

# Reading the Athenian Tribute Lists in 2023:

A thesis submitted by

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In partial fulfillment of the requirements for the degree of

Master of Arts

in

Digital Tools for Premodern Studies

Tufts University

May 2023

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## Abstract

This project scholarly investigation and technical experimentation pertaining to the Athenian Tribute Lists. It is based on an interdisciplinary framework that synthesizes the domains of Classics and computer science. It initially engages in a historiographical survey of established scholarship, subsequently introducing current approaches within the domain of digital humanities vis-à-vis the Athenian Tribute Lists. With the help of a technological stack of Python, Folium, and pandas, the project aims at providing samplers that can advance inquiries and their answers.

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## Chapter 1. The First Form

In Aristophanes' *Wasps*, Bdelycleon proposes a chain of effective arguments to convince his old father Philocleon that the jurors in Athens, who were not as glorious as Philocleon thought to be, were financially exploited and mistreated as slaves by the politicians. Among all the reasons that he lays out about the Athenian financial *status quo*, one striking data point is the number of towns currently paying tribute to Athens (εἰσὶν γε πόλεις χίλια αἰ νῦν τὸν φόρον ἡμῖν ἀπάγουσι, *Wasps*, 707). While his “thousand-island” narrative is a rhetorical technique of persuasion, investigating how much exaggeration there is in this number is worth considering. Fortunately, the Athenian tribute-quota lists, which are contemporary to Bdelycleon and just as rock-ribbed as the old Philocleon, can offer considerable insight into the Mediterranean-wide economic and geographical network in Bdelycleon's Athens.

The Athenian tribute-quota lists cover annual payments from allied city-states starting from 454 BC. The ending date is quite uncertain since the termination of paying *aparche* varies depending on the community. The stelae that record the lists were erected on the Acropolis somewhere between the Parthenon and the Propylaia.<sup>1</sup> The payments in the first 15 years (454-440) were inscribed on the four sides of one large Pentelic stele, and those of the following 8 years (439-432) were on another stele. The rest of the payments were either missing or partially recovered as a result of some fragments of stele being found in the Agora. For payment of each year, the epigraphical record would be laid out on the stele with two major components: the first part is a prescript that introduces the secretary (*Hellenotamiai*) and archons of the year, and the second part is a record that contains columns of the names of city-states and their respective payments. All the letters were inscribed in accordance with conventional ancient Greek epigraphical practice: no spaces, no diacritics, and capital letters only. The numbers of payments are in Attic acrophonic numeral system, and each entry records the 1/60 of the *aparche* (the first fruits) to Athena. Every annual payment is clearly separated by the prescript in that year.

While the yearly payments provide the major focus for this project, it is also necessary to mention that the reassessment decrees issued in 425/4, 421, and 410/09 are of equal importance. Identified as a different category from the quota lists already by August Böckh, the assessment decrees were usually inscribed on an individual stele, but most of them were similarly fragmentary.<sup>2</sup> Structurally, the decree begins with the authorities who oversaw the decrees, including the current prytany of the *boule*, secretary, and president (ἐπιστάτης). What follows are the detailed procedures and rules for forming the Council, drafting the assessments, and putting the decree into practice. Specifically, the rules clarify the responsibilities of each governmental entity involved (assessors, demos, generals, secretary, heralds, jurors, etc.). The last part of the decree is a list of cities, grouped not in alphabetical order but by region. To take the decree in 425/4 (*IG I<sup>3</sup> 71*, “Thoudippos decrees”) for example, the order was Islands, Ionia-Caria, Hellenspont, Aktanian cities, Thrace, and Euxine.<sup>3</sup>

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<sup>1</sup> Paarmann (2007), pp. 7.

<sup>2</sup> Böckh (1851), II, pp. 375.

<sup>3</sup> This paper refrains from a detailed discussion of orders, for which Meritt has explained comprehensively in *The Second Athenian Tribute Assessment Period*, 1967.

Much attention has been paid to this significant material source for the past century. For scholars nowadays who seek restoration and collection of the tribute-quota lists, the *Inscriptiones Graecae* and the *Athenian Tribute Lists (A.T.L.)* are among the most acknowledged sources.<sup>4</sup> The former, initialized in the 1920s, collects 32 years of them, with some years (426, 425, 424, 423, 422 and years after 415) being missing from current sources. After the American School of Athens was given access to excavate the Agora in 1925, more fragments were found, giving scholars more information, if not curious puzzles, to ponder on.

In the *Athenian Tribute Lists (A.T.L.)*, first published in 1939, the editors Meritt, Wade-Gery, and McGregor attempted a re-examination to recover as much as they could, with payments from 422 to 418 and some newly deciphered fragments of the assessments also available. The *A.T.L.* includes more than just yearly payments. For example, the *Register* lays out tributes paid by each of the cities in a chronological order, and the *Testimonia* collects how the ancient pan-Mediterranean authors referred the tribute lists in their opinions of allies, the Spartan history, money-collection, etc. However, with many restitutions hypothetically added to the lacunas by the *A.T.L.* editors, different forms of criticisms have been raised. We shall discuss this problem further in the second chapter.

The remarkably rich information in the tribute lists allows us to read and reimagine the financial and geographical networking in the 5<sup>th</sup> century Mediterranean in both time and space. Athens reached out to numerous and distant areas, extending her influence over the shorelines of the eastern Mediterranean, fishing wealth and power. This complex organization of balance sheets, which lists an accumulation of wealth and an influx of power into Athens, exemplifies a notable mastery of ancient accounting concepts, as well as Athens' naval power and knowledge of her surroundings in the open sea. Readers of the tribute lists could confront issues and problems relating to the complexity of geography, having to locate the city-states and understand the historical contexts in specific years.

In this project, I aim to explore methods of enhancing the intellectual accessibility of the tribute lists by digitizing the numerical accounts and city-state information into a visually engaging representation. This approach offers a fresh perspective on comprehending the extent and scope of geographical connections in the 5th century Mediterranean and presents a novel approach that could be extended to other epigraphic records.

## Chapter 2.

### 2.1 The Current Forms

Currently, readers who are eager to read the tribute lists would be fortunate to find the hardcover *SEG, IG*, or the four-volume set of the *A.T.L.* in libraries. However, due to their small number of readers, very few public libraries carry these voluminous and bulky sources of Greek epigraphy. While only a few prestigious universities that have the original copies of the *A.T.L.*, most college libraries that do have copies use later reprints that contains fuzzier prints of the pictures of the

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<sup>4</sup> For more historiography of the Athenian tribute-quota lists, see Paarmann (2007), pp.16-37.

stelae and the payments, which creates additional barriers to access. Consequently, due to the high expense and the scarcity of epigraphical sources in hardcover, most of the students have a hard time working on the *A.T.L.* in particular and Greek inscriptions in general. Scholars in the field have noted this issue.

Over the last couple of decades, both *IG* (<http://telota.bbaw.de/ig/>) and *SEG* (<https://scholarlyeditions.brill.com/sego/>) have made the transition to online platforms. Both of their websites retain the same format as their paper counterparts. Although *IG* was made possible by Telota and free to the public since 2021, one drawback of it is that its translations of Greek inscriptions are currently only in German. This may discourage students who are not familiar with German. However, with the assistance of Google Translate or DeepL Translate, students can benefit from accurate translations when they seek them. On the other hand, *SEG* provides more advanced search tools, but access is only available through libraries that have purchased it from Brill.

Besides these two major sources, scholars in digital humanities have also made individual attempts to move the tribute lists online. AIO (<https://www.atticinscriptions.com/>), founded by Steven Lambert in 2012, has been a handy, attractive, and pedagogically friendly tool for students of Greek inscriptions. The website provides translations of inscriptions in English, though it does not offer the original Greek texts. It does provide links to the original *IG* online. Besides, it intends not to collect all the available inscriptions of the tribute lists, nor follows a strict standard of epigraphy format. While it cannot serve as a professional encyclopedia for serious scholars in epigraphy, it is a great tool for entry-level to mid-level students of Greek inscriptions. PHI (<https://inscriptions.packhum.org/>) is another online tool that digitizes Greek inscriptions, co-managed by Cornell University and Ohio State University. It follows the contents and format of *IG*, with no translation or commentary. In addition to *IG*, it offers texts from other corpora, collections, and journals, serving as a convenient tool for those looking for the texts but unable to access the sources in hard copy.

ToposText (<https://topostext.org/>), funded by The Aikaterini Laskaridis Foundation and managed by former diplomat Brady Kiesling, is a remarkable and underused tool originally designed for mobile devices for travelers in the Mediterranean to locate places based on the geographical information given in ancient texts. For the tribute lists, Kiesling designed an individual section for the data under “Ancient Texts”. The format does not indicate the original forms of rows and columns; data is displayed in only one long column with the name and the amount of tribute (converted to talents) of each community. As Kiesling states on the website, however, the names and numbers of the data “lacks indication of the degree of restoration and should not be trusted for any scholarly purpose”.<sup>5</sup> Therefore, while not designed to serve advanced research by itself, the presentation of the tribute lists here highlights the general significance and potential scholarly interest of the source itself.

Over the recent years, various practices of digitalizing the tribute lists were made, which have now been tested, utilized, criticized, appreciated, and refined. Now that these sources are available, the next step is to establish online databases, that are accessible to the public,

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<sup>5</sup> ToposText, <https://topostext.org/work/32>

comprehensible for general students, and searchable and modifiable by researchers. The present project aims to create such a database and demonstrates its potential uses for researchers. Through exploring the possibilities and encountering challenges, this project seeks to illustrate the ways in which digital methods, such as coding, can enhance the visualization and analysis of ancient data and elevate the nature of inquiries to a higher level. This approach's heterogeneity is expected to offer novel insights into studies of the tribute lists and other related topics, even at a meta-level.

## 2.2 A New(-ish) Form

Although online sources have made the tribute lists more accessible, their incomplete materiality means that a perfectly complete entity of the tribute lists can never be assembled. Moreover, epigraphists, across different generations, have experienced fragments – most of which have been weathered or lost – somewhat differently, regarding both the condition of the fragments and their own judgements. As a result, a universally agreed form of transliteration of the tribute lists has never settled down. Working with the tribute lists thus always involves a pre-game of acknowledgement and compromise of their inherent unworkability. It is worth noting that, among the many versions of textual interpretations available, the methodology of the *A.T.L.* editors has received particular criticisms.<sup>6</sup>

My interest lies in presenting and analyzing the geographically related data, as mapping enables another intuitive perspective. The first step is to create the database itself, which requires the names of the city-states and their coordinates at least. I conducted a trial with the payment in 454 first. I chose *IG* to structure my database and used the *A.T.L.* as a supplementary source, taking the criticism on the *A.T.L.* into consideration. To be clear, *IG* is not more “accurate” than *A.T.L.* – to a degree, it could be less. In order to locate the communities as accurately as possible, it is necessary to go back and forth between *A.T.L.*'s *Gazetteer*, Pleiades, and Google Maps.

*A.T.L.*'s *Gazetteer*, which has been criticized as “pléthorique et insuffisant”, is an abundant collection of possibilities but speculations. Pleiades (<https://pleiades.stoa.org/>), co-managed by the Ancient World Mapping Center and Institute for the Study of the Ancient World, provides latitude and longitude for most of the places that appeared in the tribute lists. Yet, there are certain places in the lists that are not listed in Pleiades or do not have their coordinates. In these cases, I have turned to *A.T.L.*'s *Gazetteer*: using their speculation, I tried to locate a highly plausible centroid point of a modern city and used its coordinates.

Initially, I expected the collecting of data to be automated by scraping the websites of *IG* and Pleiades and then aligning the names of city-states from the two sources. However, due to the mass misalignment of names, the demand of checking on and looking up each community was very high. On the one hand, some communities share the same name, that Pleiades cannot intelligently select the correct one (e.g., Chersonese); on the other hand, I had to hop around these sources to decide on the coordinates of community whose location was not certain by

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<sup>6</sup> For more in detail about the three major criticisms, see Paarmann (2007) pp.25-30. To summarize, in the perspectives of the critics, *A.T.L.* editors offered restorations and supplementations of the lacunas with too much hypothetical ideas and support from the literary evidence.

Pleiades. In fact, collecting data of the tribute list and digitizing it have been done by scholars before, but the results are not quite ideal.

In 2014, Christine Bannan, working with Neel Smith, published the first public archival repository of the tribute lists on GitHub.<sup>7</sup> Bannan's database, covering the tribute lists from 454 to 448, was made possible by her personally examining the inscriptions of the tribute lists in the museums of Athens. She later linked the raw epigraphical information with IDs and coordinates found on Pleiades to create graduated symbol maps of surviving records of payments by year, changes between two years, and the sequence of payment by year.<sup>8</sup> Her work in digitizing the tribute list was a major step forward in creating a machine actionable version of the tribute lists, but there are also some issues.

First, by comparing the data of 454, I found errors. For example, Aegina, which paid 18000 obols, the highest tribute in 454 according to *IG*, was labeled as paying 3000 in Bannan's database. I also found 27 city-states listed on *IG*, such as Byzantion, Selymbria, or Samothrace, that are not included in this publication.<sup>9</sup> During her process of matching city-states with IDs on Pleiades, when Pleiades has multiple options with the same name or when Pleiades does not have their coordinates available, she stopped and did not investigate other resources to find more information.

Second, while she created useful maps, she did not provide much analysis or further references to other primary sources, leaving the scholarly interpretation of maps undeveloped. It would have been more compelling to many mainstream researchers if she had shown specifically how her work could connect with other research questions.

Third, in the nine years since this work has been done, technology has evolved, and the tribute lists await new research with the more advance technology sets. Bannan used Groovy to write scripts that develop a full-stack presentation of maps.<sup>10</sup> This object-oriented programming language was a reasonable choice at the time but is much less widely used now, with Python and R now offering numerous libraries developed just for visualization and data analysis.

For this project, I have relied on personally collected data and added comments to the database. As a core technology, I have utilized the Python data analysis library, pandas, to read in and clean up the data. Additionally, I have leveraged the Python data visualization library, Folium, to create a graduated symbol map that accurately pinpoints the location of communities while visualizing the quantity of their payments (Figure 1).<sup>11</sup> The dynamic map, which cannot be displayed in this static format, allows for zooming in or out by executing code from any code editor. Upon clicking on a circle, users can access a tag that displays the name and tribute quantity of the community. The circle radius is calculated based on the square root of the tribute

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<sup>7</sup> <https://github.com/phoros/phoros>

<sup>8</sup> Bannan, pp.23-25.

<sup>9</sup> Section 150-182 from <https://github.com/adamas-oui/mapping-atl/blob/main/notebook/454-commented.ipynb>

<sup>10</sup> <https://github.com/phoros/phoros/tree/master/scripts>

<sup>11</sup> Documentation for pandas: <https://pandas.pydata.org/about/index.html>

Documentation for Folium: <https://python-visualization.github.io/folium/>



value ( $A = \pi r^2$ ). Regarding other map visualization tools, there are several reputable options such as Plotly, Matplotlib, and ArcGIS Online. However, I chose Folium due to its utilization of Leaflet, an open-source JavaScript library, which provides interactive maps that are mobile-friendly.

Before delving into the analysis of the map, it is worth discussing the impact of different technology sets on the outcome. In a previous project I undertook three years ago, I created a graduated symbol map of the tribute list based on data from 433 (Figure 2). The map had a similar zooming effect and clickable circles. However, it was created using HTML and JavaScript, and adapted from a d3.js template. This required finding a clean map of the Mediterranean area and importing geographical data, making it harder to read and generate the map.<sup>12</sup> In contrast, by using pandas as the core technology for this project, I can read in and clean up the data, and then use Folium, a Python data visualization library, to draw the map. By separating the data collection and the code that draws the map, pandas provides more readability and clarity, which helps to avoid redundancy of manual importation or mistakes generated by modifying data. Moreover, using pandas offers more flexibility in using the data for future maintenance, as separating the database and code used to generate maps ensures the data's sustainability. By reading the data into a pandas DataFrame, there is an infinite number of choices available to work with it, entirely based on the researcher's own interests.

### 2.3 Using the New Form

Scholars tend to draw a careful line between literature and epigraphy as one cannot add what everything literature says into the restoration of epigraphy. I am rather interested in a different approach, aiming to investigate in a counterclockwise manner. Specifically, I attempt to examine narratives Thucydides communicated about the city-states who paid the most, using both pandas to organize data and ToposText to search entries in the *History*. To narrow down the scope, I chose to focus on annual payments from 432/1 (*IG I<sup>3</sup> 280*) and 430/29 (*IG I<sup>3</sup> 281*) (with 431/0 missing), the years in which the war broke out, in an attempt to analyze whether the payments reflect the social or political behaviors of these city-states during the war, as communicated by Thucydides in his *History*.

In 432, during the conference held at Sparta, the Corinthian representatives made the last speech advocating for war with Athens. In this speech, they attempted to collect funds for the war and characterized allies who paid tribute to Athens as men who “do not stop making contributions to support their own slavery (ἢ δεινὸν ἂν εἴη εἰ οἱ μὲν ἐκείνων ζύμμαχοι ἐπὶ δουλείᾳ τῇ αὐτῶν φέροντες οὐκ ἀπεροῦσιν)”.<sup>13</sup> They made a specific link between revenue, expense, and power in their statements.<sup>14</sup> After the war broke out, in the winter of 430, Thucydides mentions that the Athenians sent six ships to Caria and Lycia under the command of Melesander to collect tribute (ταῦτά τε ἀργυρολογῶσι) from that area and to prevent Peloponnesian privateers from attacking commercial ships.<sup>15</sup> This is the first time he uses the term ἀργυρολογέω, which is specifically

<sup>12</sup> <https://github.com/adamas-oui/Digitalization-of-Athenian-Tribute-List/blob/master/map-433-2-ATL.html>

<sup>13</sup> Thuc. 1.121.5.

<sup>14</sup> Kallet, (1993), pp. 90-91.

<sup>15</sup> Thuc. 2.69.1.

used in the contexts of the Athenians imposing tributes on the allies. The discipline of the Thucydidean wording reflects a discipline of institutionalized “money-levying,” ἀργυρολογέω. In fact, Thucydides mentions money-levying from the allies for 5 times in total, and he always made sure to narrate the outcomes of the expedition (Figure 3).<sup>16</sup> Based on the accounts, we can tell that it is an action that happens regularly, orderly, and in a forceful profession. Besides, the trip is full of danger and unpredictability, as the commander could encounter privateers or rebels along the shoreline and would have to fight with them. According to Figure 3, the last time of ἀργυρολογέω, however, the collector switched from the Athenian commander to the Spartan king Agis, who deprived the properties of the Thessalians and ignored their protest in 413 BC. The change of the money-levying party indicates a changing dynamic of the war, quite subtly. As the rise and fall of annual payments also implicate the dynamics of the war under the hood, we shall go back to the years before and after the war breaks out.

Upon compiling geographical and tributary data from the years 432/1 and 430/29, I utilized the same method as the map of 454 to create two maps, represented in Figure 4 and 5. Despite the lack of complete entries, the distribution of tributes collected from city-states close to the shore, including those bordering the modern-day sea of Marmara, is evident. In Thucydides' account of the outbreak, he lists the areas of tribute-paying cities (πόλεις αἰ ὑποτελεῖς) while outlining the alliances and resources on each side. This aligns with the epigraphical evidence of tribute lists, which were divided into sections based on geographical areas and labeled accordingly from the ninth year onwards. For instance, in the 430/29 payment, the areas are denoted as: Ἴονικός, Θράκιος, Νεσσιτικός, ἡλλησπόντιος (IG I<sup>3</sup> 281). Scholars generally agree that the entries were not organized in size of tribute paid nor in any other geographical positions of the individual members.<sup>17</sup> Now, with the data and maps available, further inquiries can now be pursued.

### 2.3.1 City-states who paid the most and their occurrences in the *History*.

To start with, I am curious about whether this is any connection between the amount of tribute cities paid and their role in the *History*. In order to see which are the city-states who paid the most in both years, I sorted the data by tribute amount and by descending order and merge them with inner join. Out of 39 city-states that appear in the existing entries of both years, Thasos, Abdera, Kyzikos, Mende, and Samothrace are the top five contributors. However, it is important to note that this statistic result is generated by only the *available* entries we have; in other words, we cannot assert that these are the city-states who paid the most among all during these two years.

Starting with Thasos, if we look at their yearly payments in the tribute lists, we can see that they were quite a consistent tributary payer, from the first year (454), until they revolted against Athens in 411 B.C. Even though some of their payments were lost, whenever they did pay, it was always 3000 drachmas.<sup>18</sup> Thasos, an island located east of Chalkidiki, is rich in gold and

<sup>16</sup> I was helped by the search engine at Perseus:

[https://www.perseus.tufts.edu/hopper/searchresults?q=a\)rgurologe/w&target=greek&doc=Perseus:text:1999.01.0199&expand=lemma&sort=docorder](https://www.perseus.tufts.edu/hopper/searchresults?q=a)rgurologe/w&target=greek&doc=Perseus:text:1999.01.0199&expand=lemma&sort=docorder)

<sup>17</sup> Paarmann (2007), pp.54-56.

<sup>18</sup> One can trace the paymentfs of each city-state throughout the years of the tribute lists with the help of *The Register* in the *A.T.L.*

prosperous with trades due to its geographical connectivity. Herodotus himself has visited the gold mines; in 1979, archaeologists found the evidence of gold mines during an archaeo-metallurgical project.<sup>19</sup> In 465 B.C., according to Thucydides, Thasos revolted, being frustrated by a dispute over markets and over mines. Athens sent fleets and won a naval engagement. Although Thasos tried to appeal to the Spartans, the earthquake and the revolt of their helots kept them occupied. Hence, the Thasians had to accept the Athenian terms, started to pay tribute, and surrendered their mine.<sup>20</sup> In the summer of 411, amid the Athenian oligarchic coup, the Thasian revolted again, rebuilt their walls and government and stopped paying tributes.<sup>21</sup>

Thucydides did not mention the socio-political state of Abdera or Samothrace in his *History*. However, it is worth nothing that in the *A.T.L.*, the editors state that Abdera revolted in 412/1. However, in Thucydides' Book VIII, 62, it was Abydos, a Milesian colony, who revolted.<sup>22</sup> It is possible that the editors confused these two city-states.

Regarding the other two city-states, Kyzikos and Mende, both revolted in the later years. Kyzikos revolted in 411 while the Athenians and the Peloponnesians were fighting at Cynossema. The Athenians sailed to Kyzikos, re-established control, and made the citizens at Kyzikos pay an indemnity (here, Thucydides uses *χρήματα ἀναπράσσω*, a similar expression as *ἀργυρολογέω*).<sup>23</sup>

Mende revolted and was retaken by Athens in a more violent manner. In 423, a few Mendeans citizens were impressed by Brasidas' persistent spirit of working with Scione and decided to work with him.<sup>24</sup> Athens was so infuriated by both Scione and Mende that they sailed near the city-states and laid waste the country. An internal conflict between the democratic party in Mende and Polydamidas, the Peloponnesian commander, led to fighting inside the Mende-Sparta alliance, which offered the Athenians a good chance to break in the city and sack the town. According to Thucydides, the Athenians were so ferocious that the commanders had trouble stopping their troops from slaughtering the inhabitants.<sup>25</sup> As a result, Athens regained the control over Mende, and the tribute lists do show that Mende was paying some tributary money in 418/7, but the exact amount is unknown.

The city-states that paid the most were the ones that were economically prosperous, mainly due to their geographical location and historical trades. Out of the five city-states who paid the most in 432/1 and 430/29, three of them revolted (and some of them were recovered by Athens. Is this a pattern applicable to the wealthy city-states or just these few? I shall examine this question regarding the statistics, detection, diplomacy, and revolutionary contexts after the second sub-inquiry.

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<sup>19</sup> Hdt, 6.46-47.

Wagner, Pernicka, Gentner and Vavelidis (1981), pp. 313-320.

<sup>20</sup> Thuc, 1.100-101.

<sup>21</sup> Thuc, 8.64. Thasos was re-conquered by Athenian commander Thrasyllus in 407 B.C. (Xen. *Hell.*, 1.4.9)

<sup>22</sup> *A.T.L.*, Vol 1, pp. 217. Thuc, 8.62.1.

<sup>23</sup> Thuc, 8.107.1.

<sup>24</sup> Thuc. 4.123.1.

<sup>25</sup> Thuc. 4.130

### 2.3.2 City-states who changed their payments from 432/1 to 430/29.

After creating a new column that calculates the difference between payments of 432/1 and 430/29 and sorting by the absolute value of the difference, I found that out of 39 city-states, there are 23 (58.9%) that did not alter their tributary amount as the war started. The city-states that underwent the most significance change in their payments before and after the outbreak of the war were Selymbria (increased from 90 to 5400: +5310 obols), Torone (increased from 3600 to 7200: +3600 obols), Skione (increased from 2400 to 5400: +3000 obols), Samothrace (decreased from 3600 to 1200: -2400 obols), and Aineia (decreased from 1800 to 100: -1700 obols).

Selymbria	90	5400	+5310
Torone	3600	7200	+3600
Skione	2400	5400	+3000
Samothrace	3600	1200	-2400
Aineia	1800	100	-1700

Selymbria and Samothrace do not appear in *History*, while Aineia is only mentioned to introduce her tributary nature; however, Torone and Skione appear very frequently, with Brasidas being in Thrace from around 424 to 423 B.C.<sup>26</sup> Thucydides first mentions both Torone and Skione in Book 4 in 423 B.C. Therefore, it is difficult to determine what historical events, if any, caused the fluctuations in payments before 423 B.C. After Brasidas' success at Amphipolis in 424, a few people in Torone conspired with him to take over the city from the Athenians, while most of the citizens and the Athenians on garrison were unaware of the plan.<sup>27</sup> Skione revolted from Athens, two days after the armistice in Thucydides' accounts. Brasidas made a speech in Skione similar to the one he gave in Torone, emphasizing the ultimate outcome of freedom and his confidence in it.<sup>28</sup> As Lintott states, Brasidas' chief asset was to be his own moderation and fair dealing with the cities he approached – by disregarding the Sparta's traditional approach to connect with allies by oligarchic governments, he became a patron of genuine autonomy.<sup>29</sup> Sparta's diplomatic speeches and actions hence exposed the decaying alliance between Athens and her allied democracies and triggered the revolts. A correlation between revolution and tributary amount seems dubious. Out of 113 city-states having appeared in the tribute lists, 52 revolted from Athens, either as an individual party, or together with others, giving a rate of 46%. Based on the available entries, we cannot be sure if the financially powerful city-states are more inclined to revolt, or if Sparta tends to appeal to more financially powerful city-states.

In the Register of the *A.T.L.* where the editors provide a timeline of payments for each city-state, they also manage to inform the readers if the city-state has revolted against Athens, and its following outcomes, if any. I collected the information of revolts and/or re-acquirements in the Register into an individual table, including the name of the city-state, the original notes and

<sup>26</sup> Aineia: Thuc, 7.57.

<sup>27</sup> Thuc, 4.110-114.

<sup>28</sup> Thuc, 4.120.

<sup>29</sup> Lintott (2014), pp. 113.

references to literature from the Register, and the events that happen after the revolt.<sup>30</sup> It is worth noting that the editors of the *A.T.L.* regard the revolt of a Greek region as the revolt of all the city-states in this region. For example, according to Thucydides, the Peloponnesian made the whole of Euboia, except Oreus, revolt after they put a trophy for a recent victory in Euboia.<sup>31</sup> The *A.T.L.* editors, in the Register, make notes that city-states in Euboia, such as Grynche, Diakris in Euboia, Posideion in Euboia, all have a revolt against Athens in 411. Based on the revolts that the *A.T.L.* editors suppose in the *History*, I created a bar chart that try to compare the numbers of the city-states who revolt (Fig. 6). The chart shows the remarkable effect of Brasidas' work in the North in 424, with many city-states turning against Athens in faith of him. It also indicates a surge of revolts in 411, for which Thucydides himself stated as the opposite effect created by the reforms of Athenian oligarchical party.<sup>32</sup> While the *A.T.L.* editors are quite speculative about revolts on the level of city-states in the *A.T.L.*, using their data and translating it into a visual representation speak to the disorder of Athens' power over the tributary communities. By reforming what texts in *History* narrate, we can extract particularly interesting substance without losing the context.

## Conclusion

This project has updated the technology that has been previously used by Christine Bannan for investigating the tribute lists. It has pedagogical potentials in the classroom as it can help students of the ancient Mediterranean history learn about city-states, data management and interdisciplinary research.

I have decided to extract data of only years 432/1 and 430/29 tailored to my interest and walked on a path of interactive visualization while many other interesting ones exist. The idea is built on the foundation that Bannan's thesis in 2014 established and serves as a new but still preliminary step in what is envisioned to develop a fully machine-actionable database of the tribute lists. To accomplish that, I personally think a re-screening of existing fragments of the tribute lists in museums all around the world with highly developed OCR can be refreshingly useful, as photographic technology (e.g., 3D scanning) has progressed so much since the publication of most of the most professional restorations of the tribute lists. We are short of high-resolution images and image recognition that can identify the faded letters. With a most technically updated database available, scholars are welcomed with flexibility to frame their questions and play with the data to find the answers, which is humbly exemplified in this paper. AI-powered visualization can be used to show patterns and trend over time, either for pedagogical or research purposes. Algorithms can possibly provide different perspectives of textual and contextual analysis. For students and scholars, with the help of technology, the reading and research of the tribute list (and any other topics) are still the center of this intellectual endeavor. Exploring the same chamber of treasure, we are luckily given tools that grow more and more advanced day by day, but scholarly questions, intuitions, and judgements still remain vital.

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<sup>30</sup> <https://github.com/adamas-oui/mapping-atl/blob/main/data/geo/revolts.csv>

<sup>31</sup> Thuc, 8.95.

<sup>32</sup> Thuc, 8.64.

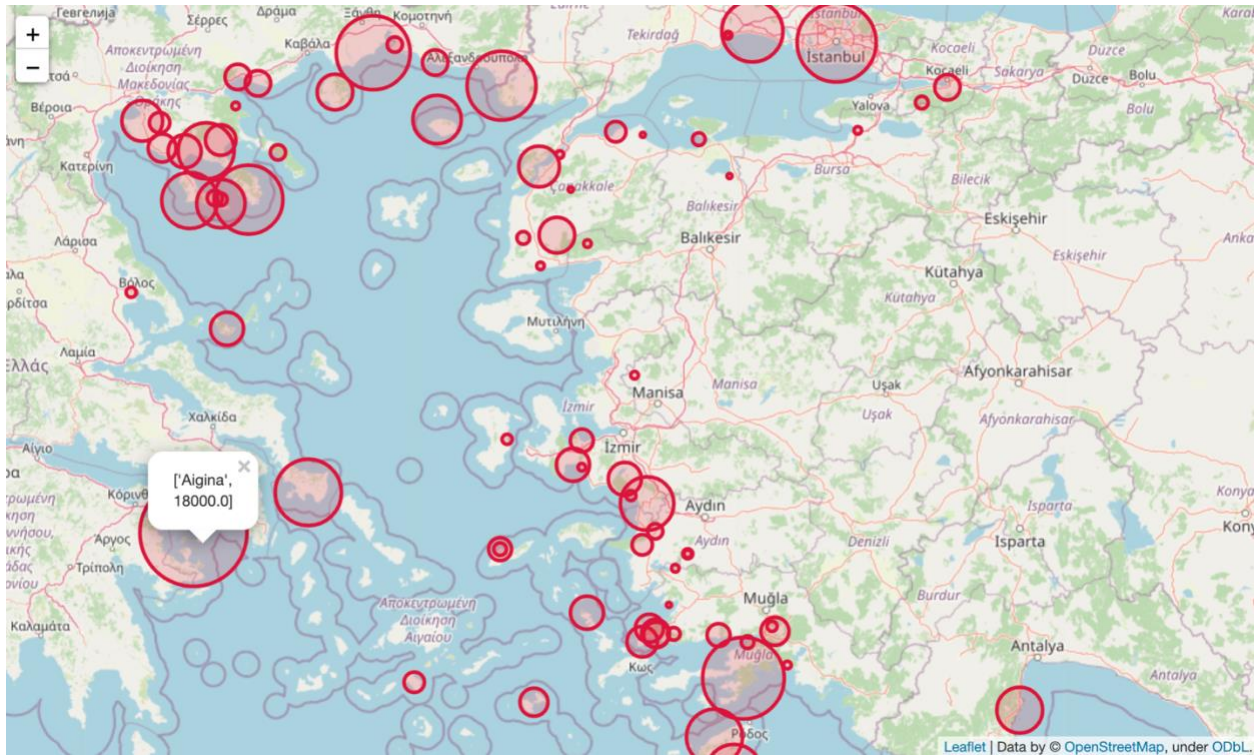


Figure 1. 454/3 BC (produced with Pandas and Folium)

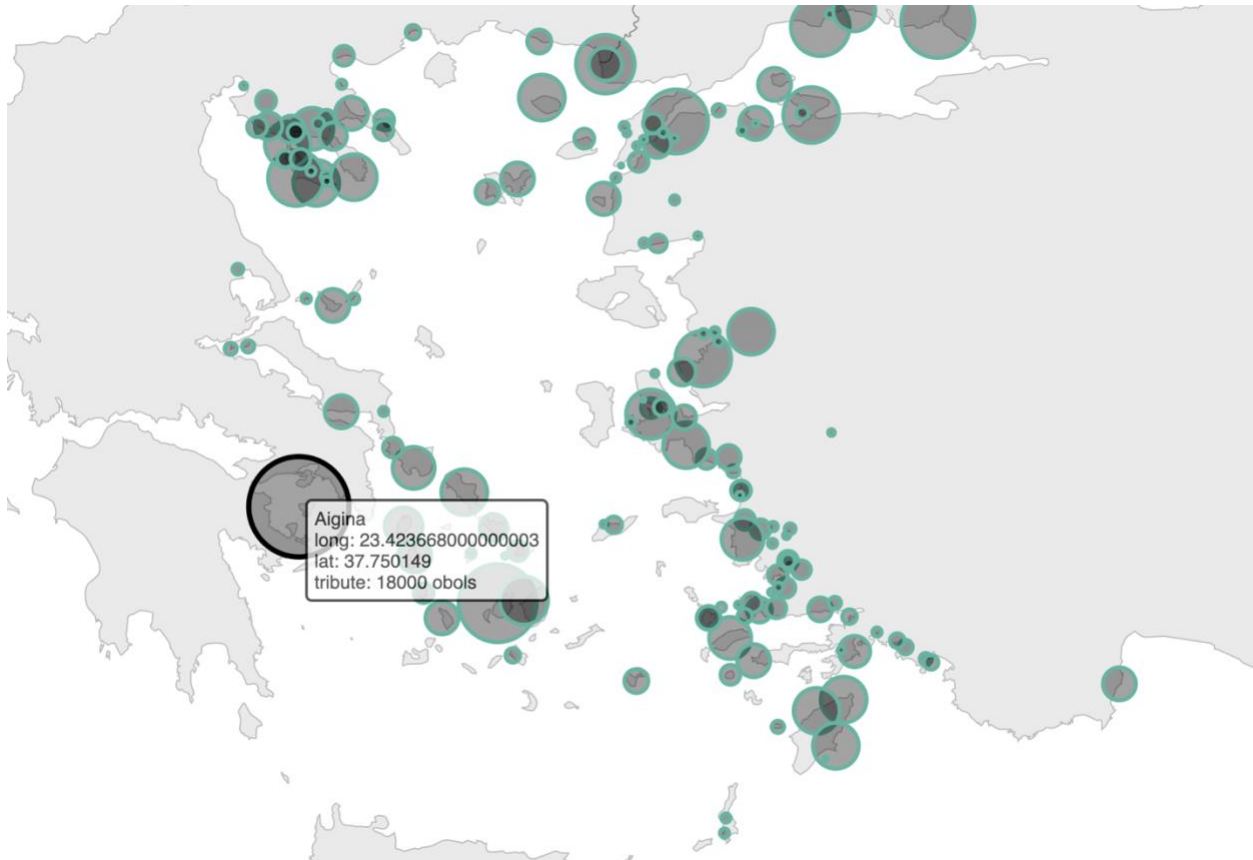


Figure 2. (produced in 2021 with HTML, JavaScript)

430/29 winter	2.69	Caria, Lycia	Melesander	was killed in Lycia	
428/7 winter	3.19	allies	Meander	was killed by Carians and the people of Anaia	
425/4 winter	4.5	allies	Aristides	captured a Persian called Artaphernes at Eion on the Strymon	
424 summer	4.75	allies	Demodocus, Aristides, Lamachus	D and A defeated rebels from Antandros; Lamachus lost ships in Heraclea.	
413/2 winter	8.3	allies	Agis King of Sparta	carried off property from the Oetaeans and the Thessalians	

Figure 3. 454/3 BC (money-levying in Thuc.)



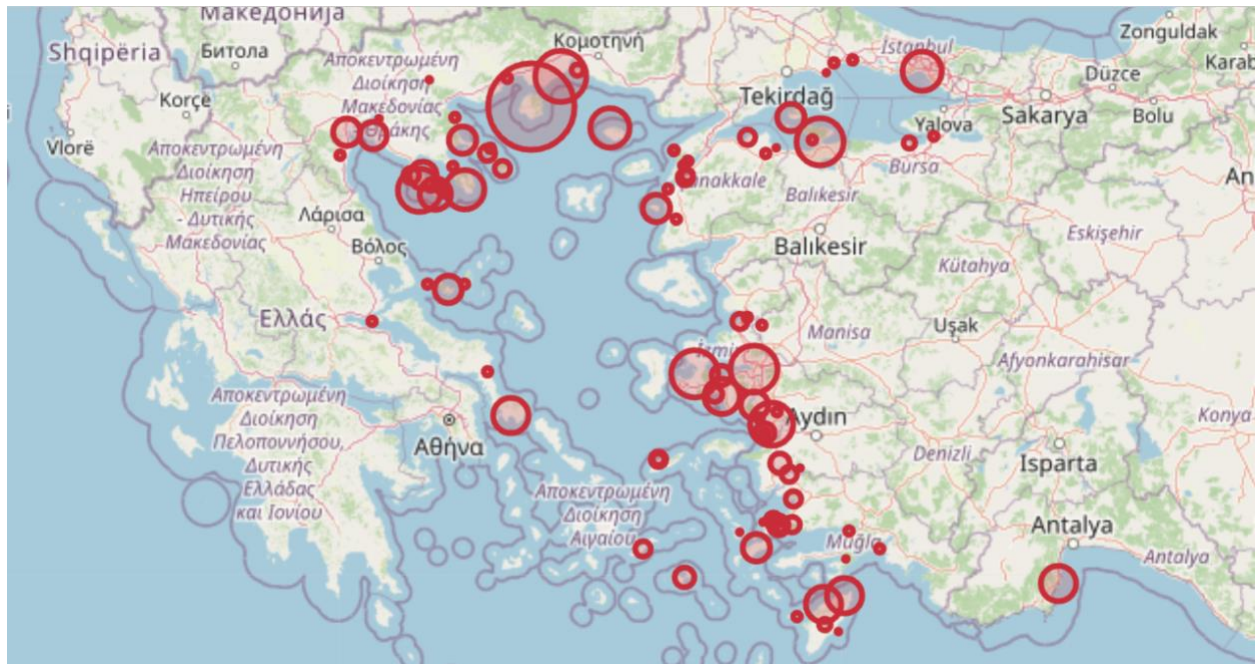


Figure 4. (432/1 BC)

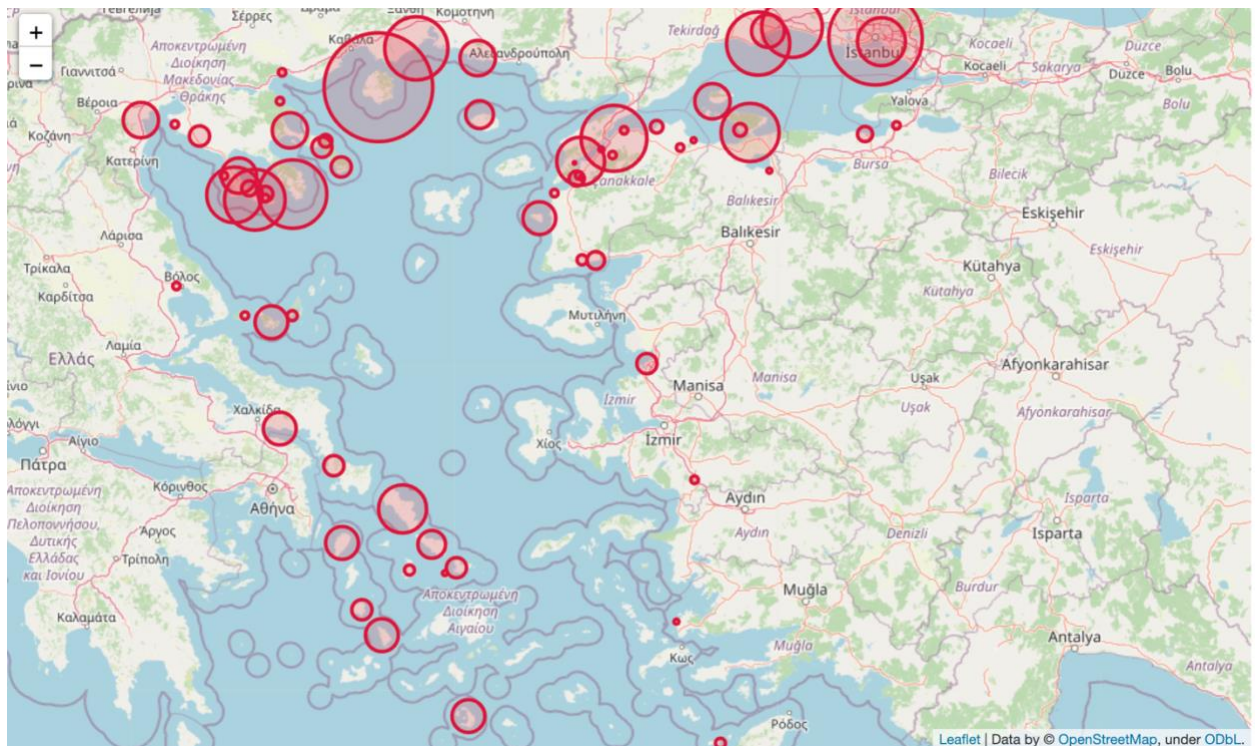


Figure 5. (430/29 BC)



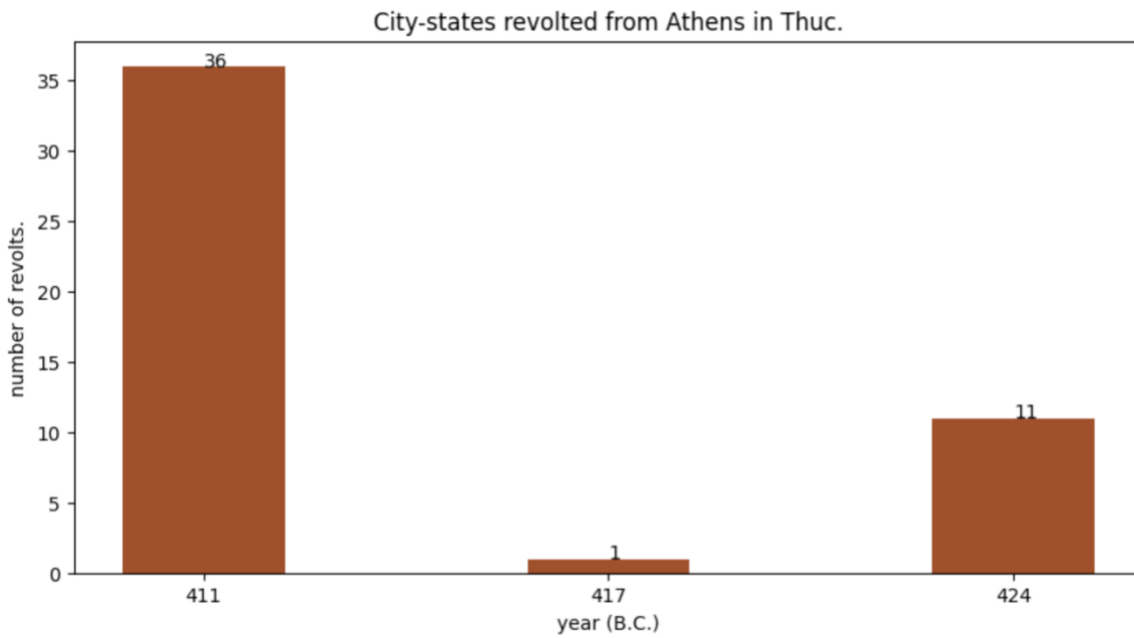


Figure 6. (number of city-states who revolted by year in *History*)

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