-319 is a particularly important manuscript that led scholars to claim that the calendar of 364 days it

for the Royal Game of Ur". In: *Ancient Board Games in Perspective: Papers from the 1990 British Museum Colloquium, with Additional Contributions*. Ed. by Finkel, Irving. London, England, 2007, 16–32.

26. Pfundstein, "Λαμπρούς Δυνάστας: Aeschylus, Astronomy and the Agamemnon", 401.

27. Cumont, Franz. *Les Religions orientales dans le paganisme romain, conférences faites au Collège de France en 1905 par Franz Cumont*. Paris, 1906, 163.

28. Graf, Fritz. *Der Lauf des rollenden Jahres: Zeit und Kalender in Rom*. Vol. 6. *Lectio Teubneriana*. Stuttgart and Leipzig, 1997.

29. Radke, Gerhard. *Fasti Romani: Betrachtungen zur Frühgeschichte des römischen Kalenders*. Münster, 1990, S. 35, 40.

30. Barden-Dowling, Melissa. "A Time to Regender: The Transformation of Roman Time". In: *Time and Uncertainty*. Ed. by Harris, Paul André and Crawford, Michael. Leiden, 2004, 178.

31. York, Michael. *The Roman festival calendar of Numa Pompilius*. American University studies, series XVII, Classical languages and literature 2. Frankfurt am Main, 1986, 25–26.

32. Idem, *The Roman festival calendar*, 135–136.

expounded was vastly superior to other types of reckoning in Antiquity.³³ Fragments 4Q-320 through 4Q-321a let scholars further investigate how a 364-day calendar could function.³⁴ It is no doubt that such calendars could ensure the cyclical character of the time reckoning and contribute to communities' long-term ritual cohesion. One needs to notice, however, that the calendar modern scholars describe as a result of these reconstructions is that of 364 days and 52 weeks exactly, with one day of intercalation in a regular year. Sometimes (in the case of the modern calendars' leap year) a 2-day intercalation must have been required, but there is no evidence of how this intercalation was made.³⁵ This calendar used

33. Ben-Dov, Jonathan. "Jubilean Chronology and the 364-Day Year." In: *Meghillot: Studies in the Dead Sea Scrolls V-VI. A Festschrift for Devorah Dimant*. Ed. by Bar-Asher, Moshe, Tov, Emanuel. Jerusalem: Bialik Institute and Haifa University Press, 2007, 49-59; Ben-Dov, Jonathan. "The 364-day Year in the Dead Sea Scrolls and the Pseudepigrapha." In: *The Qumran Scrolls and Their World*. Ed. by Kister, Menahem. Between Bible and Mishnah. Jerusalem: Yad Izhak Ben-Zvi, 2009, 435-476 (also available in English as: Ben-Dov, Jonathan. "The 364-Day Year in the Dead Sea Scrolls and Jewish Pseudepigrapha," In: *Calendars and Years II: Astronomy and Time in the Ancient and Medieval World*, Ed. John M. Steele. Oxford: Oxbow Books, 2011, 69-106); Gleßner, Uwe. "The Otot-Texts (4Q319) and the Problem of Intercalations in the Context of the 364-Day Calendar." In: *Qumranstudien: Vorträge und Beiträge der Teilnehmer des Qumranseminars auf dem internationalen Treffen der Society of Biblical Literature, Münster, 25-26 Juli 1993*. Ed. by Fabry, Heinz-Josef, Lange, Armin, Lichtenberger, Hermann. Schriften des Institutum Judaicum Delitzschianum 4 Göttingen: Vandenhoeck & Ruprecht, 1996, 125-164; Kugler, Robert A. "Of Calendars, Community Rules, and Common Knowledge: Understanding 4QSe-4QOtot, with Help from Ritual Studies." In: *Rediscovering the Dead Sea Scrolls: An Assessment of Old and New Approaches and Methods*. Ed. by Grossman, Maxine L. Grand Rapids: Eerdmans, 2010, 215-228; Stern, Sacha. "Qumran Calendars and Sectarianism." In: *The Oxford Handbook of the Dead Sea Scrolls*. Ed. by Lim, Timothy H., Collins, John J. Oxford: Oxford University Press, 2010, 232-253; Tigchelaar, Eibert J. C. "Lights Serving as Signs for Festivals' (Gen 1:14b) in Enuma Elis and Early Judaism." In: *The Creation of Heaven and Earth: Re-interpretations of Genesis I in the Context of Judaism, Ancient Philosophy, Christianity, and Modern Physics*. Ed. by van Kooten, George H. Themes in Biblical Narrative 8 Leiden: Brill, 2005, 31-48.

34. Pratt, John P., "Mapping Time," *American Mathematical Monthly* 106 (Jan 2000), 92-99; Ben-Dov, Jonathan. "The 364-Day Year in the Dead Sea Scrolls," 70-71, 74; Beckwith, Roger T. "The Perpetual Calendar of the Dead Sea Scrolls." In: *Calendar and Chronology, Jewish and Christian: Biblical, Intertestamental and Patristic Studies*. Ed. by Beckwith, Roger T. Arbeiten zur Geschichte des antiken Judentums und des Urchristentums 33. Leiden: E. J. Brill, 1996, 93-140; Ben-Dov, Jonathan. "Dwq and Lunar Phrases in Qumran Calendars: New Mesopotamian Evidence." In: *Meghillot: Studies in the Dead Sea Scrolls III J*. Ed. by Bar-Asher, Moshe, Dimant, Devorah. Jerusalem: Haifa University and Bialik Institute, 2005, 3-28; Ben-Dov, Jonathan, Horowitz, Wayne. "The 364-Day Year in Mesopotamia and Qumran." In: *Meghillot: Studies in the Dead Sea Scrolls I*. Ed. by Bar-Asher, Moshe, Dimant, Devorah. Jerusalem: Haifa University Press and Bialik Institute, 2003, 3-26.

35. Yadin, Yigael. *The Temple Scroll*. New York: Random House, 1985, 86: "There is no mention in the scrolls published so far of how the sect made up for the loss of 1 1/4 days in their calendar, but they may have had a system of adding one month every twenty-four years."

only the solar cycle and that the lunar year of 354 days could not be easily adjusted to 364 days since it required a 10-day intercalation (which is quite difficult to notice in terms of the lunar phases), as it was proposed in the Masoretic version of the Book of Genesis.³⁶ In other words, these manuscripts represented what was essentially and primarily a solar calendar, thus being very similar in its philosophy of counting time to the Egyptian solar year (perhaps, as the result of the Hebrews' stay in Egypt) and to the Egypt-inspired Julian calendar of Gaius Julius Caesar and Octavian Augustus). The fragment 4Q-317, on the other hand, showed how the lunisolar calendar made its way into the practices of counting time.³⁷ Thus one may safely argue that by the beginning of the Christian era several cultures in and in the near vicinity to the Mediterranean developed reliable and easily deployable algorithms of for keeping track of the solar year. But the lunar calendar was a more difficult mathematical concept to construct.

Although the lunar calendar must have been well known to the astronomers, its introduction into everyday popular mentality and ritual practice in the Rome's Mediterranean possessions must have come much later. It may be argued that the new, Christian community interest to counting the lunar time precisely because it was the phase of the Moon that defined the time of the death and the Resurrection of Jesus that determined the festive calendar of the new community. By the end of the Roman Republic the educated people in its elites seem to have formulated themselves or borrowed from other astronomer's observations the idea that the Moon's motions had 2 cycles of 38 and 57 years, at the end of which the solar and the lunar calendars coincided with the precision of, respectively, 2 and 3 and a half hours. Thus Tacitus wrote that Augustus was a consul 37 times and died 57 years after first acquiring power on the same date of August 19th.³⁸ Thus by the end of the 1st century CE a Roman historian like Tacitus had become already aware of the fact that the solar and the lunar calendar have at least two cycles that bring coincidence between them and allow to confirm and possibly to reset the civic calendar. One may notice that in the 4th century Eusebius of Caesaria was certain that the Christians of the 1st century CE must have known the important and easily observable cycle of 38 years that provided a total conjunction between the astronomical and civic solar and lunar calendars. Thus he wrote that in 71 CE, 38 year from the Resurrection, the solar and lunar

36. Ben-Dov, Jonathan. "The 364-Day Year in the Dead Sea Scrolls," 70.

37. Ben-Dov, Jonathan. "The Initial Stages of Lunar Theory at Qumran," In: *Journal of Jewish Studies* 54/1 (2003), 125-138; Ben-Dov, Jonathan, Horowitz, Wayne. "The Babylonian Lunar Three in Qumran Calendars," In: *Zeitschrift für Assyriologie* 95/1 (2005), 104-121.

38. Tacitus, *Annales*, I, 9: "Multus hinc ipso de Augusto sermo, plerisque vana mirantibus, quod **idem dies accepti quondam imperii princeps et vitae supremus**, quod Nolae in domo et cubiculo in quo pater eius Octavius vitam finivisset. numerus etiam consulatuum celebrabatur, quo Valerium Corvum et C. Marium simul aequaverat, continuata per **septem et triginta annos** tribunicia potestas, nomen imperatoris semel atque viciens partum aliaque honorum multiplicata aut nova."

calendars coincided exactly (actually, within 2 hours' precision), thus confirming a very important fact of the astronomy of the Earth-Moon system.³⁹

In the 2nd century CE Ptolemy found the cycle of the Moon's *evection*, the precession of its orbit's *perigee* against the Earth's horizon.⁴⁰ This *evection* was found to last for 8.85 years. In addition to it, the *variation* of the lunar orbit of 18.6 years that was due to its angle in relationship to the ecliptic plane (the ascending node variation) might have also been known.⁴¹ Both periods were critically important for counting time because the first calendar among the Greeks was a cycle of 8 years, whereas the slightly more precise calendar that was developed in the course of the Antique period was a cycle of 19 years. The educated people in Antiquity were shown to have grasped the concept of the adjustment of the calendar periodically. Meton, it was said, introduced the Great Year of 19 years that was a response to the observed phenomena.⁴² The reconstruction showed that this 19-year cycle did exist and that Diodorus Siculus linked this Great with the visit of Apollo.⁴³ In fact, the reconstruction of the Athenian calendar suggested that the residents of the city used several calendars, the council calendar, the calendar of prytannies and others.⁴⁴ Thus the 19-year cycle was in fact the only working model that allowed to settle the scores when the Moon's ascending node came into the same position and the calendar could be reset with the required degree of certainty.⁴⁵ The Greeks believed in the concept of the Great Year, which had both astronomical and philosophical sense, since it was the cycle when all planets, as they thought, returned to their previous positions.⁴⁶ It was a critically important belief in the early Pythagoreanism.⁴⁷ The actual adjustments do not

39. Eusebius. *Ecclesiastical History*. III, 5, 5-6: "But it is necessary to state that this writer records that the multitude of those who were assembled from all Judea at the time of the Passover, to the number of three million souls, were shut up in Jerusalem 'as in a prison,' to use his own words. For it was right that in the very days in which they had inflicted suffering upon the Saviour and the Benefactor of all, the Christ of God, that in those days, shut up 'as in a prison,' they should meet with destruction at the hands of divine justice." Eusebii Pamphili *Ecclesiastical History*. Tr. by Roy Joseph Deferrari. Washington, D.C., 1969.

40. Neugebauer, O. *A history of Ancient mathematical astronomy*. Vol. 1. Providence, 1975, 84-85.

41. Fitzpatrick, Richard. *Newtonian Dynamics*. 2011.

42. Diodorus Siculus. *Library of History*. Ed. by Geer, Russell M. Loeb Classical Library. Cambridge, Mass., 1954 (henceforth cited as Diod. Sic.), 36.12.

43. Diod. Sic., 2.47.1-6.

44. Merritt, Benjamin Dean. *The Athenian Calendar in the Fifth Century*. Cambridge, Mass., 1928, 88.

45. Rehak, Paul. *Imperium and Cosmos: Augustus and the Northern Campus Martius*. Ed. by Younger, John D. Milwaukee, WI, 2006, 77.

46. van der Waerden, J. "Das Grosse Jahr und das ewige Wiederkehr". In: *Hermes* (1952), 150-5.

47. Philip, J. A. *Pythagoras and Early Pythagoreanism*. Toronto, 1966.

coincide precisely with the 8 or 19 year cycles.⁴⁸ Thus the “serrated”, uneven quality of the lunar calendar became one of the aspects of time reckoning that came to be known both to the educated people and to the regular folk. This suggests that the flow of time was not perceived as uniform since the calendar had to be adjusted relatively often.

Thus in Late Antiquity, Christian history emerged from Classical Greek and Roman historiography as a narrative that was based in including into the chronological schemes the solar and the lunar calendar, to which it gave an equal footing and credence. Historians started to reconcile biblical chronology with their own since the time of Hellenism.⁴⁹ Julius Sextus Africanus made a significant effort in the 3rd century to produce a uniform chronology of the Old Testament and of the Christian era.⁵⁰ The writing of Eusebius, Ammianus Marcellinus, Orosius, Sozomenos, Socrates, Philostorgios, Hydatius, Sulpicius Severus, and Prosper of Aquitaine created a foundation in the form of a chronicle.⁵¹ Theologians like Augustine and the historians who followed in his path (Orosius, Hydatius, Sulpicius Severus, Prosper of Aquitaine) contributed to write a new historical narrative that superimposed the Christian vision of history,

48. Samuel, Alan E. *Greek and Roman chronology: Calendars and years in Classical antiquity*. Vol. 1, 7. Handbuch der Altertumswissenschaft. München, 1972, 76f.

49. Wacholder, Ben Zion. “Biblical Chronology in the Hellenistic World Chronicles”. In: *The Harvard Theological Review* 61.3 (1968), 451–452.

50. Sextus Julius Africanus. *Chronographiae: The Extant Fragments*. Ed. by Wallraff, Martin et al. Berlin-New York, 2007; Gelzer, Heinrich. *Sextus Julius Africanus und die byzantinische Chronographie*. Hildesheim, 1885-1898. 283, 500; Mosshammer, Alden. “The Christian Era of Julius Africanus: With an Excursus on Olympiad Chronology”. In: *Julius Africanus und die christliche Weltchronistik*. Ed. by Wallraff, Martin. Berlin, 2006, 83–112; Mosshammer, Alden A. *The Easter computus and the origins of the Christian era*. Oxford early Christian studies. Oxford, 2008.

51. Brooks, Deanna. “Prosper’s Chronicle: A Critical Edition and Translation of the Edition of 445”. PhD thesis. Ottawa: University of Ottawa, 2014; Burgess, Richard. *Studies in Eusebian and Post-Eusebian Chronology*. Historia Einzelschriften 135. Stuttgart, 1999; Burgess, R. “Chronicles, Consuls, and Coins: Historiography and History in the Later Roman Empire”. In: London, 2011; Burgess, Richard. “The Chronograph of 354: Its Manuscripts, Contents, and History”. In: *Journal of Late Antiquity* 5.2 (Jan. 2012), 345–396; Burgess, Richard W. and Dijkstra, Jitse H. F. “The Berlin ‘Chronicle’ (P.Berol. inv. 13296): A New Edition of the Earliest Extant Late Antique Consularia”. In: *Archiv für Papyrusforschung* 58 (2012), 273–301; Burgess, Richard and Kulikowski, Michael. *Mosaics of Time: The Latin Chronicle Traditions from the First Century BC to the Sixth Century AD*. Turnhout, 2013; Croke, B. “The origins of the Christian world chronicle”. In: *History and historians in Late Antiquity*. Ed. by Croke, Brian and Emmett, Alanna M. Sydney, New York, 1983, 116–131; Croke, Brian. “Cassiodorus and the *Getica* of Jordanes”. In: *Classical Philology* 82.2 (1987), 117–134; Croke, Brian. “Jordanes and the Immediate Past”. In: *Historia: Zeitschrift für Alte Geschichte* 54.4 (2005), 473–494; Zecchini, G. “Latin Historiography: Jerome, Orosius and the Western Chronicles”. In: *Greek and Roman Historiography in Late Antiquity: Fourth to Sixth Century A.D.* Ed. by Marasco, G. Leiden, 2003, 317–345.

with its resonant eschatological theme, on the histories of the Roman empire and the regions comprising it. The presence of eschatology in historical thinking was addressed by Richard Landes, who argued that it was indeed an important cultural and religious paradigm for the Christians since the 5th century.⁵²

In a recent study it was suggested that the astronomical phenomena took a significant part in the narrative structure of the 5th-century historians. Thus Hydatius' observing the blood Moon of 462 CE (a usual phenomenon when the Moon is its perigee) was placed in the context of the barbarian ruler, Euric, grabbing the power in Spain in 467 CE and the failed naval expeditions of Leo and Anthemius in 468 CE.⁵³ Thus this Iberian historian successfully put the eschatology as an abstract context to the test of the astronomical observation. It has also long been noticed that in the 8th century Venerable Bede paid attention to the fact that during one of the eclipses of the 7th century the Moon reached its phase in discord with the Easter tables.⁵⁴

In the light of the new advances in the astronomy I would attempt to draw attention to one particular coincidence that may theoretically serve as an explanation of the 5th-century' particular disquietude in the writing of history. Many studies have laid the theoretical groundwork for solving the problem of the Earth-Moon system in precise mathematical terms.⁵⁵ An analysis of these theories was summarized by F. Tisserand.⁵⁶ By 1984 modern measurements and calculation methods removed all empirical terms from the Moon's ephemeris.⁵⁷ The

52. Landes, Richard. "«Millenarismus absconditus»: L'historiographie augustinienne et le mill' enarisme du haut Moyen Age jusqu' à l'an Mil". In: *Le Moyen Age* 98.3-4 (1992), 355-377; Landes, R. "Sur la traces du Millenium: la «via negativa»". In: *Le Moyen Age* 99.1 (1993), 5-26; Landes, Richard. "In the Fear of an Apocalyptic Year 1000: Augustinian Historiography, Medieval and Modern". In: *Speculum* 75 (2000), 97-145.

53. Wieser, Veronika. "The Chronicle of Hydatius: A Historical Guidebook to the Last Days of the Western Roman Empire". In: *Apocalypse and Reform from Late Antiquity to the Middle Ages*. Ed. by Gabriele, Matthew and Palmer, James T. Abingdon, Oxon, 2018, p. 21.

54. Moreton, Jennifer. "Doubts about the Calendar: Bede and the Eclipse of 664". In: *Isis* 89.1 (1998), 50-65.

55. Euler, Leonard. "De motu nodorum lunae eiusque inclinationis ad eclipticam variatione [E138]". In: *Novi Commentarii Academiae Scientiarum Imperialis Petropolitanae* 1 (1750), pp. 387-427; Euler, Leonard. *Theoria motus lunae exhibens omnes ejus inaequalitates [E187]*. St.Petersbourg, 1753. (henceforth cited as Euler L. *Theoria motus lunae*. 1753.); Hansen, Peter Andreas. *Fundamenta nova investigationis orbitae verae quam Luna perlustrat*. Gotha, 1838; Newcomb, S. *Astronomical papers prepared for the use of the American ephemeris and nautical almanac*. Vol. 6: *Tables of the Four Inner Planets*. Washington, DC, 1898; Brown, E. W. *An Introductory Treatise on the Lunar Theory*. Cambridge, 1896; Brown, Ernest W. "The Evidence for Changes in the Rate of Rotation of the Earth and Their Geophysical Consequences". In: *Proceedings of the National Academy of Sciences of the United States of America* 12.6 (1926), 406-413.

56. Tisserand, Félix. *Traité de mécanique céleste*. Vol. 3. Paris, 1894.

57. Meeus, J. and Savoie, D. "The History of the Tropical Year". In: *The Journal of the British Astronomical Association* 102.1, 40-42; Meeus, Jean. *Astronomical Algorithms*. 2nd ed. Richmond,

information gained with the help of modern methods has now been put up for academic use at various sites including the NASA eclipse site (<https://eclipse.gsfc.nasa.gov/>). This allows a historian to investigate whether history and the astronomical calculations can be both employed to make judgment about the chronology of Late Antiquity. The approach employed in this paper is a first approximation, based on the modern data.

The question that arises when a historian looks at the astronomical information for the period is a dichotomy of what was more important for the astronomers in Late Antiquity, the rare and singular, but spectacular events like solar eclipses or the periodic events like regular lunar phases at expected periods of time and planetary line-ups. It is a long-standing question whether scholars in Antiquity managed to find a way to include solar and lunar eclipses into a pattern of a calendar. In other words, it is a question of whether people of Late Antiquity chose to be scared of the rare celestial events and to interpret them as divine punishment or they favored stability and made a system of continuing and repeating events. I argue that the patterns of lunar, planetary, and stars' motion played a much larger role than the eclipses. In other words, the periodic motions that were possible to predict with reasonable accuracy played a much more significant role in the relationship of people to the astronomical events than did the eclipses. The basis of calendars was the repeating motions of the celestial objects.

Let us first consider the arguments about the importance of eclipses for astronomers' and rulers' views on history.

Eclipses, the events that stood out of the calendric patterns in Late Antiquity, did not seem to be associated with the Modern scholars have long known two major solar eclipses in the reign of Nero on April 30, 59 CE and in the reign of Constance II in 346 CE (we have shown why the latter was important earlier). One may wonder whether such natural phenomena could have influenced the underlying stability of human perception of time. In regards to the eclipse of Nero's time, Tacitus mentioned that even the Sun chose to hide from the human sight in light of the emperor's killing of his mother (Tac. 14:12; Pliny Hist. Nat. 2:70).⁵⁸ But there was nothing of this kind in 346 CE when the eclipse was total for at least one area of the Roman Empire, Antioch.⁵⁹

VA, 2009; Morrison, L. V. and Stephenson, F. R. "Historical Values of the Earth's Clock Error ΔT and the Calculation of Eclipses". In: *Journal for the History of Astronomy* 35.3 (2004), 327–336; Simon, J. L. "Numerical expressions for precession formulae and mean elements for the Moon and the planets". In: *Astronomy and Astrophysics* 282 (1994), 663–683; Seidelmann, P. K. *Explanatory Supplement to the Astronomical Almanac*. Mill Valley, 1992, 317.

58. Lynn, W. T. "Solar Eclipses in the Reign of Nero and Constantine". In: *The Observatory* 16 (1893), 294–295; Tacitus. *Annals*. Leipzig, 1978, 14:12; Pliny the Elder. *Historia Naturalis*. Ed. by Bostock, John and Riley, H. T. London, 1855, 2.70.

59. Hayakawa, Hisashi, Murata, Koji, and Sōma, Mitsuru. "The Variable Earth's Rotation in the 4th-7th Centuries: New ΔT Constraints from Byzantine Eclipse Records". In: *Publications of the Astronomical Society of the Pacific* 134.094401 (Sept. 2022), 3–5.

The examples of astronomical information one can find in the works of Late Antique chroniclers and their continuators suggest that the facts of eclipses became part of the historical narrative tradition and even started to have some eschatological meaning by the end of the 4th century and that historians learned how to describe their influence on the populace and troops correctly. But although they took heed to celestial phenomena, they left the attempts to find a mathematical rule to later generations. Jerome included an eclipse in his chronicle without a correct date, so the possible candidates are June 6, 346 CE or October 9, 348 CE. In the 19th century scholars thought the eclipse of 346 CE to have been visible throughout the Roman Empire, while recent studies suggest its totality spot was in Antioch.⁶⁰ But according to modern calculations there must have been several eclipses in the vicinity of this date, which must have been visible to at least some residents of the Roman Empire: these were the eclipses of the years 341, 344, 345, 346, 348, 349, 351, 354, 355, 356, 358, 360.⁶¹ The 346 CE eclipse reached the phase of totality only in Antioch, as scholars think now, and other eclipses may have been even less visible in Constantinople. The eclipse of 346 is cited in the early 9th-century chronicle of Theophanes the Confessor, but it is a much later text that must have had its antecedents in regards to this information. Some scholars believe that the original text that mentioned the eclipse was written by Eusebius of Caesaria's pupil Eusebius of Emesa (ca. 330–ca. 360 CE).⁶² This 4th-century scholar was a court astrologer for Emperor Constance II, in addition to being considered one of the important theologians of his period. Since he was accused of sorcery, it may well be that it was during his tenure as the court astrologer that several partial and annular solar eclipses took place. In other words, the information about the 346 CE eclipse (or several eclipses), which might have had eschatological underpinning did not enter the historians' parlance and became the matter of historical narrative only well after the reign of Constantius II had ended and after the Roman empire in the West had ceased to exist.

In contrast, Ammianus Marcellinus more precisely pinned down the eclipse in the year 359 or 360 CE in his "Res gestae" 20.3.1-2 and, unlike Jerome, spoke of the nearly eschatological outcome of this event for the Roman army.⁶³ Some scholars believe his description to be impeccable from the point of view of Late Antique astronomy, while others argue that Ammianus was not quite correct in

60. Lynn, "Solar Eclipses in the Reign of Nero and Constantine"; Hayakawa et al., "The Variable Earth's Rotation", 3–5.

61. Espenak, Fred and Meeus, Jean. "Five Millenium Catalog of Solar Eclipses: -1999 to +3000 (2000 BCE to 3000 CE) (NASA Technical Publication NASA/TP-2006-214141)".

62. Reidy, J.J. "Eusebius of Emesa and the "Continuatio Antiochiensis Eusebii"". In: *Journal of Ecclesiastical History* 66 (2015), 471–8; Burgess, *Studies in Eusebian and Post-Eusebian Chronology*, 273.

63. Ammianus Marcellinus. *Rerum gestarum libri qui supersunt*. Ed. by Seyfarth, Wolfgang. 2 vols. Leipzig, 1978 (henceforth cited as Amm. Marc. Rer. gest.).

discussing the difference between the New Moon and the eclipse.⁶⁴ If we are to believe the dating and his information, it must have been the eclipse of August 28th, 360. But since Ammianus spoke of how Julian rallied a large number of Gallic legions to move to take part in the campaign in the East, the August date seems a bit late. Is it possible that this historian confused this eclipse with the hybrid eclipse on March 15th, 359, a year before that? This eclipse (a hybrid one) may better conform to the description of the historian who spoke of how the Sun's surface was "cut off by a spear" (*lancea*). In this case the events that had been brought into motion could have lasted from March 15, 359 to 360, and it was enough time for Julian to understand tensions among soldiers and procurement problems and to make a decision to propose them to go on a campaign in the East with their wives. The requirement to arrange for public postal carts for them to relocate also required a significant amount of time. In other words, it seems that in Ammianus Marcellinus' narrative the eclipse took a significant place as an event that caused some stir in Gaul. Thus unlike Jerome, who shunned from giving any social commentary on what the eclipse might have caused in the population, by the end of the 4th century a historian could venture on describing what a celestial event meant for the Roman army in the West, where the eclipse was the most pronounced. Ammianus, in contrast to Jerome, already became well-versed in the writings of Ancient and contemporary astronomers as to explain the reasons for an eclipse in a clear Latin.⁶⁵ He may have made even more use of it because the eclipse served as a kind of forewarning of Julian becoming a usurper. It seems that the authorities' and community's response to such events only became sensible if there was a consensus among the powerful people and scholars on how to react to celestial events. Ammianus' approach to this event suggests that this consensus was becoming crystallized, as an out-of-order celestial event became a commentary on the out-sized ambition of formerly modest Caesar.⁶⁶ Other remarkable eclipses of 418 CE (described by Philostorgius) and of 484 CE show that historians learned how to make sense out of celestial events, but also managed to stay clear of the overarching conclusions with eschatological implications.⁶⁷ In other words, by the early 5th century eclipses and the conjunctions of the lunar calendar with the solar one became a phenomenon historians could include in their narratives and even make it a sign of the Christian history approaching a predetermined stage.

One may construct an argument that astronomers sought how to accommodate the eclipses into the repeating patterns of time. But the task of predicting them was largely impossible. Instead, by the end of the 4th century historians managed to construct a language that would help them describe solar eclipses as both natural

64. Szidat, J. *Historischer Kommentar zu Ammianus Marcellinus Buch XX-XXI. Teil I. Die Erhebung Julians*. Historia Einzelschriften 31. Wiesbaden, 1977, p.20.3; Hengst, D. den. "Ammianus Marcellinus on Astronomy (Res Gestae 20.3)". In: *Mnemosyne Fourth Series* 39 (1/2 1986), 141.

65. Szidat, *Historischer Kommentar*, 20.3.

66. Szidat, *Historischer Kommentar*, 21.5.1.

67. Hayakawa et al., "The Variable Earth's Rotation in the 4th-7th Centuries", 5-7.

and social phenomenon, the latter having strong eschatological notes. The eschatological aspect of these commentaries betrayed in the first place a desire either to fit an event into an already functioning set of cycles as a real marker of a repeating phenomenon or to discard it as a meaningless fluke.

In other words, the introduction of Christianity as the official religion and of its lunisolar calendar may have been responsible for making scholars pay more attention to the correlation of the Sun and the Moon's cycles and their calendars. This did not happen because they forewarned the "judgment of Heavens", but for another reason, I believe. What was more important were the repeating patterns in the motions of the Sun and the Moon together, or rather, the situations when the lunar phases fell on the same days of the lunar calendar as it did at some historically or symbolically important date like the foundation of the Temple by David or the birth of Christ. The specialists in time reckoning knew about the repeating patterns of 19 and 76 years. Solar and lunar eclipses fell out of this pattern and they were hard to predict due to their irregularity at a given location. In other words, I argue that the solar eclipses that were hard to predict were not interpreted as part of a picture of universal history, on which a community's self-representation was built. But the repeating patterns of the conjunctions of the solar and lunar calendars did indeed attract more attention than solar eclipses from astronomers and historians, who seemed to attempt to align the political events with the conjunctions of the solar and lunar calendar.

Because the astronomers of Late Antiquity may not have known that the actual length of the year was 365.24219 days and that the lunar month was actually 29.53 solar days (29½ days plus ca. 43 minutes), there accumulated in calendars a small but significant discrepancy. If the discrepancy was not counted in, the solar calendar lost one day over the course of about 276 years. This seemed to be the problem of the Egyptian and of the Julian calendars, which held the length of the year to be exactly 365 and a quarter day. The same happened to the calendar of the Moon phases and the projected calculations must have been routinely off the actual phase of the Moon at the expected time on the given day of the solar calendar.⁶⁸ Since the precession data is incorporated into most modern calculations,⁶⁹ we will not be using it directly. For the purposes of advancing our hypothesis we will use the modern mean values. In the long run, as we will show, the mean values provide a fairly good approximation to explain how the celestial bodies were visible to astronomers and people in Late Antiquity. Let us use a simplest model here without employing the ΔT calculations. These will be at first purely hypothetical considerations which we will later compare with the data

68. Locher, Kurt. "Long-term Variation in the Motions of the Earth and the Moon". In: *Ancient Egyptian Chronology*. Ed. by Hornung, Erik, Krauss, Rolf, and Warburton, David A. Leiden, 2006, 398.

69. Simon, J. L. et al. "Numerical expressions for precession formulae and mean elements for the Moon and the planets". In: *Astronomy and Astrophysics* 282 (1994), 663–683.

available to us from historical sources. This approach is justified because it is from the historical sources that modern astronomers take the first information to construct their models.

The mathematical formula for that is ('i' is the integer number of years): $((i \times 365.24219) \bmod 29.53) \leq 0.25$ or $((i \times 365.24219) \bmod 29.53) \geq 29.27$, which means a conjunction of the synodic positions of the Sun and the Moon within $\frac{1}{4}$ of a day, that is, within 6 hours. The case in point here is the calculations that would be made from the year 1 BCE as the measure of the Moon's phases across the Julian calendar's year roll. If we take the actual astronomical solar year and the lunar month, then, without the imprecision that the human-made calendar introduced, there were several dates when the solar and the lunar rotations coincided. These were the years 19 (the foundation of the Easter calendar), 38 (two 19-year cycles), 57, 76, 483, 502, 521, 540, 559, 578 and 598. Let us notice that there was a long hiatus of 3 centuries when the phase of the Moon did not repeat its showing on 1 BCE in regards to the same dates of the Solar, Julian (or in some cases, proleptic Julian) calendar. Let us also notice that several dates fall in the late 5th and the early 6th century, the period that was marked by the fall of the Roman Empire in the West, the re-fashioning and consolidation of the Byzantine Empire in the East and by the creation in the West of several barbarian kingdoms. Frankish king Clovis I came to power in 481 CE and was gradually gaining his prestige, ultimately defeating Syagrius in 486. The year 483 was also important because it was close to the cycle of precession of 476 years that L. Euler mathematically calculated. It was also the year when the Easter calendar had to be adjusted to take one day off the count of lunar epacts.⁷⁰ The year 521 CE was the time when early medieval scholars started thinking about the new Easter calendar that was later confirmed and realized by Dionysius Exiguus. 540 CE witnessed the peak of Byzantine military campaigns of Belisarius, ordered by Justinian.

In addition to that, there was a discrepancy between the astronomical calendar and the Julian calendar, which could become expressed in days. But in some cases the problem was less in the actual count of days since in the Ancient world the astronomers managed to create calendars that helped intercalate any

70. Euler, Leonard. *Theoria motuum lunae, novo metodo pertractata una cum tabulis astronomicis, unde ad quodvis tempus loca lunae expedite computari possunt incredibile studio atque indefesso labore trium academicorum: Johannis Alberti Euler, Wolfgangi Ludovici Krafft, Johannis Andreae Lexell. Opus dirigente Leonardo Eulero acad. scient. Borussicae directore vicennali et socio acad. Petrop. Parisin. et Lond. [E418].* Petropoli, 1772. 775, 400, §379. One also needs to be aware that L. Euler calculated the angle of the nutation of Earth to be 9 arcseconds: Euler L. "Recherches sur la précession des équinoxes, et sur la nutation de l'axe de la terre," In: *Mémoires de l'académie des sciences de Berlin* [5], [1749], 1751, 289-325, at p. 314. (C. G. J. Jacobi wrote about a treatise with this title being presented to the Berlin Academy on March 5, 1750). This implied that the position of the Moon against landmarks could have had a cycle of 400 years, after which the long-term variation of the Moon's latitude against the horizon (in addition to the cycle of 8.85 years) could become visible.

extra days into the year (with an embolismic month and a *saltus lunae*). The problem also lay in the extra hours that cumulatively added up from the minutes and seconds of the discrepancies between the Julian solar calendar and the Ancient world's lunar calendar with the actual astronomical phenomena. These discrepancies between the astronomical calendar and the Julian calendar can be calculated at the first iteration with the help of the modern data for the parameters of the Earth's and Moon's orbits. The simplest mathematical formula that is used here is of the following form: $|((i \times 365.24219) \bmod 29.53) - ((i \times 365.25) \bmod 29.5)| \leq 0.25$. Its use is justified as the first iteration approach to the problem and is supported by works on astronomy from Leonard Euler on. The actual astronomical conjunction of the Moon's phase with the solar synodic position in this case came on approximately the following years: 77, 156, 233, 312, 390, 467, 544, 623, 700, 778. Thus one may notice two separate sequences: one of purely astronomical conjunctions, some cycles of which govern the lunisolar calendar today, and the other of the correlations (with half a day precision) between the astronomical and the Julian calendar. These sequences do not count in the longer precessions of the Earth's and Moon's rotation with the length of 1000 years and so on, but L. Euler's works on the Earth-Moon motion showed that these periods do exist in the heuristic observations and calculations with all types of precession included as a parameter. These years are themselves an approximation as normally there were several years in the vicinity of each of these cardinal dates when the Moon's phases were within one day of those in the year 1 BCE as measured against the Julian calendar. It can be argued that the most common average period when both the astronomical conjunction and the correlations between the astronomical and Julian calendars took place was between 72 and 84 years, with the most weight of the phenomenon falling on 76 years.

The question of employing the conjunction of the solar and lunar calendars for the better observation of the Moon's phase seemed to have bothered historians and computer scientists since the 4th century. Of the dates of the conjunction, two (313 CE and 390 CE) are quite close to the two most egregious cases in Jerome and Prosper's chronicles where they either hinted at or showed a one-year discrepancy with other sources. Eusebius put the battle of the Milvian Bridge at the 7th year of Constantine, which was 312 CE, while Jerome set it to the 6th year of Constantine, although it was also 312 CE, since he had set the 1st year of Constantine at 307 CE.⁷¹ In this case the Moon's calendar for 312 CE and for 313 CE was within one-day's precision in regards to the calculations from the year 1 BCE, but the difference was, respectively, 4 and 13 hours. So Jerome's indecision to choose between the 2 dates is understandable as he sought to move the start date of the count so as to make the discrepancy less. Exactly 6 years had a discrepancy of only 6 hours with the year 1 of Constantine, while the year 7 had a much larger discrepancy of 15 hours. So for an important event like the battle of

71. Burgess, *Studies in Eusebian and Post-Eusebian Chronology*, 43.

the Milvian bridge he needed that it be at the beginning of the year 6 of Constantine so that the position of the Moon be predictable in the terms of the conjunction between the solar and the lunar calendars. L. Euler in the 18th century determined one cycle of the Moon's motion to be 6.5 years, which explains that there was a conjunction of the Moon's position in the middle of the 7th year, but before its end.

Prosper of Aquitaine, in turn, moved the events from 383 CE to 384 CE.⁷² The shifting of an event from 383 CE to 384 CE was meant better to account for the fact that in terms of the lunar phases, the solar calendar was running out of sync in 383 CE and it came in sync by 384 CE. In his case the reason might have been that in the year 383 CE the discrepancy was 9 hours, while in the year 384 CE the Moon reached near total conjunction with its position in the 1 BCE in terms of hours, while the visible lunar epact had grown by 2 days. In other words, the Full Moon could be seen at the same time at night as it was in 1 BCE. This was the case for the years 389 CE and 390 CE, too, where the discrepancy between the calculated position of the Moon and its real phase was minimal (plus 3 and minus 5 hours respectively). It is quite likely that full days did not bother computer scientists (the specialists in the calculation of the date of Easter) at all since there were mathematical means to account for them. Thus one may notice that since the 4th century, when Christianity and its lunisolar calendar became official, historians did care about using the dates for which the projected correlation between the motions of the Moon and the Sun was in nearly total sync with their visible correlation. In other words, the first two centuries of the Christian Roman empire raised a number of significant challenges for historians and computer scientists because they had to address the problem of making a time to observe the Moon at the time when its phase coincided with the expectations made of the basis of the "Egyptian" calendar. In discussing the problems of the Christian time reckoning in the 4th and 5th century one may consider the discrepancy that emerged because of the actual astronomical calendar having a shorter year than the one used in the Egyptian and Julian calendars.

In other words, I argue that the innate 76-year cycle in the Earth-Moon system's motion and the patterns of the Moon's phases exactly coinciding with the dates in the Solar calendar (like the Vernal equinox) and thus taking the same relative position in the sky against the immovable objects on the ground (temples) made astronomers and historians look after the solar eclipses with increased attention. It was not vice versa.

One may also consider another factor in discussing how the celestial events might have influenced the vision of history among the educated people. In addition to the conjunctions of the solar and the lunar motions one may also consider the lineup of planets in the same form as a possible marker of

72. Humphries, Mark. "Chronicle and Chronology: Prosper of Aquitaine, his methods and the development of early medieval chronography". In: *Early Medieval Europe* 5 (1996), 166.

information the astronomers gathered by looking at the skies. Although the lineups of planets are a common event, the cases in which it took place on the same date of the solar calendar are much rarer. The conjunction with the solar calendar is important because it is connected to the Vernal equinox, which had been observed for the purpose of relating the solar and the lunar calendar to each other. For the purposes of this paper I will only consider cases when the lineup of planets was observed during a solar eclipse, since there is very little information on what astronomers saw in the night skies on usual days. Thus we need to consider the eclipses of the Ancient world as the possible starting points of observation when the astronomers remembered the configuration and made it a historical point of reference. These cases are visible with the help of modern astronomical tables that use the advanced mathematics developed since the 17th century.

There is another reason for the years in the vicinity of 476 CE (like 468 CE and 483 CE) being of interest to astronomers and historians of Late Antiquity. In terms of the astronomical observations the 5th century was special because during it the long-term cycles of the Earth's and other planets' motions had come to a synchronization. The rotation of the planets around the Sun makes them line up in various configurations in the skies visible from Earth. Already in the 13th century BCE the Egyptians were watching the planets.⁷³ The period in which a planet returns to the same point in the skies as visible from Earth (the synodic period) has now been precisely calculated by astronomers. The synodic periods for Earth, Jupiter and Saturn are very close, while the periods for Venus and Mars differ significantly. As the first approximation of solving this problem is the approach which seeks to establish the level of synchronicity of the planets' synodic periods by examining their periodic qualities against that of the Earth's orbit and of the solar year. But we are interested not in all the lineups, which happen regularly about every 20 years, but only in those that happen at exactly the same date as the original one (say, the New Year, the Vernal Equinox, 1st September, or any other civic holiday). If one calculates the offsets, i.e., the discrepancies between the length of the solar year and synodic period for each planet, this data can be used to determine when the planets would reappear in the same order and at the same visual distance from each other as they had once been observed. Naturally, those years when the offset is the smallest are the years when the configuration of the planets was the same. Setting the offset to within 3 to 4 months is a reasonable assumption. There is a further option to take the offsets, calculate the geometric mean and to calculate the mean square deviation for each of the planets' offsets. Finding the years when this mean square deviation

73. Krauss, R. "The Eye of Horus and the Planet Venus: Astronomical and Mythological References". In Ed. by Steele, J. M. and Imhausen, A., 144; Krauss, Rolf. "Dates Relating to Seasonal Phenomena and Miscellaneous Astronomical Dates". In: *Ancient Egyptian Chronology*. Ed. by Hornung, Erik, Krauss, Rolf, and Warburton, David A. Leiden, 2006, 378.

is less than a month is a good technique to find those years when the planets were in the same line-up as initially. Interestingly, both methods give approximately the same results. For the purposes of this paper the possible precession of the planets' synodic position due the Earth's precession against the fixed stars is not considered since it is the first approximation and since the proposed method does give heuristically verifiable results within the given limits of approximation.

Calculations would not mean much if we would not set a starting point. Solar eclipses in Antiquity are a good starting point since during an eclipse the line-up of planets became visible during the day and attracted attention of the educated people and the populace. Once remembered, this line-up could have long stayed in memory. The ancient documented solar eclipse of 2161 BCE, that of Shamshi-Adad of 1587 BCE (probably the eclipse of Oct. 23, 1588 BCE or of Mar. 28th, 1586 BCE),⁷⁴ the recorded eclipse of Sep. 11, 1557 BCE,⁷⁵ the lunar eclipse of 1547 BCE (the Ur III eclipse),⁷⁶ the lesser-known solar eclipse of Feb. 15, 1547 BCE,⁷⁷ the solar eclipses of Oct. 30th, 1207 BCE (Joshua 10:12-13),⁷⁸ 1096 BCE and 1084 BCE (March 27th) may be taken as possible candidates. To understand which of the starting points is better, one needs to use modern data. For example, since 2023 is the year of the planets' line-up, it is remarkable that this configuration of planets repeats the order that might have been visible during the eclipse of the year 2161 BCE or of 1084 BCE, but not during the other ones. For the purposes of this paper we obviously do not count in any planetary precession since these considerations are the first approximation.

Calculations which involve finding those years that have the smallest offsets in terms of the planets' synodic periods first show the importance of years in the vicinity of 483 CE. For example, if calculated from the solar eclipse of 1547 BCE, in 484 CE Jupiter came earlier by 18 days, Venus and Mars appeared right where they had been in 1547 BCE, while Saturn was early by 160 days. Let us notice that the solar eclipse of 484 CE was well observed (Hayakawa et al., 2022, 5–7). If counted from 1084 BCE, the planetary configuration repeated in 483 CE and ca. 601 CE, when another eclipse was visible in the Mediterranean.⁷⁹ If calculated from the solar eclipse of 27th March 1084 BCE, in the year 483 CE Jupiter and Mars both came to the same position in the sky 116 days ahead, while Venus was ahead by 70 days. In other words, in the period around Christmas those

74. de Jong, Teije. "Astronomical Fine-Tuning of the Chronology of the Hammurabi Age". In: *Jaarbericht van het Vooraziatisch-Egyptisch Genootschap „Ex Oriente Lux“* 44 (2013), 147–167.

75. Henriksson, G. "Astronomical Dating of the Old Babylonian Kingdom". In: (2005). Ed. by Koiva, Mare, Pustylnik, Izold, and Vestnik, Liisa, 63–70.

76. Banjevic, Boris. "Ancient Eclipses and Dating the Fall of Babylon". In: *Publications of the Astronomical Observatory of Belgrade* 80 (2006), 251–257.

77. Khalisi, Emil. "The Double Eclipse at the Downfall of Old Babylon". In: (2020), 3.

78. Vainstub, Daniel, Yizhaq, Hezi, and Avner, Uzi. "The Miracle of the Sun and Moon in Joshua 10 as a Solar Eclipse". In: *Vetus Testamentum* 70 (4-5 2020), 722–751.

79. Hayakawa et al., "The Variable Earth's Rotation", 7–8.

interested in heavens could observe the planetary line-up that was around Vernal equinox ca. March 27th, 1084 BCE. This is the result we get if we calculate the offset's absolute value against the length of the solar year. Using the mean quadratic deviation against the geometric mean of the offset we get much shorter offsets against that day in the solar year when these planets seemed the closest to their original position in the starting year.

One of the periods that emerges from calculations of this kind is that of 1107 years. It deserves particular attention because the end of it, if counted from one of the eclipses of the Ancient world, and also from the founding of Rome, fell right into the middle of the 4th century. An eclipse could have made the astronomers notice the same lineup of planets as it was during the past event. Eclipses like that may have also let the astronomers of Late Antiquity to pay attention to the celestial events and to notice a flaw in the civic calendar that made it lose one day over 276 years. A well-known solar eclipse took place in Nineveh on June 15th, 763 BCE (it was also the day of the New Moon, so the two events coincided to produce a sense of darkening in the skies. In the next year, 762 BCE (761 astronomical year) a Full Moon was on March 22nd, one day after the Vernal equinox. When a whole sequence of solar eclipses started in 346 CE, the Full Moon was on March 23rd, one day late. These dates would have had no specific importance, if the period of 1107 years would not be remarkable for being one of those periods when the planets showed up in the same order and position as they were initially. It was the 7th year of the cycle if the 19-year cycles were counted from 763 BCE and the 6th, if 762 BCE was considered the beginning of the count. The 19-year cycle, if counted from 762 BCE, started on 340 CE, but there was no near coincidence in that year. In 341 CE (the 1st year of the new 19-year cycle if 762 BCE was the first year) the Full Moon came 4 days earlier than in 762 BCE, on March 19. It was also a year of a solar eclipse.⁸⁰ In 346 CE, another year of a solar eclipse and the 6th year of the 19-year cycle counted from 762 BCE, the Full Moon occurred on March 23rd, one day later than in 762 BCE. It is interesting to notice that since the solar calendar was late 4 days in comparison to the Moon's cycle of rotation in 1103 years (762 BCE to 341 CE) even though this period was an exact integer number of 19-year periods, it was losing 1 day every 276 years, a well-known parameter. In other words, in 1102–1109 years, that is, ca. 341 CE, it became clear that the solar and the lunar calendars in the way they were counted were asynchronous and that the solar calendar lost one day to the lunar calendar in 276 years. But naturally, the Egyptian scholars must have taken some problems out of it during the rule of the Ptolemies from 305 BCE to 30 BCE and the reform of the calendar under Octavian August must have adjusted all discrepancies. The

80. Espenak and Meeus, "Five Millenium Catalog of Solar Eclipses: -1999 to +3000 (2000 BCE to 3000 CE) (NASA Technical Publication NASA/TP-2006-214141)"; Hayakawa, Murata, and S'oma, "The Variable Earth's Rotation in the 4th-7th Centuries: New ΔT Constraints from Byzantine Eclipse Records", 3–5.

problem was in the new discrepancy that should have accumulated by the 3rd century. In other words, the period of 1107 years made those interested in astronomy take notice of the discrepancy and of asynchronous character of the calendars. It is all the more important because this visible disagreement in the calendar (4 days) happened ca. 354 CE, which would be the year 1107 from the founding of Rome in 753 BCE.

In both calculations, however, in 483 CE or 484 CE the 4 planets came close to their line-up in either 1084 BCE or 1547 BCE. If the start date was the eclipse of 1557 BCE, then in 476 CE the line-up repeated that at the starting point. Let us notice that one planetary cycle is about 468 years within our simple but rigid criteria (but it is not a repeating one). Thus in the middle of the 5th century the planets lined up as they used to during one of the ancient eclipses, but also in the same fashion as they were at the birth of Christ.

In the repetition of the planets' conjunctions there are also other heuristically calculable periods of ca. 1054 years, of 1739 years, and of about 3107 years, which give almost complete synchronization within the above-mentioned set of factors. Depending on the start of the calculation and its relation to an eclipse (or lack thereof), the years 476 CE, 483 CE or 484 CE were those of the original line-up that repeated that of 1557, 1084 or 1547 BCE. If the start year was the eclipse of 1207 CE, which the scholars now attribute to that which is mentioned on the Book of Joshua 10:12-13, it gave 3 historically interesting dates of 337 CE (the death of Constantine the Great), 390 CE and 479 CE, as well as the years in the vicinity of the rule of King David. In other words, using the Babylonian and Hebrew chronologies, scholars in the Christian Roman Empire might have become aware that in the 5th century there will be one planetary line-up that would exactly repeat that of the beginning of the actual Hebrew chronology that appeared in contact with the Egyptian and Assyrian empires. Even though it was a repeating event, it might have influenced scholars in attracting them more towards observing the skies. Interestingly, these calculations hint at the intrinsic importance of the year 1108 BCE (minus 1107 astronomical year), when a lunar eclipse happened on December 28th. If the calculations of the planetary configurations were to be applied here, the year 1107 BCE becomes critical because it was when the planets lined up in the same configuration as they did in 2161 BCE because it came 1054 years after the latter (and as it has been stated already, 1054 years make the planets return to the same position within days of each other). Since the eclipse was 3 days away from the start of the new 1107 BCE, the line-up must have been a nearly perfect match and it might have become a start of a New Year count. Remarkably, it is claimed to be the last year of the reign of Ramesses X (1111–1107 BCE), which caused a discussion among scholars. The suggestion advanced by a scholar that his reign lasted longer has been rejected.⁸¹ When part of the lunar disk was covered by the Earth's shadow, the astronomers

81. Krauss, R. and Warburton, D. A. "Chronological Table for the Dynastic Period," 493.

might have noticed one of the planets, probably Venus that could have been occulted by the bright edge of the Moon's disk. That is, with a degree of precision we may hypothesize that the line-up that people saw in 2161 BCE was also visible for those in late 1108 - early 1107 BCE, and in 405, 457, and 490 CE.

These considerations suggest that Late Antique astronomers and historians built their chronological schemes around long-term repeating patterns in the showing of the Moon and the planets. Solar eclipses that were harder to predict fell out of these patterns and did not seem to influence the chronology or calendar in any way: they were never used as the end of an old era or the beginning of a new one. But when the solar and the lunar calendars repeated themselves and the showing of the two celestial bodies happened in sync (although it was the night for the Moon when the Sun was not visible), this seemed to be the time when scholars and those in power paid more attention to represent themselves according to the history's plan. Thus one may safely argue that for the historians of the 5th century astronomy suggested that the end of times, or at least the end of the long cycles of time, was coming about since the planets and the Moon lined up at the same time and in the same patterns that they did at the time of the construction of the temple of David and of the foundation of Rome. It was a factor that determined the interest to the eschatological discourse.

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Physician Turned Mother: Privileging the Doctor-Parenting Expertise in Greco-Roman Antiquity

By Katherine Petrasek*

*In the Greco-Roman world, doctors held significant authority in the areas of infant care, childcare and paediatric diseases. In the second book of his *Gynaecia*, the Greek physician Soranus discusses everything from the recommended method of feeding an infant to their emotional well-being. The physicians Galen, Rufus of Ephesus (cited by the Byzantine author Oribasius) and Cornelius Celsus provide further expertise about childrearing through case studies and descriptions of paediatric diseases. This paper will discuss how the mothering expertise of male doctors was privileged by both parents and other male doctors in Greco Roman antiquity and how doctors were often essential members of elite children's circles of care. It will examine Galen's parenting expertise through his case studies involving Cyrillus, the son of the consul Boethus, and the emperor's son Commodus. Comparisons will then be drawn to the privilege that Soranus places on his own expertise of maternal and infant care, the authority that Rufus gives to himself in the area of childrearing and that Celsus places on his knowledge of pediatric disease.*

Introduction

In the ancient Greco-Roman world, the rearing of both elite and common children involved not only parents but an entire circle of care. Doctors held significant authority in the areas of infant care, childcare and pediatric disease. Other members of a child's circle of care might include a wet-nurse, midwife, *nutritor* (male nurse), *educator* (tutor), *paedagogus* (pedagogue). After Hellenistic territories were annexed to the Roman Republic, breastfeeding became unfashionable, and wet-nurses became a popular alternative among the Roman elite.¹ During this time, however, lower classes might have also preferred the use of wet-nurses to breastfeeding. Conservatives initially condemned the practice particularly when there was no practical need of a wet-nurse, and the mother could feasibly feed her own infant. Wet-nurses either worked independently (assembling for hire at the *columna lactaria*) or could be retained as part of an aristocratic Roman household.² Later medical authorities (such as the physician Soranus) promoted breastfeeding to prevent milk depletion and allow the child to thrive. Wet-nurses were significant members of a child's circle of care and Quintilian notes that they

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1. Margaret Trenchard-Smith, "Unfit to Nurse: Women, Infants and Breastfeeding Ideals and Prohibitions in Greek Gynecology," *Medicina Nei Secoli: Journal of the History of Medicine and Medical Humanities* 32, no. 3 (2020): 894.

2. *Ibid.*, 893-895.

are the first voice a child will hear – so they ought to speak properly (Quint.1.1.4). They would also suckle the child until weaning, which began when the infant was eighteen months old and ended when the child was two or three years old.³ Thus, they were closely involved in the child's first few years of life and were even responsible for a child's care until they became adults.⁴ They held a high status within the household but were either slaves or freedwomen.⁵

Midwives were the initial carers of mothers and newborn infants in the Greco-Roman world, as both usually remained in their care several days after the delivery.⁶ Midwifery was either passed down from mother to daughter or slave girls were apprenticed to the household's midwife.⁷ Midwives announced the sex of the infant, cleaned it, cared for the health of newborn and gave upbringing advice to mothers.⁸ Most importantly, they would determine whether an infant was worth rearing through a brief physical examination (Soranus, *Gynaecia* (*Gyn.*) 2.10 [62]).⁹ Midwives were generally either freedwomen or slaves, but percentages of each varied depending on geographical location. While discussing a Latin dossier of inscriptions for midwives, Christian Laes mentions that 42% of the inscriptions name midwives who were freedwomen and 29% of inscriptions name women of servile status.¹⁰

Men were also a part of both upper class and enslaved children's circle of care in Imperial Rome.¹¹ They worked as *nutritores* (male nurses), *educators* (tutors), and *paedagogi* (pedagogues).¹² These male carers were usually freedmen or slaves.¹³ The position of *nutritor* was roughly equivalent to the title of *tropheus*,¹⁴ which

3. Ibid, 895.

4. Kelly L Baumgartel, Larissa Sneeringer, and Susan M Cohen, "From royal wetnurses to Facebook: the evolution of breastmilk sharing," *Breastfeed Rev.* 24, no. 3 (2016): 3.

5. Trenchard-Smith, "Unfit to Nurse: Women, Infants and Breastfeeding Ideals and Prohibitions in Greek Gynecology," 2020, 898.

6. Valerie French, "Midwives and Maternity Care in the Roman World," in *Midwifery and the Medicalization of Childbirth: Comparative Perspectives* (eds.) Edwin R. Van Teijlingen, et al. (Hauppauge, New York: Nova Science Publishers Inc., 2004), 58.

7. Ibid, 55.

8. G. Tsoucalas, M. Karamanou, and M. Sgantzou, "Midwifery in ancient Greece, midwife or gynaecologist-obstetrician?" *Journal of Obstetrics and Gynecology* 34, no. 6 (2014): 547.

9. Soranus, *Gyneciorum libri IV* (Leipzig & Berlin: 1927).

10. Christian Laes, "Midwives in Greek Inscriptions in Hellenistic and Roman Antiquity," *Zeitschrift für Papyrologie und Epigraphik* 176 (2011): 156.

11. Keith R. Bradley, "Child Care at Rome: The Role of Men," *Historical Reflections/Reflections Historiques* 12, no. 3 (1985): 487-496.

12. Ibid, 486.

13. Ibid, 497.

14. Werner Eck, "The Emperor and His Advisors," in *The Cambridge Ancient History*, vol. 11 (eds.) Alan K. Bowman, Peter Garnsey, Dominic Rathbone (Cambridge: Cambridge University Press, 1982): 209.

originated as a position of high status in the court of Philip II of Macedon.¹⁵ During the Roman Empire, the proximity of the *tropheus* to the imperial heir could also lead to higher offices, as in the case of Cleander, who eventually rose to become the *de facto* praetorian prefect during the reign of his charge Commodus.¹⁶ The *nutritor* may have assisted the wetnurse with bathing and changing the infant, or possibly even bottle fed the infant.¹⁷ Bradley references a list of *nutritores*, *educatores* and *paedagogi* from the inscriptions of Rome in *CIL IV* (which date from the early Imperial period).¹⁸ One of these lists contains the name of a certain Gaius Mussius Chrysonicus who is listed as a *nutritor lactaneus*.¹⁹ Notably, the inscriptions referenced by Bradley indicate that these male carers took care of both upper class and servile children. For example, a probable imperial slave named Epictetus was reared by Tiberius Claudius Symmachus.²⁰

The male physicians Galen, Rufus of Ephesus and Cornelius Celsus provide parenting expertise through case studies and descriptions of pediatric diseases in their literary works. Soranus of Ephesus discusses everything from the recommended method of feeding an infant (*Gyn.* 2.17[86]) to caring for its emotional well-being (*Gyn.* 2.40 [109]). How was the mothering expertise of male doctors privileged by both themselves, parents and other members of a child's circle of care? How were doctors essential members of children's circles of care? This paper will answer these questions first by examining Galen's parenting expertise through his case studies involving Cyrillus, the son of the consul Flavius Boethus, and the emperor Marcus Aurelius' son, Commodus. It will then discuss the privilege that Soranus places on his own parenting expertise over that of parents and professional child carers, the authority that Oribasius gives to Rufus in the area of childrearing and the authority that Celsus places on his own knowledge of pediatric disease. Finally, it will draw comparisons between these different authors.

Literature Review

Some significant studies in child-rearing and on the members of a child's circle of care in the ancient Greco-Roman world include Keith Bradley's "Child

15. Rolf Strootman, "Royal Pages," in *Courts and Elites in the Hellenistic Empires: The Near East After the Achaemenids, c. 330-30BC* (Edinburg: Edinburg University Press, 2014), 146.

16. Eck, "The Emperor and His Advisors," 1982, 209.

17. Bradley, "Child Care at Rome," 1985, 501-502; Bradley, "Wetnursing at Rome: A Study in Social Relations," in *The Family in Ancient Rome: New Perspectives* (ed.) Beryl Rawson (Ithaca, New York: Cornell University Press, 1992), 214.

18. *Ibid.*, 487-496.

19. *Ibid.*, 490-491.

20. *Ibid.*, 492.

Care at Rome: The Role of Men”, Margaret-Smith Trenchard’s “Unfit to Nurse: Women, Infants and Breastfeeding Ideals and Prohibitions in Greek Gynecology”, Christian Laes’ “Midwives in Greek Inscriptions in Hellenistic and Roman Antiquity” and Baumgartel, Sneeringer and Cohen’s “From royal wetnurses to facebook: the evolution of breastmilk sharing”.

Bradley’s “Child Care at Rome: The Role of Men” discusses the literary and epigraphical evidence for male child minders (*nutrutores*, *educatores* and *paedagogi*) in the Roman world (focusing particularly on their status, titles and the status and the identification of the infants that they cared for).²¹ First, Bradley focuses on an examination of tombstone inscriptions (found in *CIL* IV) of male child minders for members of the imperial family focusing on their status and the children they cared for.²² This group includes individuals like M. Livius Prytanis, a *libertus* who cared for a Drusus Caesar (either the son of the emperor Tiberius or the son of Germanicus). The male child minders in this category are of servile or freed origin but could see social advancement (as in the case of Nicomedes, who reached the rank of equestrian under the emperor Verus). Then, Bradley discusses the status of male carers who cared for children from the senatorial and equestrian classes and examines inscriptions associated with male child minders of the servile classes.²³ This last category is made up of both servile children associated with the *familia Caesaris* and unassociated servile children. Bradley states that inscriptions in this category sometimes noted the names of the child’s parents, indicating that there was still some connection between child and birthparents, despite the involvement of male child minders (as in the case of the child Hylocharis Aemilianus who was commemorated by his parents [Secundus and Successa] and his *nutrutores* [Suitus and Suita]).²⁴ Finally, he delves into a category of male child minders associated with children whose social status (enslaved or free) is difficult to determine.²⁵ In this section of his study, Bradley also discusses the role of *tata* which is associated with the names of twenty-one men²⁶. Although he notes that *tata* was not a strictly functional term (like *nutritor*, *educator* and *paedagogus*), he suggests that there was a dependant relationship between the *tata* and a child’s family/owner with only two *tatae* being freedmen in these inscriptions (C. Apsius C.l. Felix and Anthus). Regarding the inscriptional evidence, Bradley concludes that the majority of male child minders were from servile backgrounds, male child minders cared for children from both upper and lower classes, both girls and boys were cared for/educated by male child minders (with a ration of two boys to one girl cared for/educated by a male child minder),

21. Ibid, 485-516.

22. Ibid, 487-488.

23. Ibid, 489-494.

24. Ibid, 493.

25. Ibid, 494-496.

26. Ibid, 496.

and that the bond between child minder and child continued well into adulthood in some instances.²⁷ Bradley also found that there was a high manumission rate for enslaved child minders, with most of the male child minders in the inscriptions being *liberti* (freedmen). This manumission rate also provides good evidence for the fact that many male child minders had strong bonds with their charges. Next, he places his findings into a historical and social context, by examining the literary evidence for the titles of *nutritor*, *educator* and *paedagogus*.²⁸ He briefly outlines a Roman childhood through the lens of male child minders by discussing the age at which a child would be under the care of one type of child minder (and how long they would stay under their care).²⁹ He utilizes both epigraphical (in the form of the aforementioned tombstones) and literary evidence to do this. Through this lens, he also explores what duties the different types of male child minders were expected to perform and the ideal qualities for each type of minder. The final section of this paper deals with the social factors that caused Roman parents to depend upon male child minders.³⁰

Trenchard-Smith's "Unfit to Nurse: Women, Infants and Breastfeeding Ideals and Prohibitions in Greek Gynecology" (2020) focuses on how Greek medical doctrine effected late Republican and Early Imperial Roman ideas about infant-rearing and wet-nurses.³¹ It is divided into two main parts. The first part deals with independent wet-nurses, household wet-nurses and Roman attitudes towards maternal breastfeeding as well as the promotion of wet-nursing by Greek medical authorities (such as Soranus and Galen).³² In particular, Trenchard-Smith explores the settings in which wet-nurses worked, the status of the children they would suckle, the legal structure that wet-nurses would have to adhere to (most often giving up the nurturing of their own child), the status that retaining a wet-nurse would give to a household, the honour awarded to breastfeeding mothers, the negative attitudes and beliefs held by traditionalists towards wet nursing and the authority held by midwives over reproductive matters. The second part of the study discusses which infants would be exposed (human *prodigia* and the medically unfit), the medical examinations and evaluations that a midwife would perform to determine if a child was worth rearing (according to Soranus), the procedures that would follow the birth of a healthy infant (the cutting of the umbilical cord, rubbing down of the infant with salt), the rejection of infants (who would make the decision to reject an infant, what physical problems/congenital disorders might cause an infant to be

27. Ibid, 497-498.

28. Ibid, 498-514.

29. Ibid, 498-506.

30. Ibid, 506-514.

31. Trenchard-Smith, "Unfit to Nurse", 2020, 891-909.

32. Ibid, 896-900.

rejected), and infant exposure (locations, tokens left with the exposed, and the condition the newborn was left in (whether they had been bathed/ swaddled)).³³

In his "Midwives in Greek Inscriptions in Hellenistic and Roman Antiquity", Laes examines all instances of midwives being mentioned in Greek inscriptions from both the Hellenistic and Roman Imperial periods.³⁴ This article is a follow up to a series of others, focusing on midwives, pedagogues and schoolteachers. From the inscriptions, Laes uncovers the age of midwives during these periods, their social status (and whether this differed from Classical Greece), whether they were itinerant/immigrants or from the community that they served, the functions of their jobs, their connection to the profession of physician. Overall, this study gives a good overview of everyday realities of midwives found in epigraphy.

Baumgartel, Sneeringer and Cohen's "From royal wetnurses to facebook: the evolution of breastmilk sharing" investigates the social views of wet-nurses, breastmilk evaluation and the ideal wet-nurse through a historical perspective (from Ancient Egypt, Ancient Greece and Rome, 19th and 20th century America to the present day).³⁵ The aim of this study is to provide clinicians and breastfeeding advocates with an understanding of how modern views and trends are formed and how a historical viewpoint has influenced milk banks, milk sharing and other social practices.

Although these previous studies focus on the often-overlooked figures of the midwife, wet-nurse and the various types of male child minders, they do not examine or engage with the literary evidence which suggests that parents privileged the parenting expertise of physicians over their own or the privilege that doctors placed on their own parenting expertise over that of parents and professional child carers. They also do not focus on the authority that doctors give to other physicians in early infant care/childrearing. This study aims to investigate the literary evidence which indicates that physicians' parenting expertise was privileged and the evidence that doctors held significant authority in this area through an examination of Galenic case studies and treatises focusing on early infant care and childrearing.

33. Ibid, 900-907.

34. Laes, "Midwives in Greek Inscriptions," 2011, 154-162.

35. Baumgartel, Sneeringer, and Cohen, "From royal wetnurses to Facebook," 2016, 25-32.

Methodology

The research approach utilized in this study consists of a close reading and analysis of Galenic case studies, Soranus' *Gynaecia*, Oribasius' *Collectiones Medicae* and Celsus' *On Medicine*. I closely analyzed language, particularly the words that Galen uses to describe his interactions with Peitholaus (Commodus' *tropheus*) in Galen's case study about Commodus' illness (*On Prognosis*, 14.661-665K). I made an examination of the interactions between Galen and parental figures (such as Peitholaus, Boethus and Cyrillus' mother [*On Prognosis*, 14.635-41K]) and investigated details of these interactions in order to determine whether these parental figures privileged Galen's parenting expertise over their own. This research approach builds on the research approaches found in Bradley's "Child Care at Rome: The Role of Men" and Laes' "Midwives in Greek Inscriptions in Roman and Hellenistic Antiquity" which focus on the examination and analysis of specific details (taken from inscriptions) to make sense of the status and roles of child-minders in the Greco-Roman world and provide information about the children that they cared for.³⁶ Unlike these previous studies which have mainly focused on the inscriptional evidence for child-minders like midwives, *educators* and *nutrices*, I have chosen to focus on the literary evidence which supports doctor's authority in the area of child-rearing.

I chose to focus on the literary evidence for the parenting expertise of doctors being privileged in the Greco-Roman world, because previous studies like Bradley's "Child Care at Rome: The Role of Men" and Laes' "Midwives in Greek Inscriptions in Roman and Hellenistic Antiquity" have focused primarily on the epigraphical evidence focusing on the lives and roles of child-minders.³⁷ Few studies have focused on the authority that doctors had in the area of child rearing in ancient medical literature and how their knowledge was privileged by both parents and professional child carers.

I examined the language and specific details about the interactions between Galen and child minders and parents in both the case studies which pertained to this study (*On Prognosis*, 14.635-41K) (*On Prognosis*, 14.661-665). I examined Soranus' recommendations for midwives, wet-nurses and parents,³⁸ Rufus of Ephesus' recommendations for bathing infants³⁹ and Celsus' identification and treatment of pediatric diseases⁴⁰ and drew connections to the duties of professional child carers as outlined in ancient texts and modern sources. Finally, I made a comparison between the authority given to Galen in the area of child

36. Bradley, "Child Care at Rome," 1985, 487-496; Laes, "Midwives in Greek Inscriptions," 2011, 155-158.

37. *Ibid*, 487-496; *Ibid*, 155-158.

38. *Gyn.* 2.14 [83], 2.37[106], 2.39 [108], 2.31[100], 2.19 [88], 1.36.

39. *Collectiones Medicae* 4.136-138.

40. *On Medicine* 2.1.18, 6.11.3-5.

rearing in the case studies pertaining to Commodus (*On Prognosis*, 14.661-665K) and Cyrillus (*On Prognosis*, 14.635-41K) and the privilege that doctors like Celsus place on their knowledge of infant care and pediatric disease.

There were a couple of limitations to this study, including the fact that a few of the sources used in this study were fragmentary. The Greek Kühn edition of Galen's case study about Commodus contains one notable section of corrupted text (the part of the story where Peitholaus defends Galen's proposed method of treatment [*On Prognosis*, 14.663K]). In his 1979 republication and translation of Galen's *On Prognosis*, Vivian Nutton provides the corresponding Latin section (from the *Nicolai versio codice Parisino* 6865) in the apparatus criticus to help fill the gap in the Greek version of the text.⁴¹ The corrupted Greek text makes it difficult to definitively determine if Peitholaus defends Galen's course of treatment (thereby placing Galen's expertise over his own). The other fragmentary text used in this study was Rufus of Ephesus' "Concerning the Care of Children" (περὶ κομιδῆς παιδίου) which is cited extensively by Oribasius in his *Collectiones Medicae* but working with this text was less problematic as it had no large sections of corruptions.⁴²

Discussion

Background & Summary to First Galenic Case Study

Galen describes two case studies in which his parenting expertise was privileged over the parenting expertise of parents and child minders within the child's circle of care. The first case study (*On Prognosis*, 14.635-41K) involves Cyrillus the son of Flavius Boethus who was an ex-consul, senator and governor of the province of Syria Palestina.⁴³ Boethus was an influential friend of Galen's and brought him into Roman high society as well as the circle of Marcus Aurelius. Boethus inspired Galen's work *On the Usefulness of the Parts* and a sequence of anatomical handbooks.

In the first case study, Cyrillus is suffering from a fever and has not recovered after four days. Galen suspects that this may be due to Cyrillus eating food outside of his regular meals (*On Prognosis*, 14.335-336K). Boethus has placed his son in the care of his mother (who remains unnamed) to make sure that his son does not eat anything he should not (*On Prognosis*, 14.336K). When Cyrillus appears to spike a fever in the night, Boethus goes to find Galen himself (he does

41. Galen, *On Prognosis* (Berlin: Akademie-Verlag, 1979), see *apparatus criticus* on page 132.

42. J. Raeder (Ed.), *Oribasii Collectionum medicarum reliquae, libri XLIX-L, libri incerti, eclogae medicamentorum* (Leipzig & Berlin: 1933).

43. Susan Mattern, "Anatomy and Boethus," in *The Prince of Medicine, Galen in the Roman Empire* (New York: Oxford University Press, 2013), 141.

not send a slave or messenger) and brings Galen back to his house with a crowd following behind him. Boethus tells his wife that he brought Galen home to make sure that it was really a fever and not his wife's anxiety over her son simply being warm (*On Prognosis*, 14.337K). When Galen takes Cyrillus' pulse twice (*On Prognosis*, 14.337-338K), it is revealed that Cyrillus is anxious and is thus not feverish. Boethus and Galen search Cyrillus' room (*On Prognosis*, 14.638-639K) and Galen discovers food hidden in the headscarf of Cyrillus' mother.

Galen's Parenting Expertise in the First Case Study

Although Boethus states that he brought Galen to his home just to reassure Cyrillus' mother (*On Prognosis*, 14.637K). By simply fetching Galen, Boethus was placing Galen's expertise over his own and over that of the boy's mother. Furthermore, neither Boethus nor Cyrillus' mother knew that Cyrillus had food stashed away in the room or where he had stashed the extra food (even though Cyrillus' mother kept watch over him and leaves the room only to go to the bath [*On Prognosis*, 14. 639K]) but Galen knows immediately from Cyrillus' pulse that he is concerned about something and suspects that he has hidden food (*On Prognosis*, 14.637-638K). Galen knows Cyrillus' behaviour better than his parents. Another interesting part of this case study is Galen's extensive oversight and control over Cyrillus' diet. Galen suspects that Cyrillus' illness was due to the consumption of hidden food, because he notes that (*On Prognosis*, 14.635-636K):

Τὰ γὰρ ἐν τῷ φανερωῖ διδόμενα προς τῷ ταῖς ποιότησιν ἐπιτήδεια καὶ τῇ ποσότητι σύμμετρα εἶναι

"For that (the food) which was openly given to him was clearly suitable in qualities and was proportionable in quantity."⁴⁴

This and another comment made by Boethus about why he brought Galen to the house (Galen was to instruct Boethus' wife on Cyrillus' diet [*On Prognosis*, 14.636K]) indicate that Galen had contact with Cyrillus' food (he could have inspected it before it was served) and that he controlled Cyrillus' diet. Although ancient doctors were concerned with their patient's diets (with Hippocratic doctors considering food, drink, exercise and even sexual activities to be part of a patient's diet⁴⁵) and exerted a great deal of control over a patient's diet, child minders like the *nutritor*, *nutrix* and even *educator* were also responsible for feeding the child they cared for.⁴⁶ In his *Annales* (13.15), Tacitus⁴⁷ notes that the first dose of poison

44. All translations are my own.

45. Jacques Jouanna, "Dietetics in Hippocratic Medicine: Definition, Main Problems, Discussion," in *Greek Medicine from Hippocrates to Galen* (Leiden: Brill, 2012), 139-140.

46. Bradley, "Child Care at Rome," 1985, 501-502, Bradley, "Wet-nursing at Rome," 1992, 214.

used to kill Emperor Claudius' son Britannicus was administered by the boy's *educators* indicating that they too had close contact with his food. Younger children would be fed by their *nutrix* (and/or *nutritor*) as well as the *educator*. Thus, Boethus is not only privileging Galen's own parenting expertise over his own and that of Cyrillus' mother, but Galen also asserts his authority and privileges his parenting expertise in an area that would have somewhat been the purview of the *nutrix*, *nutritor* and *educator*.

Summary of Second Galenic Case Study

The second case study in which Galen's parenting expertise is privileged over the parenting expertise of others, involves Commodus, the son of Marcus Aurelius (*On Prognosis*, 14.661-665K). At the eight hour, Commodus suffers from a fever after coming back from the palaestra (*On Prognosis*, 14.661K). Galen deduces (from taking Commodus' pulse) that he has inflammation somewhere in his body. He discovers that Commodus has inflamed tonsils, because Peitholaus (Commodus' *tropheus*, equivalent to the Latin *nutritor*)⁴⁸ administered a harsh medication of honey and sumac (*On Prognosis*, 14.662K). Peitholaus was also the head of Marcus Aurelius' domestic staff and the imperial chamberlain (*koitonites*).⁴⁹ Galen orders a softer medication to be administered (consisting of rose water and honey) and persuades Peitholaus to bathe and feed the patient after two days. Annia Faustina arrives on the day which Peitholaus bathes Commodus, trailed by a group of Methodist doctors (*On Prognosis*, 14.663K). She theorizes that he will wait until after the eight hour had passed on the third day to feed or bathe Commodus. Peitholaus tells her that Galen has already had Commodus bathed and fed and plans to do so again in the forthcoming evening. The case study ends with a speech Annia Faustina makes acclaiming Galen's treatment plan and her departure (*On Prognosis*, 14.663-664K).

Galen's Parenting Expertise in Second Case Study

Galen clearly places his own parenting expertise over that of Peitholaus, Commodus' professional child minder. This is at first, very evident from the language Galen uses to describe his interactions with Peitholaus. He "commanded/ordered" (ἐκέλευσα) Peitholaus to change the medicament from the one containing honey and sumac to the other containing honey and rose oil (*On Prognosis*, 14.662). He also "persuades" (ἔπεισα) Peitholaus to bring Commodus to the bath. Galen gives Peitholaus specific bathing instructions, telling him to soak Commodus' body parts

47. Publius Cornelius Tacitus, *Annals, Books 13-16* (Loeb Classical Library Series, Cambridge, MA: Harvard University Press, 1937).

48. Eck, "The Emperor and His Advisors," 1982, 209.

49. Mattern, "Marcus Aurelius and the Plague," 2013, 206.

except for his head, which would be sprinkled after he had eaten a meal (*On Prognosis*,14.662). Again, it is likely that one of the duties of the *nutritor* involved helping the *nutrix* to bathe and change the infant.⁵⁰ As the infant grew into a child, it is probable that the *nutritor* would have continued to have this responsibility. It is not clear whether these male “nurses” would have continued to work with their female counterparts after a child was weaned, Galen does not mention any female child-minders who work with Peitholaus. By instructing Peitholaus on bathing Commodus (*On Prognosis*,14.662). Galen is thus privileging his parenting expertise over that of a professional child-minder. Peitholaus notably also privileges Galen’s parenting expertise over his own. He follows Galen’s bathing instructions. He also defends Galen’s decision about bathing and feeding Commodus, in the presence of Annia Faustina and her group of Methodist doctors (*On Prognosis*,14.663K).

Soranus and Infant Care

Soranus privileges his own parenting expertise over that of wet-nurses, parents and midwives in his *Gynaecia*. He discusses the correct way to breastfeed the infant (2.39[108]) and to swaddle it (2.14 [83]). According to Bradley, these responsibilities would fall under the purview of the *nutrix*.⁵¹ Midwives were also responsible for initially swaddling infants. He instructs parents on finding the correct wet-nurse (2.19 [88]) and warns mothers not to drink wine during conception (1.36). Soranus advises midwives on the bathing and massage of a newborn (2.31[100]), the initial bathing and massage of an infant appears to have been some of the duties of a midwife. Soranus may somewhat be forgiven in asserting his parental expertise over that of child minders like the midwife and *nutrix* as he was attempting to set up an ethical standard for midwives to adhere to.⁵²

Rufus’ Parenting Expertise

In his *Collectiones Medicae*, Oribasius gives significant authority to Rufus of Ephesus in childrearing. Fragments of Rufus’ “Concerning the Care of Children” (περὶ κομιδῆς παιδίου) appear in this text (4.136-138). In these fragments, Rufus discusses the proper way for midwives to bathe a child, how to position a child safely in the bath and the preparation of bathwater. According to Soranus, bathing a newborn was one of the duties of the midwife (*Gyn*.2.31[100]). As mentioned earlier, the *nutritor* and *nutrix* were also responsible for bathing infants⁵³ (inscriptionary

50. Bradley, “Child Care at Rome,” 1985, 501-502; Bradley, “Wet-nursing at Rome,” 1992, 214.

51. Bradley, “Wet-nursing at Rome,” 1992, 214.

52. Giulia Ecce, “Fixing Ethical Rules for Midwives in the Early Roman Imperial Period: Soranus, ‘Gynaecia’ I 3-4,” *Sudhoffs Archiv* 101, no. 2 (2017): 126-127.

53. Bradley, “Wet-nursing at Rome,” 1992, 214.

evidence proves that they were sometimes husband and wife who worked as a child-minding team).⁵⁴ Instead of using midwives as the sources for this information, Oribasius cites Rufus, a physician and medical authority, thereby placing his parenting expertise over the parenting expertise of professional child-minders.

Pediatric Disease in Celsus

With his knowledge of pediatric disease in his *On Medicine*, Cornelius Celsus privileges his parenting expertise over the expertise of children's wet-nurses. He identifies a variety of diseases which are particular to children, or more severe in children including *Apthas* (creeping ulcerations of the mouth), ear discharges, inflammation around the navel, slight fevers and diarrhea (2.1.18) (6.11.3-5). When creeping ulcerations of the mouth are present, Celsus instructs wet-nurses to exercise, have hot water poured over their breasts and to eat bland food (6.11.3-5). The treatment of paediatric disease seems to have been under the purview of the *nutrix* or *nurtritor*, as Commodus' *tropheus* attempts to treat Commodus' sore throat (albeit with an ineffectual medication) (*On Prognosis*, 14.661-665K).

Comparisons to Galen's Case Studies of Cyrillus and Commodus

There are some similarities and differences between the Galenic case studies and the texts of Soranus, Oribasius and Celsus regarding the privileging of the physician's authority over childrearing (as seen in Table 1).

Both Galen and Soranus privilege their own expertise above that of midwives, parents and wet-nurses. After Cyrillus (son of Boethus) suffers a period of illness, Galen concurs that it was likely not his diet that caused this (as it had everything required in it) but external supplementation on Cyrillus' part (*On Prognosis*, 14.635-636K). This indicates Galen had close contact with the food, which would again, fall under the purview of an *educator*.⁵⁵ Galen privileges his own expertise over that of Commodus' mother by understanding her son's behaviour better than her, simply by taking Cyrillus' pulse (*On Prognosis*, 14.637-638K). Galen also asserts his authority over Peitholaus, instructing him on the proper way to bathe Commodus (giving him a specific method of doing so) (*On Prognosis*, 14.662K). Bathing fell well within the purview of Peitholaus' job as a *tropheus*,⁵⁶ so by instructing him to do this task in a certain way, Galen is privileging his child rearing knowledge over that of Peitholaus. Soranus privileges his parenting expertise over that of a wet-nurse and midwife, by instructing her on how to properly swaddle (2.14 [83]) and breastfeed an infant (2.39[108]), which were both important aspects of these jobs. His expertise is placed over that of parents when he tells them to find the correct wet-nurse (2.32.12) and

54. Bradley, "Child Care at Rome," 1985, 501-502.

55. Ibid, 502.

56. Bradley, "Wet-nursing at Rome," 1992, 214.

encourages women not to drink during conception (1.38.2-3). However, due to the nature of Soranus' text (as a text highlighting the ethical guidelines and the ideal midwife),⁵⁷ Soranus does not directly assert his expertise over a particular child-minder, like Galen does both with Peitholaus and with Cyrillus' mother.

Table 1. Comparisons to Galenic Case Studies

Physician's Name and Textual Evidence	Similarities	Differences
Soranus' infant care advice in his <i>Gynaecia</i>	Places his own expertise above that of midwives, parents and wetnurses	Does not directly assert expertise over particular child-minders (due to the nature of the text)
Rufus of Ephesus' <i>περὶ κομιδῆς παιδίου</i> in Oribasius	Asserts his authority over the duties traditionally performed by child-minders (midwives and wet-nurses)	Appears like an instruction manual, not agonistic in nature.
Pediatric Disease in Celsus'	Focus on pediatric disease. Asserts his authority over parental duties (treatment of a sick child). Places expertise above both the child's parents and child-minders.	No direct interaction between Celsus and these child-minders/parents. No parents/child-minders privilege his knowledge over their own.

Both Rufus of Ephesus and Galen assert their authority over the duties traditionally performed by child-minders. Galen takes over the role of an *educator* with his supervision of Cyrillus' food in the case study about Cyrillus (*On Prognosis*, 14.635-41K).⁵⁸ In the case study about Commodus (*On Prognosis*, 14.661-665K), Galen asserts his authority over the duties of bathing Commodus and treating Commodus' inflamed tonsils (which would both fall under the purview of the *tropheus/nutritor* role of Peitholaus).⁵⁹ Rufus of Ephesus privileges his own parenting expertise over the expertise of midwives and *nutrices* (whose duties were to bathe infants and children) with his instructions on bathing and positioning infants and children in the bath (*Collectiones Medicae* 4.136-138). However, the extract by Rufus of Ephesus found in Oribasius' *Collectiones Medicae* appears more to be an instruction manual (similar to Soranus *Gynaecia*) and does not appear to be agonistic in nature like Galen's two case studies (which centre around Galen's competitions with his rivals) since it contains a significant number of infinitives.

Both Galen's case studies about Cyrillus and Commodus and a section in Celsus *On Medicine* focus on pediatric disease, have authors who assert authority over

57. Giulia Ecce, "Fixing Ethical Rules for Midwives," 2017, 126-127.

58. Bradley, "Child Care at Rome," 1985, 502.

59. Bradley, "Wet-nursing at Rome," 1992, 214.

parental duties and privilege doctors' parenting expertise over a child's parents and child minders. Celsus focuses on several different pediatric diseases and diseases that are worse in children (*Apthas*, ear discharges, inflammation around the navel, slight fevers and diarrhea [2.1.18, 6.11.3-5]) and Galen's case studies both focus on children who initially present with a fever (*Prognostics* 14.661K) or appear to present with a fever (*On Prognosis*, 14.636K). Galen asserts his authority over Cyrillus' mother by inspecting Cyrillus' food (like a *nutritor/nutrix*) and instructing Cyrillus' mother about his diet (as Boethus says he brought Galen over for this [14.637K]).⁶⁰ Since there is not a *nutritor/nutrix* present in this case study, it is possible that Cyrillus' mother took up some duties that would have been assigned to a *nutritor/nutrix*⁶¹ (such as feeding her child). Celsus asserts his authority over the parental duties of a *nutritor* and privileges his own parenting expertise with his knowledge of pediatric disease and the treatment of pediatric disease (as this was a responsibility of the *nutritor* [*On Prognosis*, 14.662K]). Boethus privileges Galen's parenting expertise over his own and that of Cyrillus' mother by allowing him to have oversight of Cyrillus' diet (*On Prognosis*, 14.636K). Unlike the Galenic case studies, Celsus has no interaction with any specific child-minders/ parents, so no child-minders/parents privilege his knowledge of pediatric disease over their own.

Conclusion

The physicians Galen, Rufus of Ephesus and Cornelius Celsus held significant authority in the areas of infant care, childcare and pediatric diseases. These doctors privileged their own parenting expertise over that of professional child minders like *nutrices*, midwives, *educatores* and pedagogues. Galen privileges his parenting expertise over the parenting expertise of Cyrillus' parents and the *tropheus* Peitholaus. Soranus privileges his parenting expertise over the expertise of parents, midwives and wet-nurses. Through his knowledge of pediatric disease, Celsus privileges his own parenting expertise over a child's caregiver such as a *nutritor*. Sometimes parents privilege the parenting expertise of these doctors over their own. Boethus privileges Galen's parenting expertise over his own and that of his wife's by consulting him for guidance on Cyrillus' diet. Oribasius privileges Rufus of Ephesus' parenting expertise over that of midwives and *nutrices* by citing from his fragmented text "Concerning the Care of Children" (περὶ κομιδῆς παιδίου). Future directions for this project could include investigating whether the parenting expertise doctors had in the Hippocratic Corpus was privileged over that of child-minders and parents, investigating more fully the role of the *nutritor/tropheus* as it pertains to the treatment of pediatric disease and exploring whether female physicians had the same or a

60. Bradley, "Child Care at Rome," 1985, 502.

61. Bradley, "Wet-nursing at Rome," 1992, 214.

different amount of authority in the area of child-rearing compared with their male counterparts.

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