June 1914 and Classical Philologies for the 21st century

Gregory Crane
Leipzig and Tufts Universities
...
FEDERALS DESERT AGUASCALIENTES

Next Big Town South of Zacatecas Is Evacuated by Huerta's Forces.

CARRANZA-HUERTA DEAL?

American, Reaching Vera Cruz, Reports Perifs Are On in Mexican Capital.

ENVY TOLD OF REBEL NOTE

Say He Must Consult His Associates--Answer Is Regarded as Favorable.

HEIR TO AUSTRIA'S THRONE IS SLAIN WITH HIS WIFE BY A BOSNIAN YOUTH TO Avenge SEIZURE OF HIS COUNTRY

Propose Pan-American Memorial to Columbus.

A splendid tomb topped by a great light is proposed to be erected in Santo Domingo in the Caribbean Sea, by subscriptions from peoples of all lands. See NEXT SUNDAY'S TIMES.

OUR GUNS FIRE ON SANTO DOMINGO

Few Shots from the Machaca Stop Bombardment of Puerto Plata by President Borda.

WARNED BY CAPT. RUSSELL

Told Not to Endanger Foreigners in Attack on Rebel Thaps--Refugees Taken Off by Our Boats.

HEIR TO AUSTRIA'S THRONE IS SLAIN WITH HIS WIFE BY A BOSNIAN YOUTH TO AVENGE SEIZURE OF HIS COUNTRY

Francis Ferdinand Shot During State Visit to Sarajevo.

TWO ATTACKS IN A DAY

Archduke Saves His Life First Time by Knocking Aside a Bomb Hurled at Auto.

SLAIN IN SECOND ATTEMPT

Lad Dashes at Car as the Royal Couple Return from Town Hall and Kills Both of Them.

LAID TO A SERBIAN PLOT

Slain by Assassin's Bullets.
Where were the philologists then?
What do you imagine for 2019?
What do you imagine for 2114?
Who is your audience in 2014?
Who is your audience?
Who is your audience?

Internet Users in the World by Geographic Regions - 2012 Q2

Asia: 1,676.7 million
Europe: 518.5 million
North America: 273.8 million
Latin America / Caribbean: 254.9 million
Africa: 167.3 million
Middle East: 90.0 million
Oceania / Australia: 24.3 million

Source: Internet World Stats - www.internetworldstats.com/stats.htm
2,405,518,376 internet users estimated for June 30, 2012
Copyright © 2012, Miniwatts Marketing Group
Who is your audience?

World Internet Penetration Rates by Geographic Regions - 2012 Q2

North America: 78.6%
Oceania / Australia: 67.6%
Europe: 63.2%
Latin America / Caribbean: 42.9%
Middle East: 40.2%
World, Avg.: 34.3%
Asia: 27.5%
Africa: 15.6%

Source: Internet World Stats - www.internetworldstats.com/stats.htm
Penetration Rates are based on a world population of 7,017,846,922 and 2,405,518,376 estimated Internet users on June 30, 2012.
Copyright © 2012, Miniwatts Marketing Group
More than 1 billion smartphone users

https://econsultancy.com/blog/64376-65-of-global-smartphone-owners-use-android-os-stats#i.1esrgel11f1d6h
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Open Access <= Open Data
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1. Unless you release your data/source code under an open license in a standard and machine readable format, you haven’t published your work.

2. Your scholarly contributions consist of machine actionable data (a term that includes source code) as well as a human readable account of how you produced that data and what conclusions you drew from your work.
The first rule of holes ...?
The first rule of holes ...?

Guys, I'm getting a feeling that the shortest distance isn't the best way to get to China.

We don't have time for reevaluation.

Keep digging!
Digital Philology at Leipzig

The Humboldt Chair of Digital Humanities at the University of Leipzig is developing a sequence of English-language courses on digital philology that will begin in the Wintersemester and Sommersemester of the 2013/2014 academic year. The courses may be taken in sequence or individually. We particularly encourage participation by graduate students, not only from Leipzig but from elsewhere in Europe and beyond, who are preparing to begin careers as researchers, teachers or library professionals.
What is philology?

Itaque ubi, quae et qualis *philologia* meo iudicio sit, quaeritis, simplicissima ratione respondeo, si non latiore, quae in ipso vocabulo inest, potestate accipitur, sed ut solet ad antiquas litteras referetur, *universae antiquitatis cognitionem historicam et philosophicam*.

Augustus Boeck, “Oratio nataliciis Friderici Guilelmi III.” (1822)
## Classical Philologies

<table>
<thead>
<tr>
<th>Intentionally Plural</th>
<th>Classical Arabic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not only Classical</td>
<td>Classical Chinese</td>
</tr>
<tr>
<td>Greek and Latin</td>
<td>Six official Classical</td>
</tr>
<tr>
<td></td>
<td>Languages of India</td>
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<tr>
<td></td>
<td>Cuneiform languages</td>
</tr>
<tr>
<td></td>
<td>Languages of Egypt</td>
</tr>
<tr>
<td></td>
<td>etc.</td>
</tr>
</tbody>
</table>
But Greek and Latin are strategic

1. Shared heritage of Europe and beyond
   - minimize issues of cultural imperialism
2. Also partially shared with Islamic world
   - Alexandria, Translation Movements, Iran
3. You have an immense base of students
   - but a tiny pedagogical corpus
4. You have vast unworked materials
Who is who? -- German n-grams
Who is who? -- English n-grams
Who is who? -- Italian n-grams
Who is who? -- French n-grams
Emily Franzini and Maryam Foradi, University of Leipzig
<table>
<thead>
<tr>
<th>Author</th>
<th>Work</th>
<th>Total number of places studied</th>
<th>USA</th>
<th>UK</th>
<th>Germany</th>
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<th>Italy</th>
<th>Austria</th>
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<td>Augustine, Conf</td>
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<td>Augustine, De Civitate</td>
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<td>0</td>
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<td>Caesar, De Bello Gallico</td>
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<td>6</td>
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<td>Catullus</td>
<td>1-16, 22, 28, 30-36, 44-46, 49-51, 58, 61-68, 70, 72, 73, 75, 76, 82-87, 92, 93, 95, 96, 99, 101, 102</td>
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<td>3</td>
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<td>0</td>
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<td>1</td>
<td>0</td>
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<td>0</td>
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<tr>
<td>Cicero, In Catilinam</td>
<td>In Catilinam. I</td>
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<td>1</td>
<td>2</td>
<td>1</td>
<td>0</td>
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<td>Horace, Odes</td>
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<td>5</td>
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</tbody>
</table>

Emily Franzini and Maryam Foradi, University of Leipzig
more than 3.5 million students of Classical Greek and Latin

Emily Franzini, University of Leipzig
more than 3.5 million students of Classical Greek and Latin

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>LATIN</th>
<th>GREEK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denmark</td>
<td>500</td>
<td>100</td>
</tr>
<tr>
<td>Italy</td>
<td>2.000.000</td>
<td>680.000</td>
</tr>
<tr>
<td>Germany</td>
<td>800.000</td>
<td>7.000</td>
</tr>
<tr>
<td>Croatia</td>
<td>24.737</td>
<td>2.678</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>15.000</td>
<td>2.000</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>500</td>
<td>400</td>
</tr>
<tr>
<td>United States*</td>
<td>120.000</td>
<td>2.210</td>
</tr>
<tr>
<td>Austria</td>
<td>63.000</td>
<td>1.000</td>
</tr>
<tr>
<td>Flanders</td>
<td>40.460</td>
<td>5.700</td>
</tr>
<tr>
<td>France</td>
<td>601.100</td>
<td>34.000</td>
</tr>
<tr>
<td>Switzerland</td>
<td>12.970</td>
<td>930</td>
</tr>
</tbody>
</table>

* Total number of National Latin Exam candidates, minus candidates form elementary and university level schools

Emily Franzini, University of Leipzig
Beyond Friedrich Wolf …

Wolf helped liberate Classical Philology from Theology -- but many departments lost their connection to Patristic and Christian Greek and Latin.
Beyond Friedrich Wolf …

Wolf helped liberate Classical Philology from Theology -- but many departments lost their connection to Patristic and Christian Greek and Latin.

We need to build upon the model that we find in France and in Lyon to view all Greek and Latin.
The Open Philology Project @ Leipzig

Scaife Digital Library
Open Data Business Models
Open Greek and Latin
e-learning for Historical Languages
Scaife Digital Library

After Ross Scaife, Digital Classicist Pioneer
Dynamic integration of open (=CC licensed) resources on Greek, Latin and other resources

on-going ...
Open Data Business Models

Data may be open but it is never free, neither in its creation nor in its maintenance.

How do we support an intellectual eco-system of open data?

[@Leipzig: Emily Franzini, Uta Kremer]
Open Greek and Latin

How to make as much of the Greek and Latin textual tradition as possible available in a sustainable, open format?
Open Greek and Latin -- starting points

Perseus Catalog of Greek and Latin sources

The Perseus Catalog is an attempt to provide systematic catalog access to at least one online edition of every major Greek and Latin author (both surviving and fragmentary) from antiquity to 600 CE. Still a work in progress, the catalog currently includes 3,679 individual works (2,522 Greek and 1,247 Latin), with over 11,000 links to online versions of these works (6,419 in Google Books, 5,098 to the Internet Archive, 593 to the Hathi Trust). [May 2013]
Open Greek and Latin -- starting points

Perseus Catalog of Greek and Latin sources
Based upon the FRBR data model and the Canonical Text Services Protocol

-- The Perseus Catalog can provide a URN for any word in any version of any source text in a FRBR work (or work “cluster”, e.g., Roman de la Rose, Divan of Hafiz)

-- The Perseus Catalog uses perseus.org as an anchor for URIs for stable Linked Open Data
Open Greek and Latin -- starting points

Open Greek and Latin -- starting points

The anchor that converts a URN to a URI
Open Greek and Latin -- starting points

The anchor that converts a URN to a URI
tlg0012 = The Homeric Epics
Open Greek and Latin -- starting points

The anchor that converts a URN to a URI

tlg0012 = The Homeric Epics
tlg002 = The Odyssey
Open Greek and Latin -- starting points


The anchor that converts a URN to a URI

tlg0012 = The Homeric Epics
tlg002 = The Odyssey

perseus-grc1 = the Edition used
Open Greek and Latin -- starting points

The anchor that converts a URN to a URI
tlg0012 = The Homeric Epics
tlg002 = The Odyssey
perseus-grc1 = the Edition used
1.1-1.43: Book 1, line 1 through Book 1, line 43
Open Greek and Latin -- starting points

Perseus Catalog of Greek and Latin sources
http://catalog.perseus.org/

https://github.com/PerseusDL/catalog_pending
https://github.com/PerseusDL/catalog_data
https://github.com/PerseusDL/perseus_catalog
Open Greek and Latin -- starting points

OCR for Classical Greek
Uwe Springmann¹, Dietmar Najock², Hermann Morgenroth², Helmut Schmid¹, Annette Gotscharek¹ and Florian Fink¹

OCR of Historical Printings of Latin Texts

Problems, Prospects, Progress

¹CIS, Ludwig-Maximilians-Universität München

²Institute for Greek and Latin Languages and Literatures, Freie Universität Berlin
Some problems for OCR engines

- Historical fonts
- 'long s' (f)
- Historical ligatures: Å, æ, Æ, ð, st, ãt
- Polytonic Greek words
- Diacritics
- Abbreviations
- Historical spellings

Springmann et al.  OCR of historical printings of Latin texts  p. 4 (16)
Training on historical fonts (artificial images)

Example: Pontanus, Progymnasmata Latinitatis (1589)
### Training on fonts, ideal lexicon

Example: Pontanus, Progymnasmata Latinitatis (1589)
character accuracy in %

<table>
<thead>
<tr>
<th>Page</th>
<th>Abbyy FR 11.1</th>
<th>Tesseract 3.03</th>
<th>Ocropus 0.7</th>
<th>Tesseract (font)</th>
<th>Tesseract (font + lex.)</th>
<th>Ocropus (font)</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>87.79</td>
<td>80.88</td>
<td>80.70</td>
<td>91.02</td>
<td>93.90</td>
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<tr>
<td>16</td>
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<td>77.41</td>
<td>76.94</td>
<td>80.12</td>
<td>85.65</td>
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<tr>
<td>17</td>
<td>85.25</td>
<td>75.98</td>
<td>86.07</td>
<td>85.41</td>
<td>91.56</td>
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<tr>
<td>18</td>
<td>85.93</td>
<td>79.51</td>
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<td>88.29</td>
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<tr>
<td>19</td>
<td>87.94</td>
<td>80.09</td>
<td>79.09</td>
<td>86.06</td>
<td>90.15</td>
<td>87.83</td>
</tr>
</tbody>
</table>

OCRopus: no language model!
red: accuracy better than Abbyy
Training on historical fonts (real images)

Example: Thanner, Petronij Arbitri Sathyra (1500), 16 pages
Training on historical fonts (real images)

Example: Thanner, Petronij Arbitri Sathyra (1500)
character accuracy in %

<table>
<thead>
<tr>
<th>Page</th>
<th>Tesseract 3.03</th>
<th>Ocropus 0.7</th>
<th>Ocropus (trained)</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>41,59</td>
<td>44,59</td>
<td>93,15</td>
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<td>14</td>
<td>52,38</td>
<td>57,77</td>
<td>94,61</td>
</tr>
<tr>
<td>15</td>
<td>53,09</td>
<td>62,38</td>
<td>95,17</td>
</tr>
<tr>
<td>16</td>
<td>59,09</td>
<td>61,45</td>
<td>93,27</td>
</tr>
</tbody>
</table>

page 1-12: training set; page 13-16: test set
Limen et absentem votis interficie hostem.

imen: et absentem votis interfeci hostem.

Sunt qui conugibus lugentia pectora tungan
tant.

Sunt qui conugibus lugentia pectora tungan:

tant.

Grannysy prsconeris ignara iuuentus
ranteo sq; prsconeris ignara iuuentus

Id, quo metuit tantú trahit omnia secum

Id. quo metuit tantú trahit omnia secum

Hinc vehit imprudens: predaq; in prtlia ducit.

Hinc vehit imprudens: predaq; in prtlia ducit.

Lae velit et alto cu magnus inhóruit aufter

@Ae velit ex alto cu magnus inhorruit aufter

Et pulsas euertit aquas non arma ministris,

Et pulsas euertit aquas on arma ministris.

Non regimen pdest:ligat alter pondera pinus

Non regimen pdest:ligat alter pondera pinus

Alter tuta finn tranquillag; littora qyrit

Alter tuta finn tranquillaq; littora qyrit

Hic dat vela fuga fortunæg; omia credet.

Hic dat vela fuga fortunæ; omia credet.

Qu id tã parua querox: gemino cu confule mags

Qu id tã parua querox: gemino cu confule mags
Ancient Greek OCR

Ancient Greek OCR is free software to accurately convert scans of printed Ancient Greek into unicode text and PDF files, which can be easily searched, copied, archived, and transformed. It uses the excellent Tesseract OCR engine, tailored for Ancient Greek typography, syntax and vocabulary.

It works with Windows, OS X, Linux and Android, and works on personal computers, mobile devices, and large server clusters.

Download

Ancient Greek OCR v2.0 (2014-05-01)

Instructions: Windows | OS X | Linux | Android
Bruce Robertson

Bruce Robertson is Head of the Department of Classics at Mount Allison University in Canada. He received his PhD in Classics at the University of Toronto, and has worked on several digital initiatives.

Federico Boschetti

Federico Boschetti works at the ILC/CNR in Pisa, Italy. He earned a PhD in Classical Philology at the University of Trento (Italy). There he took a second PhD, in Brain and Cognitive Sciences – Language, Computation and Interaction.

His main fields of research are Formal and Computational Philology, Corpus Analysis, and Greek Philology. His other current work includes Greek Into Arabic.

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810 Texts

(1916–18). The Greek anthology 3
(1916). The Greek anthology 4
(1916–18). The Greek anthology 2
(1882). Commentaria in Aristotelem graeca. Edita consilio et auctoritate Academiae litterarum regiae borus
(1882). Commentaria in Aristotelem graeca. Edita consilio et auctoritate Academiae litterarum regiae borus
(1916). The Greek anthology 1
(1888). Corpusculum poesis epicae graecae ludibundae 1
(1882). Commentaria in Aristotelem graeca. Edita consilio et auctoritate Academiae litterarum regiae borus
(1916–18). The Greek anthology 5
(1863). Patrum apostolicorum quae supersunt ... 1
(1882). Commentaria in Aristotelem graeca. Edita consilio et auctoritate Academiae litterarum regiae borus
Δίδυμα Γρηγορίδες διέτα από τον τόπο και την αυτόνομη επιστήμη που έπρεπε να ανατρέψει τον τόπο και την προδοτική μείωση. Οι πληρώνες της φύσης, που δεν καταράζουν, υπάρχουν και πάντα, μεταφέρονται μία εφιάλτη, ιστορία ο τόπος και της φύσης, μαζί με τον λαό. Η φύση, όπως έκανε το κοινό, παραπάνω την περιθώρια, και τα χημικά της επικοινωνίας με την επικοινωνία της φύσης.

563 Θα μπορούσα να την έχω δει, διότι η φύση είναι η καθοδοτική ακτή, χωρίς την οποία η επικοινωνία με τη φύση θα είναι αδύνατη.

564 Φυσικά, ο τόπος θα ήταν μια από τις πιο πιθανές θέσεις για την επιστήμη να αναπτυχθεί. Ο θάνατος της φύσης, όμως, θα μπορούσε να αποτύχει είδος εκεί.

565 Η φύση, όμως, είναι η καθοδοτική ακτή, χωρίς την οποία η επικοινωνία με τη φύση θα είναι αδύνατη.

566 Επιστήμη μιας γραφής έχει έτοιμες ξένες ἔρευνας.

567 Βυζαντινή, η επικοινωνία με τη φύση, έχει έτοιμες ξένες ἔρευνας.

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581 Βυζαντινή, η επικοινωνία με τη φύση, έχει έτοιμες ξένες ἔρευνας.

582 Βυζαντινή, η επικοινωνία με τη φύση, έχει έτοιμες ξένες ἔρευνας.

583 Βυζαντινή, η επικοινωνία με τη φύση, έχει έτοιμες ξένες ἔρευνας.

584 Βυζαντινή, η επικοινωνία με τη φύση, έχει έτοιμες ξένες ἔρευνας.

585 Βυζαντινή, η επικοινωνία με τη φύση, έχει έτοιμες ξένες ἔρευνας.

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BdR Εαρ' οἱ μεν ἐνδεδεσινεπαθοσι γάμοισι, θεοῦ κατ' εἰκόνα τιμηθείς οὐθ
Εθι Τχῦ δ' ἄλοχοι τε μείουσι φίλα, καὶ θεσμὸς τῶν ἀνοήτων ὑπερέκεινα θ
[ἑρωτοε
ὼς θυτόκος δ' ἀλλοισιν ἐπάρκιοις ἐπ. λετομίξις. βθ8 Ἀλλος αὐτομάτη σαρκι
ἑρωτος
Φησιν ο θείος Τρηγόριος ὅτι καιρὸς ἐστιν ἐπιτή. ἰ6 Θεοτέρου τὴν ὁβτισωφρ
δειος πάσι τοῖς ἀερίοις καὶ ἐναλίοις καὶ ἐπιγειώγτω θΤθ Ἐμπαγε μὴν γέρας ἐ
[ἐκτός
τοῦ γάμου καὶ τῆς πρὸς ἀλλήλους μίξεως. οὔδὲν δὲ Γτ Τῶν, εὐδιώνωτάτ' ἐ
τῶν δρων τῆς φύσεως ἐξωθεὶν διεκχει, οὐδὲ παρὰ τὸ Τοῖς μὲν, φησιν ο θεοὶ
συγγενεῖς ἀλλογενεὶς μὴν γυνάι. ὥρος δὲ φύσεως ἐστιν ἡ σάρξ δέδεται, τῶν πρ
ποιομένη. ταύτην δὲ σωφροσύνην οὐ λέγουσιν οἱ
ποιομένη ταύτην δὲ σωφροσύνην οὐ λέγουσιν οἱ ἡ σπερματικὴ καταβολὴ τε καὶ δύναμις οὐδὲν σὲν τῶν ἀπαντῶν παρὰ τὸν συγγενέστερον ὄρον τῆς φύσεως καταβάλλεται, δεσμοῦνται τρόπον τινὰ πάντα, μακράμενα μὲν εὐκαίριως, ἐπειδὴ ἃν ὁ τοῦ ἔαρος καιρὸς διεγείρει, μετὰ τὸ τὴν φύσιν ἐξυπηρετήσασθαι δὲ ἐπιχόμενα τὸ μὲν οὖν θῆλυ τῶν ἀρρένων ἐγκυμονήσαν ἀποτρέξει τοῦ δὲ θῆλεως κατὰ γαστρὸς ἔχοντος, διὰ τῶν αἰσθητηρίων ἀντιλαβόμενον ἀποπηδῆ τὸν ἀρρένα διὸ καὶ τὴν γυναῖκα θη- λυτέραν οἱ σοφοὶ προσφυόμενοι παρῶν γὰρ ἐν πάσῃ
Open Greek and Latin -- 2014

Reinventing Humanities Publication: European Social Fund Project in Leipzig
Seeding a large body of serviceable, open textual data.

- c. 400,000 EUR
- OCR corrected to 99%, 99.5% or 99.95%
- Basic EpiDoc TEI XML added
Open Greek and Latin -- OCR image front

We now have multiple open source engines for Classical Greek: Gamera, Tesseract, OCRopus

Limiting factor

access to decent scans
Multiple scans are a BIG help
Open Greek and Latin -- OCR image front

Particular focus in 2014 on optimizing results for an Open Migne, using multiple OCR engines on multiple scans of multiple copies

Open Greek and Latin -- OCR image front

We will scan any edition that is fully in the public domain (in Europe, last editor dead 70+ years)
We will scan the reconstructed text of any edition that is in the public domain (Germany 25+ years old, Italy 20+ years, Europe as a whole 30+ years)
Β. ού περιδραμέται σφην ταχέως δειρ' άτερος;
ο γάρ πατήρ ἐκ τοῦ ἔτοιμον εἰσελήφθησθε
καὶ μυστολεί τι καταδεικνύος. ἀλλ' ἀθροὶ
cατὰ τὴν πυκνὰκ τὸ τρῆμ' ὅπως μὴ κέδοσται
σὺ ὑμῖν ἡ θύρα πρόσκεισθαι. Σω. ταῖς δὲ δέσποτα.
Β. ἀναταύσευσι τὸ ποτ' ἀρ' ἡ κάτοικος ψυχοί;
οὖτός τις εἰ σέ;

ΦΙΛΟΚΛΕΩΝ
κατ' ὑμνήμα τ' εξήρχομαι.
Β. κατ' αὐτόν τ' ηὔλ' τῶν ζώων τέως σέ;
Πι. συκίασθαι.
Β. τῆς τῶν Δ' ὄστρερ γ' ἐστὶ οἰμάτως οταν πατών.
ἀταρ οὐκέτ' ἐρίσκεαι γε, ποῦ 'οθ' ἢ τηλία;
ἀδικαὶ παλιν' εὖρει σοι καὶ ξέλαιον.
ἐρταίδα περὶ τούτων ζήσοτε τ' ἄλλην μνημήν.
ἀταρ ἀθροὶ τ' εὖρον τοῦ ἕτερον γ' οὖν εἴδεις ἀνήρ,
ὅτις πατρὸς τεττ' Καππάον κεκλήσησαι.
Σω. (ὅδε) τῆς τῆς κρισάς ὄντες.
Β. πιέξεις τοι' σφόδρα,
ἐν κάθ' ὑμών καθὸ κατ' εὐθαίρετον ἐρχόμαι.
καὶ τῆς κατακλήσῃς ἑτέροις, καὶ τοῦ μολοῦ
φιλάτος ὅπως μὴ τὴν βάλαιν ἐκτραβεῖται.
Πι. τ' ὅραστε; οὐκ εἰρρήσεις; οὐκ μαρωνίζεσιν
δικιστοῦτε μ', ἀλλ' ἐκφεύσετε Δρακοκύπτη.
Β. οὔ δὲ τοι' βαρέως ἡν θύμος; Πι. οὔ τις θεὸς
μαρτυρούμενον μοιχῆσαι εἰ Δηλοῖν ποτὲ,
ὅταν τῷ ἔφηβῷ μ' ἀποπληκταί τέθη.
Β. Ἀπολλοὺς ἀπορώσει τοι' μαρτυρείνοι εἰ δέν κεραυνοῦσα
Πι. οὔ τις ἀυτοῦ σ' ἐκφεύγει γε, μὴ διαπραγματεύομαι;
Β. μὲ τοῦ Ποντείου Φιλοκλέως ἡμετεροῦ γε.
Πι. ἀυτοῦ καθαράς τοῖς ἄλλας τοῦ δικτοῦν.
Β. ἀλλ' οὔ εἴχες οἴδατε; Πι. ὁ δὲς εἰ δέλαιος.
Open Greek and Latin -- Correction+TEI

Data Entry Contractor …

1. Runs OCR on text or takes our OCR output
2. Corrects errors in the OCR output (99%, 99.5% or 99.95% depending on content)
3. Adds basic TEI XML (EpiDoc variant)
Open Greek and Latin -- Correction+TEI

1. Public Domain vols of *Corpus Scriptorum Ecclesiasticorum Latinorum* (c. 55 vols)
2. Selected *Patrologia Latina* authors (start by completing big authors Augustine, Jerome)
3. c. 600 volumes of English, French, German, Italian translations from Greek and Latin
Open Greek and Latin -- Correction+TEI

4. Commentaria in Aristotelem Graeca (all)
5. Larger authors (Libanius, Philo, Catena)
6. PD griechischen christlichen Schriftsteller
7. Full PD Editions (last editor dead 70+ years)
8. [German Georges and Papke Greek/Latin lexica already available in XML]
Open Greek and Latin -- Correction+TEI

9. Bailly, Dictionnaire grec-français
10. Chatelain, Latin-Français 1899(?)
11. Older Greek/Italian Lexicon
12. Various 19th century biblical commentaries (?)
e-learning for Historical Languages
e-Learning for Historical Languages

Draws on several new phenomena

1. Automated feedback
2. Rich linguistic annotation
3. Aligned source texts and translations
4. From millions to **billions** of words of Greek and Latin
Morpho-Syntactic Annotation

So-called “Treebanks”
Morpho-Syntactic Annotation

So-called “Treebanks”
Translation and Source Text Aligned

So-called “Treebanks”
Translation and Source Text Aligned

Jesus increased in wisdom and stature.

So-called “Treebanks”
Tell me, O Muse, of the man of many devices, who wandered full many ways after he had sacked the sacred citadel of Troy. Many were the men whose cities he saw and whose mind he learned, aye, and many the woes he suffered in his heart upon the sea, seeking to win his own life and the return of his comrades. Yet even so he saved not his comrades, though he desired it sore, for through their own blind folly they perished—fools, who devoured the kine of Helios Hyperion; but he took from them the day of their returning.

Of these things, goddess, daughter of Zeus, beginning where thou wilt, tell thou even unto us. Now all the rest, as many as had escaped sheer destruction, were at home, safe from both war and sea, but Odyssey alone, filled with longing for his
Homer, Odyssey (Greek)

ἄνδρα μοι ἔννεπε, μοῦσα, πολύτροπον, ὡς μάλα πολλά
theman me Tellof OMuse ofmanydevices who full many
πλάγχθη, ἐπεὶ Τροίης ἱερὸν πτολεῖθρον ἐπερεῖν;
wandered after off Troy sacred the citadel sacked
πολλῶν δ᾽ ἀνθρώπων  ἵδεν ἁστα τα καὶ νόσον ἔχων,
Many themen hesaw cities and mind helearned
πολλὰ δ᾽ ἐν πάντω πάθεν ἁλγεα ὧν κατὰ θυμόν,
many and upon these hesuffered the woes in his heart
ἀρνύμενος ἢ ἀν τε ψυχὴν καὶ νόσον ἑταίρων.
seeking town his own life and thereturn of his comrades
ἀλλ᾽ οὖσ᾽ ὡς ἑταρῶν ἔρυσατο, ἵμανος περ;
Yet not so his comrades hesaaved hede siret sore
αὐτῶν γὰρ σφέτησιν ἀσαθαλήσιν ὀλοντο.
their own for their own through blindly they perished
Tell me, O Muse, of the man of many devices, who wandered full many ways after he had sacked the sacred citadel of Troy. Many were the men whose cities he saw and whose mind he learned, aye, and many the woes he suffered in his heart upon the sea.

seeking to win his own life and the return of his comrades. Yet even so he saved not his comrades, though he desired it sore, for through their own blind folly they perished—fools, who devoured the kine of Helios Hyperion; but he took from them the day of their returning.

Of these things, goddess, daughter of Zeus, beginning where thou wilt, tell thou even unto us. Now all the rest, as many as had escaped chaser destruction...
Tracking dynamically what you know

Book 1

1.001 *qoukudi/dhs*)aqhnai=os..po/lemon....................a)mfo
/teroiparaskeuh=\…………e(kate/rous.........megi/sth............a)nqrw/pwn...........
/nou.....tek mhri/wn.............pole/mous...

1.002 .................e(/kastoi......................qala/ssh nem/o/menoi/...e(/kastoi...perig
/an..........................h(me/ran.trofh=s….xalepw=s........paraskeuh=\....a)ri
/sth..metabola\‘s..ei)=xen......*pelopomnh/sou...............a)reth\n.................................*)atti
/nqrwpoi......lo/gou...............pole/mwl....*)aqhnai/ous.....poli=tau......a)nqr
/pwn....*)iwni/an...i(kanh=s..*)attikh=sa)poiki/as.

1.003 ......a)sqe/neian........koinh=l........ei)=xen................................e)pwnum)
/an................w)feli/al....e(ka/stous........xro/nou.......


That's a wrap!

You've finished "Adjectives: First and Second Declensions". Check out the skills you've earned with this lesson:

**Skill Summary**

- Identify and decline three-ending adjectives
- Identify and decline two-ending adjectives

**Next Steps**

- **Strengthen Vocab**
  - Continue to hone your new skills with examples out of Thucydides' work.
- **Reinforce Skills**
- **Read a Passage**
  - Read a passage in *The Peloponnesian War* that uses the skills and vocabulary you've learned in this lesson.
- **Onwards to the next lesson**
  - Keep learning Greek! Click to continue your journey through the ancient Greek language principles.
Continue Learning!

Round out your knowledge of nouns by learning the 3rd declension nouns.

Keep Learning Greek

Ready to put your Greek skills to use?

Here are some other ways you can improve your Greek:

- Read
- Annotate
- Etc.

Records

10 lessons in a week

Recent Activity

Yesterday

Completed 2 lessons

Learned 10 new words

Last Week

Treebanked 4 sentences
TARGET TEXT

Author: Thucydides

Work: History of the Peloponnesian War
You can help create a digital edition of a Classical work, no matter what skill level you’re at. You’ll be improving your Ancient Greek and contributing to Open Data at the same time!

Digital Editions in Progress

Click the section of the progress bar to contribute to that Digital Edition.

Plato's *Crito* (Greek into German)

3 Contributors

Homer's *Iliad* (Greek into English)

12 Contributors

Herodotus' *Histories* (Greek into English)

12 Contributors

Thucydides' *Penteteonasia* (Greek into Croatian)

Completed! This edition is complete, but you can still improve it! Learn How

1 Contributor
Some (other) sub projects

[LOFTS, Digital Müller, etc.]
Learning Persian from Sir William Jones

Sir William Jones (1746-1794) -- crucial in recognizing Indo-European

Author of an introduction to Persian based on poetry of Hafiz and others ...
Learning Persian from Sir William Jones

Sir William Jones (1746-1794) -- crucial in recognizing Indo-European

What happens when we integrate aligned translations, treebanks and sound?
OF THE ARTICLE.

Our article ֨ is supplied in Persian by adding the letter ֨ to a noun, which restrains it to the singular number; as ֨ ֨, a single rose;

One morning I went into the garden to gather a rose, when on a sudden the voice of a nightingale struck my ear.
Learning Persian from Sir William Jones

It’s not just about learning language….It is about real-time communication and human contacts across boundaries of language and culture.
Dynamic Lexicon

νόμος

noun (masc)

- law (72%) [Explain]
- statute (2%) (Demosthenes)
- custom (2%) (Herodotus)

Object of:

- τίθημι ("passed a law"). (Demosthenes)
- ἄνακτιγνώσκω ("read the law"). (Demosthenes)
- παραβίασαν ("transgressed the law"). (Flavius Josephus, Demosthenes)
- εἰσφέρω ("introduced his law"). (Demosthenes)
- χρόμομαι ("such laws").
- γράφω ("written law"). (Plutarch, Demosthenes)
- χρῶ ("use the most ancient laws"). (Plato, Herodotus)

Subject of:

- κελεύω ("laws command"). (Demosthenes)
- ἀπογορεύω ("laws forbid"). (Demosthenes)

Attributes:

- πάτριος ("laws of their country"). (Flavius Josephus)
- ιδιωτικός ("your laws"). (Demosthenes)
Dynamic Lexicon

δύναμις

(noun): power, force, army (Flavius Josephus)

Attributes:
- ναυτικός ("naval force"): 15.01/31. (Polybius)
- πεζικός ("land army"): 12.45/12. (Polybius)
- μέγας ("great power"): 4.52/115. (Isocrates)
- τηλικόττος ("so great power"): 4.49/25. (Isocrates)
- ἐαυτοῦ ("his power"): 3.24/102.

Object of:
- ἔχω ("having as much power"): 8.93/239. (Plato)
- ἔξαγω ("to army"): 2.40/16. (Polybius)
- ἀθροίζω ("gather all together army"): 2.32/15.
- ἔχει ("potency"): 2.16/25. (Epictetus, Plato)

Example sentences.
- ἡ δύναμις ἡ λογική: ("the reasoning faculty,"). Epict. 1.1.
- αὐτὸν δὲ ὀτι δυνάμεως καὶ ἐνεπελεξίας ζητοῦσι λόγον ἑνοποιῶν καὶ διαφοράν. ("e. g.,"). Aristot. Met. 8.1045b.
- θεών δύναμις μεγίστη. ("the gods 'power is supreme."). Eur. Alc. 213.
Global Editions -- First Attempt

Selections from Thucydides as starting point
Global Editions -- First Attempt

Selections from Thucydidies as starting point
Translingual annotations: named entities, morphology, syntax etc.
Global Editions -- First Attempt

Selections from Thucydides as starting point
Translingual annotations: named entities, morphology, syntax etc.
Language dependent: aligned translations
  Croatian, English, Farsi, French(?), German, Italian, Latin.
European/Global Greek and Latin

1. Easily localized tasks: morpho-syntactic analysis, named entity identification

2. Language- and culture-specific tasks: translation, (at least some) commentary
European/Global Greek and Latin

Each student who studies Greek and Latin immediately becomes aware of being part of a European, ideally a global, community.

Not the crowd: each student is a citizen rather than a subject, with the ability to contribute something from the very start.
Conclusions

The amount of cultural material available means that scholar-to-scholar exchange needs to be integrated into larger networks, driven by citizen scholars.
Conclusions

Greek and Latin can play a leading role in forging new flows in a global dialog of civilizations.
Conclusions

The study of Greek and Latin should be fundamentally transnational and can contribute to the development of a new European culture, within Europe and for the world.
Thank you!