# **Encoding and Annotation of Ancient Places** in Ethiopia

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Encoding places in a text and producing annotations offers scholars several ways to investigate new questions and support their research work. In this paper we present the work of annotating a text and the way in which we produced Linked Open Data to share with the Pelagios Commons. Using examples taken from the Chronicles of Christian Ethiopian kings, the paper presents the techniques used to encode the data and the visualizations and insights which can be produced for scholarly research from both the TEI and the RDF

#### 1. Introduction

Scholarship on the historical geography of Ethiopia is still in its very early stages. So far, research into the country's ancient and medieval period has largely concentrated on the reconstruction of the political history of kings and churches rather than of the historical geography of the Christian kingdom during its state formation. Very few studies exist that are primarily dedicated to toponyms, definition of regions in given times, or to the location of ancient places. The number of different languages and literary traditions one should master is an additional challenge: at least Gə'əz, Coptic, Arabic, Latin, and other European languages are necessary. This diversity often calls for a heavily collaborative effort. In addition, the style of most of the available sources is very peculiar making the interpretation process problematic. On top of this, the existence of various transcription conventions for Gə'əz makes the simple attempt to answer the question 'where is this place?' and locate it, even on a modern map, a struggle, because one has to try a series of possible variants without any guarantee.

The only available comprehensive work on historical geography is that by Huntingford, completed in 1969 and only published twenty years later.¹ With all the updates made until 1979 and by the editor until 1989, this work has considerable limitations—as already noted by Irvine in his review, it is 'not so much a historical geography as a reasoned topographical commentary established on a chronological basis, an attempt to 'explain Ethiopian topography in its historical setting''²—especially in so far as it is based only on a selection of sources, while many more have become available since. The *En*-

- 1 Huntingford 1989.
- 2 Irvine 1991, 372.

*cyclopaedia Aethiopica*<sup>3</sup> was a major step forward in the description of most relevant places, but, because of the nature of this work, there is no systematic connection to the toponyms' attestation in the sources, nor to the diachronic level of both toponymy and geolocation.

Scholarly cartography available is also scanty. It includes the historical maps in Huntingford's work, the maps accompanying the entries in the *EAe*, and those additionally provided in the fifth volume, some scattered maps in print publications, but to this day the colonial Italian publication *Guida dell'Africa Orientale Italiana*<sup>4</sup> is often the tool used to locate historical sites. Thus, in most cases, to 'identify and pin on a map' a place, a region, an administrative unit at a given time is still a big problem.

As a consequence, it is little wonder that resources available online to support research on the historical geography of Ethiopia are inexistent. This is also linked to the lack of relevant primary sources online, as most digital projects in the field have recently focused on the digitization of manuscripts and their cataloguing. Almost no encoded digital online edition of texts belonging to the Ethiopian literary tradition has been produced.

Only in the past year something has been done, in the framework of the long-term project *Beta maṣāḥəft.*<sup>5</sup> Among its efforts, the project aims at building a Gazetteer of places which is based initially on the *index locorum* of the *EAe* and makes use of annotations in primary sources of toponyms to provide computable and structured data to scholars for further investigation.<sup>6</sup> We have in this way a core base of around 6,000 abstract places, most of the time with at least one label name, the one used as reference in the index of the *EAe*.

With a Resource Development Grant by the Pelagios Commons,<sup>7</sup> in the summer of 2017 we accomplished a further step towards a reusable resource starting from the text of the *Chronicle of King Galāwdewos*.<sup>8</sup> We developed the methodology and the workflow required for the annotation of historical geographical data in our place records, and we have built the infrastructure required to export the Gazetteer and the annotations to the Pelagios Interconnection Format. In the following pages, we will briefly summarize the en-

- 3 EAe.
- 4 Consociazione turistica italiana 1938.
- 5 Hosted by the Hiob Ludolf Centre for Ethiopian Studies at Universität Hamburg, funded by the Union of the Academies of Sciences in Germany and supervised by the Academy of Sciences in Hamburg; see the project note by Dorothea Reule in this issue.
- 6 Liuzzo 2017.
- 7 <a href="http://commons.pelagios.org/">http://commons.pelagios.org/</a>, last access 22 May 2018.
- 8 See the original reports in Liuzzo and Solomon Gebreves 2017a, 2017b, 2017c.

coding decisions and the annotations model and give some examples of how these annotations are used and visualized.

#### 2. The selected sources

We have started to annotate ancient places in texts where these are more abundant and can more quickly produce relevant computable outcome. The first text we annotated was the *Chronicle of King Galāwdewos* (CAe 3122, ID: LIT3122Galaw<sup>9</sup>), as a test case to figure out mark-up strategies for Ethiopic texts in *fidal*.

The *Chronicle* is an important source for events involving the Ethiopian kingdom and Christain–Muslim relation in the Horn of Africa in the sixteenth century. Galāwdewos became emperor at the age of eighteen in 1540, and his reign was marked by a successful struggle against 'Aḥmad b. 'Ibrāhīm al-Ġāzī (hence *imām* 'Aḥmad; ID: PRS1522Ahmadb). It was one of the first texts to be encoded in TEI within the *Beta maṣāḥaft* project for its importance.

Other historical texts have been encoded since, including the *Chronicle of Susanyos* (CAe 3951, ID: LIT3951ChronSusenyos<sup>10</sup>) and the *Confessio Claudii* (CAe 1252, ID: LIT1252Confes<sup>11</sup>). We have also acquired annotations produced by Eugenia Sokolinski for the TraCES project<sup>12</sup> on the *Chronicle of 'Amda Ṣayon* (CAe 4275, ID: LIT4275ChronAmdS<sup>13</sup>). Finally, we have annotated named entities in the transcriptions of quotations in manuscript descriptions (colophons, additions, etc.). At the time of writing this contribution, we have 3,270 places attestations with identification in the data set, 1,152 of which are in literary works, the others in manuscript text transcriptions or metadata.<sup>14</sup>

In the next section, we will detail how these attestations of toponyms have been marked up in the TEI source data of the *Beta maṣāḥəft* project.

## 3. Encoding references to places in the source texts

We encode place attestations in our TEI source files using the <placeName> element<sup>15</sup> with an attribute @ref which points to an authoritative identifier.

- 9 Solomon Gebreyes Beyene 2017. Here and in the following, we provide the ID of the named entities in the *Beta maṣāḥəft* database; for the texts, we additionally provide the *Clavis Aethiopica* (CAe) number.
- 10 Solomon Gebreyes Beyene and Reule 2017.
- 11 Solomon Gebreyes Beyene 2018.
- 12 See Bausi 2015 and the TraCES project note in this issue.
- 13 Pisani et al. 2018.
- 14 There are also 8,646 such annotations for persons which are not within the scope of this contribution.
- 15 TEI consortium 2016.

To provide a better understanding of the place names marked up in the Gəʻəz text let us take some more examples from the *Chronicle of King Galāwdewos*. For reasons of military strategy and in order to gather and organize a stronger army, Galāwdewos decided to flee to Šawā, a province where his predecessors were accustomed to camp regularly. The chronicler describes the king's route in the following way:

*Mār* Galāwdewos then crossed beyond two rivers from the direction of Təgrāy to the direction of the land of Šawā in order to see there those of his flock in righteousness and his innocent people in equity. He reached the country he wished in the month of Ḥazirān which is the month of Sane, the beginning of winter months of the Abyssinians. (Chr. Galaw. 21)

In medieval times, the two big rivers were the Takkaze (ID: LOC6850Takkaze) that separates Təgrāy from Gondar and the Blue Nile (ID: LOC1022Abbay) that separates Goǧǧām from Šawā. These are the rivers that are certainly meant here, even if they are not mentioned by name in the text, therefore we add an empty element in the text which points to the best available authority identifier. In the same passage we have places which are named and are thus marked up with a reference to the relative place entity.

We have created a record for each place attested in the text which did not yet have a record in the *Beta maṣāḥəft* Gazetteer but fell within its scope, i.e. Eritrea and Ethiopia in the most inclusive sense.

Below is a sample of the marked-up places taken directly from the text, where we exemplify our use of the attributes <code>@notBefore</code> and <code>@notAfter</code> to encode the relative chronology of each attestation within a text. In this case, we have also made a relative reference explicit, by assigning a date in the Gregorian calendar to dates relative to the literary context:

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ምዕራፍ: ፱ ። ወእምዝ: ዓደወ: ጣር: ገለው ኤዎስ: ጣዕራተ:<placeName
ref="http://betamasaheft.eu/LOC6850Takkaze"/><placeName
ref="https://www.wikidata.org/wiki/Q882739"/><placeName
ref="http://betamasaheft.eu/LOC1022Abbay" notBefore="1540"
notAfter="1541">ከሌሎ: አፍላግ:</placeName> መንገለ: ምድረ:
<placeName ref="http://betamasaheft.eu/LOC5597Sawa"
notBefore="1540" notAfter="1541">ሺዋ:</placeName> ኤመንገለ: ምድረ:
<placeName ref="http://sws.geonames.org/444187" notBefore="1540"
notAfter="1541">ትግራይ:</placeName> ከመ: ይርአይ: መርዒቶ:
አለ: ህዮ: በጽድት: ወይዋሄ: ሕዝቦ: በርትዕ። ወበጽሐ: ጎበ:
cplaceName
ref="http://betamasaheft.eu/LOC5597Sawa" notBefore="1540" no-
tAfter="1541">ምድር:</placeName> ከፊትደ: በወርኃ: ሐዚራን: ዘውሕቱ:
ወርኃ: ሴኔ: ርእሴ: አውራን: ክሬምቶሙ: ለአልጎቡስ።
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After the king settled in Šawā in the first year of his reign, in 1541, he moved for some time from one locality to another, recruiting armies from the Christian communities, and then finally he stationed in the mountainous region of 'Ifāt (ID: LOC3921Ifat), where he fought the then governor of the region, Naṣraddin (ID: PRS7506Nasraddi), son of *imām* 'Aḥmad (see also below). In the first confrontation, Galāwdewos was defeated, but in the second confrontation, he was victorious. This victory helped him to attract a large number of Christian adherents who joined him.

The range of places involved in this text is not limited to local history, with entities such as the Ottoman empire or Portugal being mentioned. Thus, during the second year of the reign of King Galāwdewos, Portuguese soldiers arrived on the coast of the sea to assist the king and sent a messenger to him to join them as soon as possible. These external entities should also be certainly marked up. For places going beyond the Ethio-Eritrean historical boundaries, we have used whenever possible the Pleiades identifiers. For places which are outside the scope of both our Gazetteer and Pleiades we used Wikidata entities (e.g., the Ottoman empire, Wikidata ID Q12560).

In the example below, the island of Patmos, which is attested in the text as **Tabh** (Təmus), is marked with a Pleiades ID.

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<ab>ወእምዝንቱ: ኵሉ፡ ፡ ለማር፡ ገላው-ኤምስ፡ በዓለ፡ ዝንቱ፡ ዜና፡ ኮነ፡ የዓቅቦ፡ ዓቃ
ቢሁ፡ ለኵሉ፡ ከመ፡ ተዓቅበት፡ አሑቲ፡ ብእሲት፡ ወወልዳ፡ እምነ፡ አርዌ፡ ዓቢይ፡
ዘርእዮ፡ ዮሓንስ፡ በዐለ፡ ራእይ፡ ዘደሴተ፡ በ<placeName ref="https://pleia-
des.stoa.org/places/599872">ዋሙስ #</placeName> ... </ab>
```

After all this  $M\bar{a}r$  Galāwdewos, the subject of this story, was protected by the protector of all, just as <was saved> a woman and her child from a great serpent, which John, the seer of the Revelation, saw on the Island of Patmos.

Some of the main problems in the annotation of places in the *Chronicle* were: — the identification of places referred to very generically as 'the north border', 'the sea', 'the mountains';

- the location of places for which only relative location is provided and no archeological evidence is available;
- the identification of the appropriate entity to refer to for each place;
- the treatment of ethnic groups and respective territories.

## 4. Encoding information about a Place

Whereas the actual mark-up of places was a relatively quick step, the major associated task was to create a record for those places which were not already present in the *Beta maṣāḥaft* Gazetteer. We followed the good advice of the Pelagios community, adopting their understanding of the concept of place:

**Places** are entirely abstract, conceptual entities. They are objects of thought, speech, or writing, not tangible, mappable points on the earth's surface. They have no spatial or temporal attributes of their own. A **place** can exist in name only in an ancient source, without any material correlate; conversely, an archaeological site can exist as a **place** without an ancient name.<sup>16</sup>

We have also limited the chronological attestation to periods relevant to the project's scope, which have been added to PeriodO,<sup>17</sup> and we have encoded information in our TEI files following the example of the Syriac Gazetteer<sup>18</sup> in the 'Syriaca.org TEI Manual and Schema for Historical Geography'. Records for places contain the multiple names and location related to that conceptual place record, they can have bibliography and a (marked up) description. For those places in the gazetteer for which we have our own coordinates, or a link to an entity in Wikidata which does, we also offer a geoJSON export (see for example Gondar, ID LOC3577Gondar).

Place records in *Beta maṣāḥaft* also contain alignment to other authority files, so that in a reference to a local gazetteer a link to an external resource can also be found. We also record associations with other gazetteers, in <relation> elements:

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tPlace>
 <place sameAs="https://www.wikidata.org/entity/01885762"</pre>
   type="monastery"
   subtype="institution">
 <placeName>Dayr as-Suryān</placeName>
 <country ref="https://www.wikidata.org/entity/Q79"/>
 <region ref="https://www.wikidata.org/entity/Q1074945"/>
 </place>
</listPlace>
<listRelation>
 <relation
 name="skos:exactMatch"
 ref="http://www.w3.org/2004/02/skos/core#"
 active="http://betamasaheft.eu/INS0478DS"
 passive="http://syriaca.org/place/360"/>
</listRelation>
```

Institutions records, with coordinates, referring to monasteries and churches in possession of manuscript collections, often with a very long tradition, have been inherited from the *Ethio-SPaRe* project.<sup>19</sup>

- 16 <a href="https://pleiades.stoa.org/help/conceptual-overview">https://pleiades.stoa.org/help/conceptual-overview</a>, last access 22 May 2018.
- 17 <a href="https://test.perio.do/#/p/Canonical/periodCollections/p03tcss/">https://test.perio.do/#/p/Canonical/periodCollections/p03tcss/</a>>, last access 22 May 2018.
- 18 Carlson and Michelson forthcoming.
- 19 <a href="https://www.aai.uni-hamburg.de/en/ethiostudies/research/ethiospare/">https://www.aai.uni-hamburg.de/en/ethiostudies/research/ethiospare/</a>, last access 22 May 2018.

In the following, we provide five examples of locations where major events took place during the reign of Galāwdewos. They include: (1) the place where the King took refuge during the war and began his political career, (2) the place where he organized his military army, (3) a battlefield where he successfully defeated a strong political contender, (4) the place where the King settled following the end of the turbulent period and (5) the place where he fought Muslim adversaries and was killed by them. We give a brief account of each of these places in connection to Galāwdewos, followed by a brief historical description of these places and a discussion as to where and how these places were mentioned in other relevant historical sources.

## (1) Dabra Dāmmo

The political life of King Galāwdewos began in the northern province of the Christian kingdom, Təgrāy (ID: LOC6569Tegray), at the monastery of Dabra Dāmmo (ID: INS0105DD), which remained relatively inaccessible during the continuous assault of the Muslim army. The monastery served as a shelter for the royal family after King Ləbna Dəngəl (ID: PRS6229LebnaDe) had been defeated by the forces of *imām* 'Aḥmad. It was there that Ləbna Dəngəl died, and his son, Galāwdewos, was crowned as his successor.

The importance of Dabra Dāmmo is believed to go back to the sixth century, when it was, according to the local tradition, the first monastery founded in the Ethiopian highlands by one of the so-called 'Nine Saints' who came to teach Christianity, 'abbā Zamikā'el 'Aragāwi (ID: PRS10581Zamika). It has since enjoyed the reputation of a prominent traditional church educational institution, where several famous religious missionaries and monastic leaders were trained, including, according to their hagiographies, 'Iyasus Mo'a (ID: PRS5633IyasusM) and Takla Haymānot (ID: PRS9151TaklaHa). Thus, it played a pivotal role in the expansion of Christianity in its early years and was also a centre of manuscript production and training in manuscript production. Following the foundation of other monasteries like Ḥayq '∃stifanos (ID: INS0327DHE) and Dabra Libānos in Šawā (ID: INS0346DL) it lost its dominance, yet it remained important in the Christian Highlands until it was looted and destructed by the Turkish forces in 1557.

Due to these facts and its particular geographical setting, surrounded by mountainous cliffs, Dabra Dāmmo has been described, or at least mentioned in passing, in various historical works, such as hagiographies, royal chronicles and travellers' accounts.

Dabra Dāmmo appears in the sixteenth-century hagiography of Zamikā'el 'Aragāwi<sup>20</sup> and in the sixteenth-century hagiographies of the two

20 Guidi 1895.

holy men in the thirteenth and fourteenth centuries—'Iyasus Mo'a and Takla Haymānot—as the most important holy place. Thus, the *Gadla 'Iyasus Mo'a* ('Acts of 'Iyasus Mo'a', CAe 1467, ID: LIT1467GadlaI) narrates that 'Iyasus Mo'a joined the monastery of Dabra Dāmmo at an early age.<sup>21</sup>

The *Chronicle of Zar'a Yā'qob* (reigned 1434–1468; CAe 4646, ID: LIT4646Chronicle<sup>22</sup>) mentions Dabra Dāmmo as a monastery where religious men were anointed as monks.<sup>23</sup>

The European traveller, Pedro Paez, mentions in his 1622 account the monastery of Dabra Dāmmo several times.<sup>24</sup> Here are just two examples:<sup>25</sup>

- ... she should have put them at Amba Damo, a day's journey from Axum, which is much stronger then Guixen amba.
- ... on a mountain in the kingdom of Tigre, which they call Amba Damo, which is so secure that one cannot climb up except by means of ropes, where there is a large monastery of monks.<sup>26</sup>

In his book, Manoel Barradas, a Jesuit missionary who wrote about the province of Təgrāy in 1634,<sup>27</sup> describes the geographical feature of Dabra Dāmmo as follows:

It was to this amba, which nature has made impregnable, that the Queen took refuge out of dread for the Moorish king Granha [...] as it seemed to her and to her people that this amba was secure and would keep her so. [...] At the summit of this mountain is a beautiful meadow, all even and almost flat enough, as it would seem, to contain a large city. This meadow is located on a level with the surrounding hills, which on the northern side forms a tip and is what is closest to the amba. [...] On the crest of the mountain there is a church named after Abba Aragavy, who was one of the Nine Priests who came from Rome to Ethiopia to spread the faith, and they hold and venerate him as a saint. <sup>28</sup>

## (2) 'Ifāt

After being crowned in Dabra Dāmmo, Galāwdewos left Təgrāy and arrived in Šawā (ID: LOC5597Sawa); then he stationed at a locality in the sultanate of 'Ifāt, in 1541. He spent some time moving here and there and finally stationed at one of the mountains in 'Ifāt where he fought twice against the son of *imām* 

- 21 Kur 1965, 9, line 20.
- 22 Reule and Solomon Gebreves Beyene 2017.
- 23 Perruchon 1893, 12
- 24 Páez 2011.
- 25 It would be very interesting in the future to mark up these sources as well, as attestations of this place name, and analyse the way toponymy varies.
- 26 Páez 2011, 129, 417.
- 27 Barradas 1996.
- 28 Barradas 1996,158-161.

'Aḥmad, Naṣraddin. Naṣraddin won the first confrontation, but in the second, Galāwdewos was victorious. We do not know anything more precise about the exact place where he stopped and where the battles took place.

'Ifāt was a historical region and sultanate in central Šawā which first flourished around 1285. An integral part of the Rift Valley, the area of 'Ifāt served for millennia as a point of contact between the pastoral or nomadic economic formations of the eastern lowlands and ancient agricultural societies of the Ethiopian highlands. Islam must have been introduced into the region in early times. The growth of the power of 'Ifāt came to a halt in the fourteenth century, when it was incorporated into the Christian kingdom. The strategic importance of 'Ifāt placed it against the Christian state consolidated by rulers of the Solomonic dynasty, whose ambition was to control the caravan trade to the Red Sea. The area of 'Ifāt was reduced to a battleground following the war of the Christian and Muslim in the sixteenth century and followed by the expansion of the Oromo people.

'Ifāt won important value in the study of historical geography both in the local works and traveller accounts. The *Chronicle of 'Amda Şəyon* recounted the campaign of the king against the Sultanate of 'Ifāt. The entire chronicle is devoted to the feats of the warrior king against the Sultan of 'Ifāt, Sabraddin (ID: PRS8282sabraddi).<sup>29</sup> It also appears in the *Chronicle of Zar'a Yā 'qob*, which reports that the king appointed a governor for the province of 'Ifāt, indicating that it was still part of the Christian kingdom in the fifteenth century:



ውስጣሆን ፡ ለስተሎን ፡ አታቲሆን ፡ ግሞን ፡ ንጉሥ ፡ አቡሆን ፡ ውስተ ፡ ከተሉ ፡ ምድረ ፡ ኢትዮጵያ ፡ በታሕቴሁ ፡ [...] መበኢፋት ፡ አሙተ ፡ ጊዮርጊስ ፡፡ ('He appointed all of their sisters like them, the King, their father, throughout the land of Ethiopia, under his rule, [...] in 'Ifat, 'Amata Giyorgis').<sup>30</sup>

### (3) Wağarā

Having decisively defeated Naṣraddin in 'Ifāt in 1542, King Galāwdewos crossed the Blue Nile to Waǧarā (ID: LOC6144Wagara), where he confronted *imām* 'Aḥmad himself, and killed him in 1543. Waǧarā is the landmark for the victory of King Galāwdewos, which is a district north of Lake Tanā and southwest of Səmen (ID: LOC5671Semen), a highland region, inhabited mostly by the 'Agaw (ID: ETH1083Agaw).

It was one of the provinces in which Ləbna Dəngəl sought refuge during the Muslim wars of the sixteenth century. After his victory over Ləbna Dəngəl in the mid-1530s, *imām* 'Aḥmad made Wağarā its stronghold, until he was in turn defeated by King Galāwdewos in 1543. Kings Minās (ID: PRS7102Minas) and Śarṣa Dəngəl (ID: PRS8550sardaDe) used Wağarā as a staging ground for repeated campaigns against the Beta '∃srā'el (ID: ETH-1274Betaes) of Səmen who in 1585 raided and pillaged Wağarā. In the seventeenth century, dissension and rebellion in Wağarā persisted during the reign of Susənyos. Wağarā was also one of the regions where the Portuguese Jesuits proselytized: the Jesuits claimed that there were about 100,000 Catholics in Wağarā in 1630. During the seventeenth and eighteenth centuries, Wağarā was a granary for Gondar. In the mid-twentieth century imperial administrative division, Wağarā was an *awrāġġā* administrative unit within Bagemdər, composed of five sub-units (*waradā*).

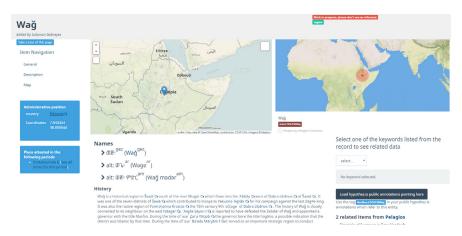
All chronicles from the fourteenth, fifteenth and later sixteenth, seventeenth and eighteenth centuries mentioned Wağarā in connection to its religious and ethnic composition, agricultural fertility and vastness, which was



certainly what led *imām* 'Aḥmad to station there after he had defeated Ləbna Dəngəl. After his victory over 'Aḥmad in 1543, Galāwdewos once again travelled to the south of the Christian kingdom, crossing the Blue Nile (ID: LOC1022Abbay) and the 'Awāš (ID: LOC6852Awas) river, and stationed in Wağ, to confront another strong warlord of 'Aḥmad, 'Abbās, whom he defeated in 1544.

#### (4) Wağ

Wağ (ID: LOC6136Waj) had an important place in the historical geography of the reign of King Galawdewos. It is a historical region in Šawa, south of the river Mugar (ID: LOC4893Mugar) which flows into the 'Abbāy (Blue Nile) west of Dabra Libānos of Šawā. It was one of the seven districts of Šawā which contributed to troops to Yakunno 'Amlāk (ID: PRS10303Yekunno) for his campaign against the last Zagwe king. It was also the native region of the fifteenth-century ninth abbot ('aččage) of Dabra Libānos, Marha Krəstos (ID: PRS6734MarhaKr). The history of Wağ is closely connected to its neighbour on the east, Fatagar (see below). 'Amda Səyon is reported to have defeated the Zebdār of Wağ and appointed a governor with the title masfan. During the time of King Zar'a Yā'qob (1434–1468), the governor bore the title həgāno. a possible indication that the district was under Muslim rule by that time. During the time of King Ba 'ada Māryām (1468–1478; ID: PRS2334BaedaM) it served as an important strategic region to conduct military campaigns against 'Adal. Following the death of 'Ahmad, Wağ was also a stronghold of King Galāwdewos, who had his royal base there in 1550. In 1577, King Śarsa Dəngəl, on his way to attack the *sultān* of 'Adal, passed through Wağ. Wağ is widely treated in several royal chronicles, hagiographies, and travellers' accounts. For example, in the above-mentioned Chronicle of Zar'a Yā'qob it



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appears as one of the provinces of the Christian kingdom which was ruled by the governor Hegano:

መእምድ ገራሆንስ ፡ አግዘ ፡ ከተሎ ፡ ሚመታተ ፡ ኢትዮጵያ ፡ ውስተ ፡ አዲሁ ፡ ውግመ ፡ አደክ ሽንተ ፡ ውስተ ፡ አህጉር ፡ አንዘ ፡ ይብል ፡ በሽዋ ፡ ራቅ ፡ ማሰፊ ፡ [...] ሂጉና ፡ ውበውጅሂ ፡ (And then after, the King took over the entire hierarchies of Ethiopia in his hand and appointed 'Adakšənat in the provinces saying that: 'in Šawā rāq māsare [...] and also Hegano in Waǧ'). 31

#### (5) Faţagār

In the nineteenth year of his reign (1559), King Galāwdewos led a campaign from his royal seat at Wağ in a place called Faṭagār (ID: LOC3061Faṭaga) to confront the invasion of the region by the Muslim state of 'Adal. He was killed, and his head was cut off and taken as a trophy. Faṭagār was a large historical region (possibly once a Muslim sultanate). It was located in the south-east of Šawā on the northern shore of the 'Awāš river. In the fourteenth and fifteenth centuries, it was gradually integrated into the Christian empire. The region held a strategic position between the Christian Ethiopia and the southern Muslim sultanate. In the beginning of the sixteenth century, Faṭagār came back under the Muslims of 'Adal.

The name Faṭagār appears for the first time in the *Chronicle of 'Amda Ṣayon* (1314–1344) where the Muslim ruler claimed to appoint his own representatives in the region of Faṭagār.



31 Perruchon 1893, 14–15.

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ውዘንተ : ብሂሎ : ተንሥአ : ውሐረ : ውበጽሐ : ጎበ : ምድረ : ክርስቲያን ። ውአው ውየ : ቤተ ፡ ክርስቲያን : ውቀተሎሙ ፡ ለክርስቲያን ፡ ውልለ ፡ ተርፋ ፡ ፄ ውመ ፡ ዕደ ፡ መአንስተ ፡ ውል ግብአሙ ፡ ሙስተ ፡ ሕጉ ፡ መእምድ ጎረዝ ፡ ይቤ ፡ ኢሥይም ፡ ሙኪንንተ ፡ ላዕለ ፡ በሓው ርተ ፡ ኢ ትዮጵያ ፡ በከሙ ፡ ይሥይም ፡ ንጉሥ ፡ ጽዮን ፡ [...] ሬ ጠጋር ፡ [...] ('He said so and he departed, he arrived in the land of the Christians, burned down the churches, killed the christians and the survivors he made them prisoners, men and women, and he converted them to his religion. Then he said: 'I will appoint governors on all regions of Ethiopia, as the king of Zion' and he appointed governors: [...] one on Faṭagār [...]'). <sup>32</sup>

It also appears in the chronicle of the fifteenth-century King Zar'a Yā'qob: the king appointed his own representative there, making it a stronghold of the Christian empire, until it came again under Muslim occupation in the sixteenth century. The Arabic chronicle of *imām* 'Aḥmad's campaigns, *Futūḥ al-Ḥabaša*, written by a contemporary chronicler, mentioned it regarding 'Aḥmad's victories over the Christians during the third decade of the sixteenth century. The Arabic chronicles are the contemporary chronicles are the contemporary chronicles.

#### 5. Producing annotations

From the data encoded in TEI, we can already do a lot of computation as we will show in the visualization examples below, but we also use that data to produce geoJSON, KML and RDF to serve even more visualizations and reuses.

There are two kinds of RDF triples produced from the two kinds of information encoded. From all place name attestations, we export annotations in the Pelagios format:<sup>35</sup>

```
@prefix dcterms: <http://purl.org/dc/terms/> .
@prefix foaf: <http://xmlns.com/foaf/0.1/> .
@prefix oa: <http://www.w3.org/ns/oa#> .
@prefix pelagios: <http://pelagios.github.io/vocab/terms#> .
<http://betamasaheft.eu/api/placeNames/works/LIT1252Confes> a pelagios:AnnotatedThing; dcterms:title "Confessio Claudii"; dcterms:description "A theological treatise believed to be a response of king Galāwdewos to the Jesuit missionaries headed by Oviedo."; dcterms:source <http://betamasaheft.eu/tei/LIT1252Confes.xml>; foaf:homepage<http://betamasaheft.eu/works/LIT1252Confes/main> ; dcterms:language "en";
```

- 32 Marrassini 1993, 52.
- 33 Perruchon 1893, 15, 30, 47, 67, 71, 93, 112, 137.
- 34 Šihāb ad-Dīn 2003, 19, 49, 60-61.
- 35 <a href="https://github.com/pelagios/pelagios-cookbook/wiki">https://github.com/pelagios/pelagios-cookbook/wiki</a>, last access 22 May 2018; see Simon et al. 2014.

Each of the places in the Gazetteer is represented according to the Pelagios Interconnection Format,<sup>36</sup> which is also interoperable with the Syriaca.org places model:<sup>37</sup>

```
@prefix dcterms: <http://purl.org/dc/terms/> .
  @prefix foaf: <http://xmlns.com/foaf/0.1/> .
  @prefix oa: <http://www.w3.org/ns/oa#> .
  @prefix lawd: <http://lawd.info/ontology/> .
  @prefix pelagios: <http://pelagios.github.io/vocab/terms#> .
  @prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#> .
  @prefix geo: <http://www.w3.org/2003/01/geo/wgs84 pos#> .
<http://betamasaheft.eu/places/LOC2488Damot>
 a lawd:Place ;
  rdfs:label "Dāmot"@gez;
  dcterms:source <http://betamasaheft.eu/LOC2488Damot.xml> ;
  dcterms:temporal <http://n2t.net/ark:/99152/p03tcssvm7f>;
  lawd:hasName [ lawd:primaryForm "ዳሞት:"@gez ];
 lawd:hasName [ lawd:variantForm "Dāmot"@gez ];
  foaf:primaryTopicOf <http://betamasaheft.eu/places/LOC2488Damot/</pre>
main> ;
  dcterms:isPartOf <http://betamasaheft.eu/places/LOC3010Ethiop>;
```

The data is thus shared with Pelagios and becomes available via the Pelagios API, but since the model of the data is the same, direct federated queries can also be run, for example to the Syriaca.org and the *Beta maṣāḥaft* triples stores starting from any SPARQL Endpoint.

## 6. Visualization of the data

Directly from the TEI encoding we can print a summary of all the files containing a reference to a specific entity and co-occurring entities grouped by type, see fig. 1.

In the same way we can directly extract and display with Google charts a graph of the actual attestations of a toponym, see fig. 2.

- 36 <a href="https://github.com/pelagios/pelagios-cookbook/wiki/Pelagios-Gazetteer-Interconnection-Format">https://github.com/pelagios/pelagios-cookbook/wiki/Pelagios-Gazetteer-Interconnection-Format</a>, last access 28 May 2018.
- 37 <a href="https://github.com/HeardLibrary/semantic-web/blob/master/sparql/syriaca.md">https://github.com/HeardLibrary/semantic-web/blob/master/sparql/syriaca.md</a>, last access 22 May 2018; see Michelson 2016.

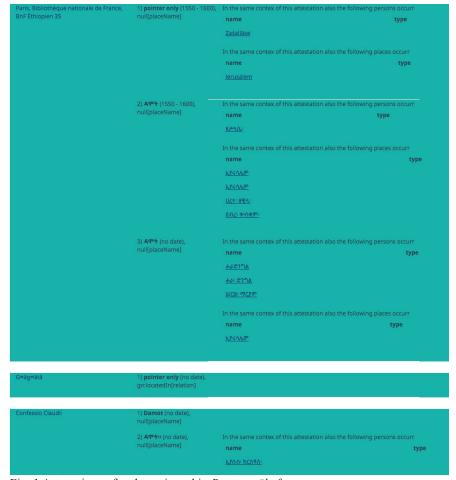


Fig. 1 Attestations of a place viewed in Beta maṣāḥəft...

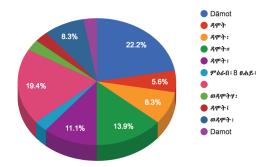


Fig. 2 Distribution of attested place name's forms.

The TEI data converted to geoJSON provides a very practical way to print a map using Leaflet like our homepage map, see fig. 3.

From the TEI we produce also KML which can be visualized with the DARIAH-DE geobrowser and makes use of both the space and time information to allow browsing both dimensions of the data available at the same time, see fig. 4.



Fig. 3 Map of manuscripts repositories based on XML data converted to geoJSON.

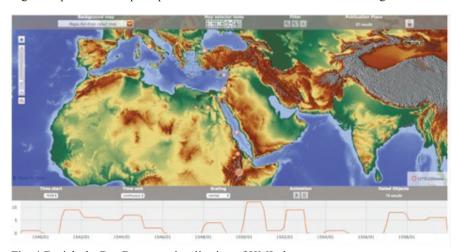


Fig. 4 Dariah-de Geo Browser visualisation of KML data.

From the annotations exposed in RDF, users and other interested parties can build visualizations of several kinds. We describe here only the application of this data as it is published in Pelagios, where it allows one to interrogate the latest dump together with the dumps of all other projects joining in the effort. In Pelagios, the user can search and navigate the available information from the map. One can search for a word, as the text is indexed and see related results.

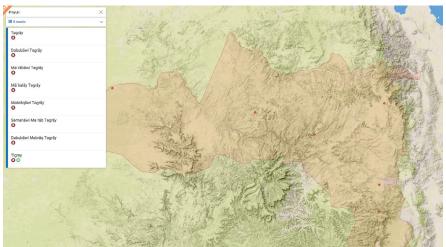


Fig. 5 Visualization of a place from the *Beta maṣāḥəft* Gazetteer in Peripleo.

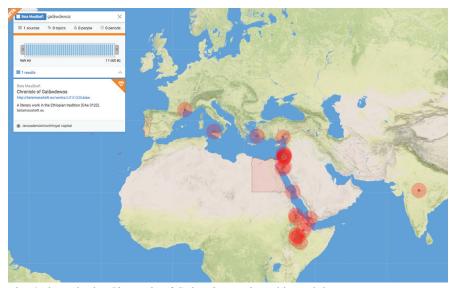


Fig. 6 Places in the *Chronicle of Galāwdewos* viewed in Peripleo.

In fig. 5 we searched a word from the example above and found many places which contain it in the description but since there is an annotation associating this place with the polygon in geonames we can also see that.

We can also search 'Galāwdewos' and find the *Chronicle* as annotated resource, as in fig. 6.

Clicking on it, one can see all the annotated places in a map. Clicking on one of these places one can then see how many items link there and for example find out, navigating the triples in this way, that there are also two manuscripts which have been annotated with a reference to that place (fig. 7).

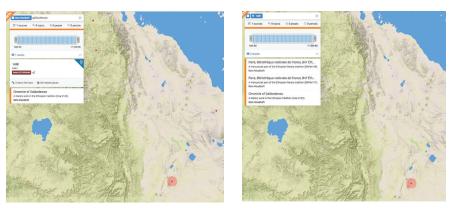


Fig. 7 Navigation of the annotations in Peripleo.

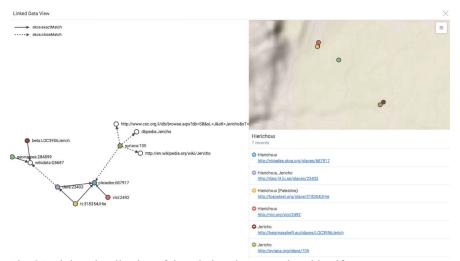


Fig. 8 Peripleo visualization of the relations between place identifiers.

But that is not all. We can filter the annotations by period and see all places in the gazetteer associated to a specific period, or we can see the network of IDs generated from the data of all providers as in the following example. In this way, anyone is able to benefit from the sum of the existing annotations, thus sparing a lot of repetitive authority check work in most cases, and actually having it done much better as a network of declarative associations rather than a flat equivalence (fig. 8).

This last example already shows how data which was provided without any connection to Syriaca.org is joined in Pelagios, and by providing one hook, in this case the equivalence with the Wikidata entity, a whole set of other identifiers becomes accessible, with the resources pointing to them.

While many other projects produce triples and annotations about places, the ways in which to exploit this rich information for comparative and comprehensive studies remains to be explored and is research-question-specific: it is up to the researcher to imagine new questions and produce meaningful queries to support statements which will build towards their answers.

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