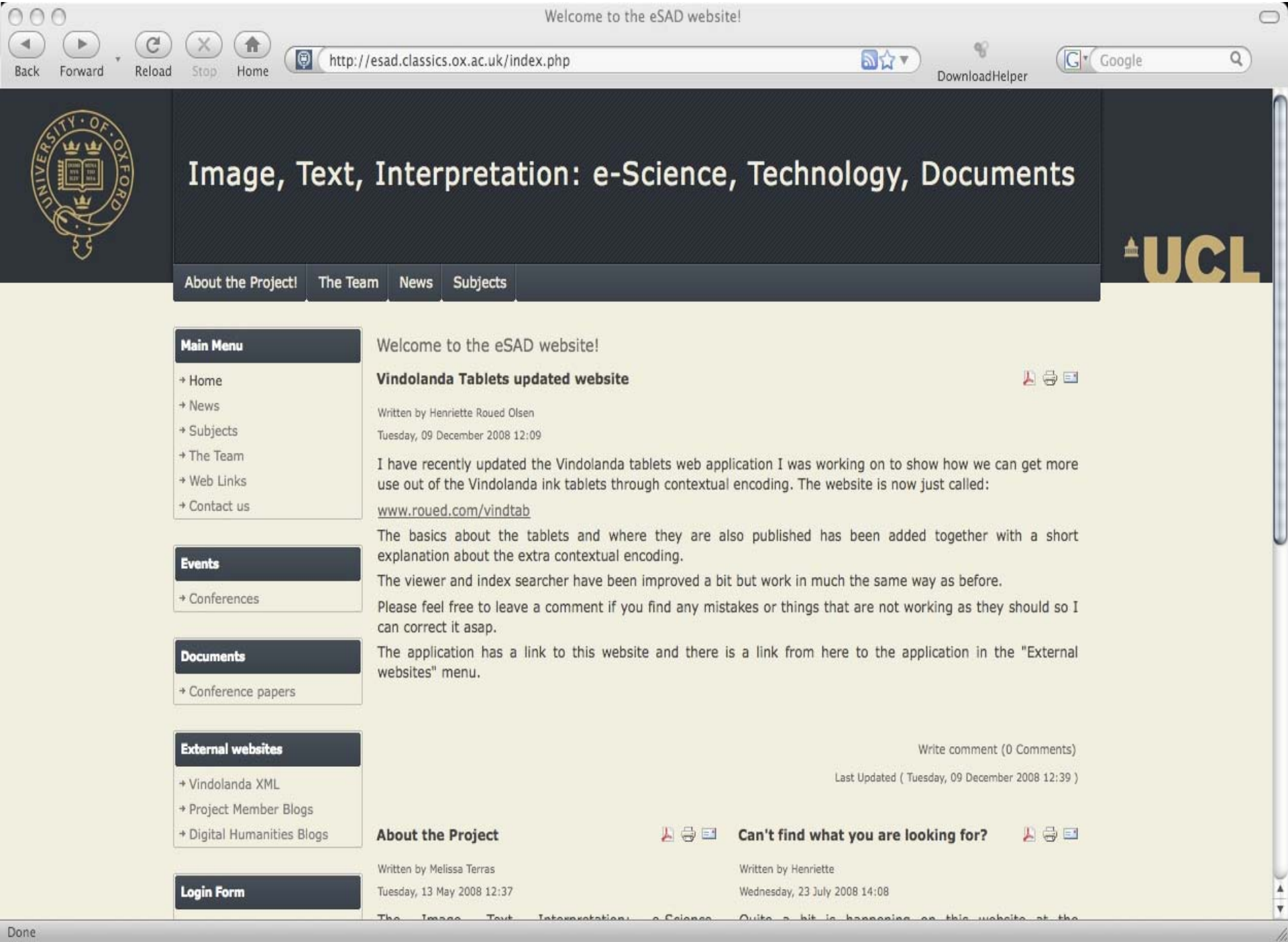
Welcome to the eSAD website!
Back
Forward
Reload
Stop
Home
http://esad.classics.ox.ac.uk/index.php
DownloadHelper
Google
Image, Text, Interpretation: e-Science, Technology, Documents
UCL
About the Project!
The Team
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The Team
Web Links
Contact us
Events
Conferences
Documents
Conference papers
External websites
Vindolanda XML
Project Member Blogs
Digital Humanities Blogs
Login Form
Welcome to the eSAD website!
Vindolanda Tablets updated website
Written by Henriette Roued Olsen
Tuesday, 09 December 2008 12:09
I have recently updated the Vindolanda tablets web application I was working on to show how we can get more use out of the Vindolanda ink tablets through contextual encoding. The website is now just called:
www.roued.com/vindtab
The basics about the tablets and where they are also published has been added together with a short explanation about the extra contextual encoding.
The viewer and index searcher have been improved a bit but work in much the same way as before.
Please feel free to leave a comment if you find any mistakes or things that are not working as they should so I can correct it asap.
The application has a link to this website and there is a link from here to the application in the "External websites" menu.
Write comment (0 Comments)
Last Updated (Tuesday, 09 December 2008 12:39)
About the Project
Written by Melissa Terras
Tuesday, 13 May 2008 12:37
Can't find what you are looking for?
Written by Henriette
Wednesday, 23 July 2008 14:08
Done

IMAGE, TEXT, INTERPRETATION
E-SCIENCE, TECHNOLOGY, DOCUMENTS

PRINCIPAL INVESTIGATORS

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http://esad.classics.ox.ac.uk

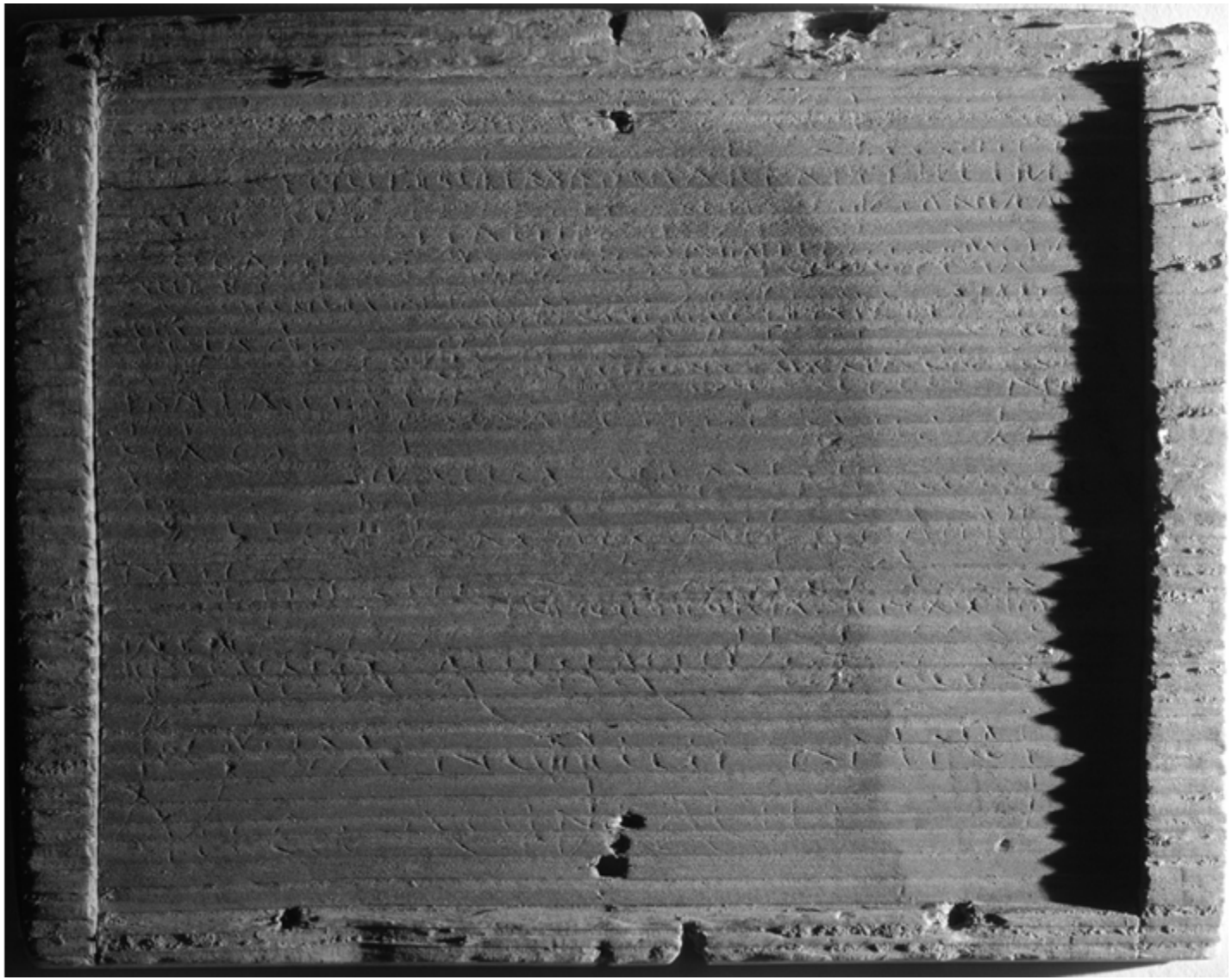
Funded by the AHRC-EPSRC-JISC Arts and Humanities E-Science Initiative 2008-11

Arts & Humanities Research Council

TEXT, IMAGE, INTERPRETATION

- Develop and deliver an image-processing tool which is routinely usable for research on a range of documents by textual experts without a high level of technical IT knowledge, including software from recent developments on image segmentation and stroke/feature detection
- Identify and build a restricted and defined number of sets of shapes (e.g. letter-strokes) and linguistic conventions. This will be made extensible so that scholars can add their own preferences and insights to the standard repertoire
- Develop and test the system for a restricted set of types of medium (wood, stone, parchment, paper, metal)
- Develop a system to support reasoning under uncertainty and interaction with expert users, building on the experience of Robertson and Terras and the *MDTSuite*
- Configure these so that they operate in a single (not distributed), web-based environment in order to share tools and data.

“you want to read that??!!”



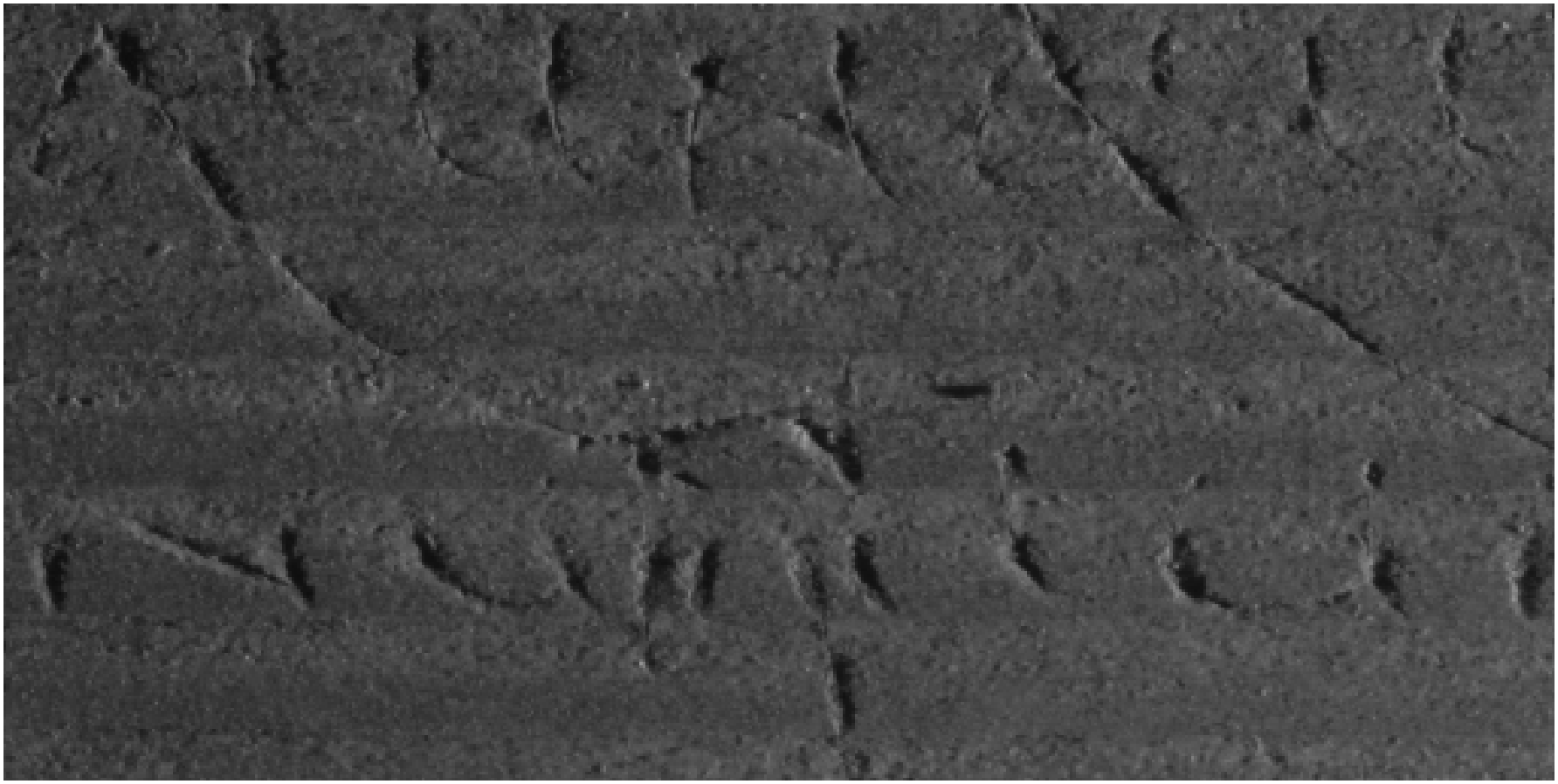
When the whisky wears off…

The easy bit: raising funds

The hard bit: watch Roger and Alan with a mixture of admiration and despair

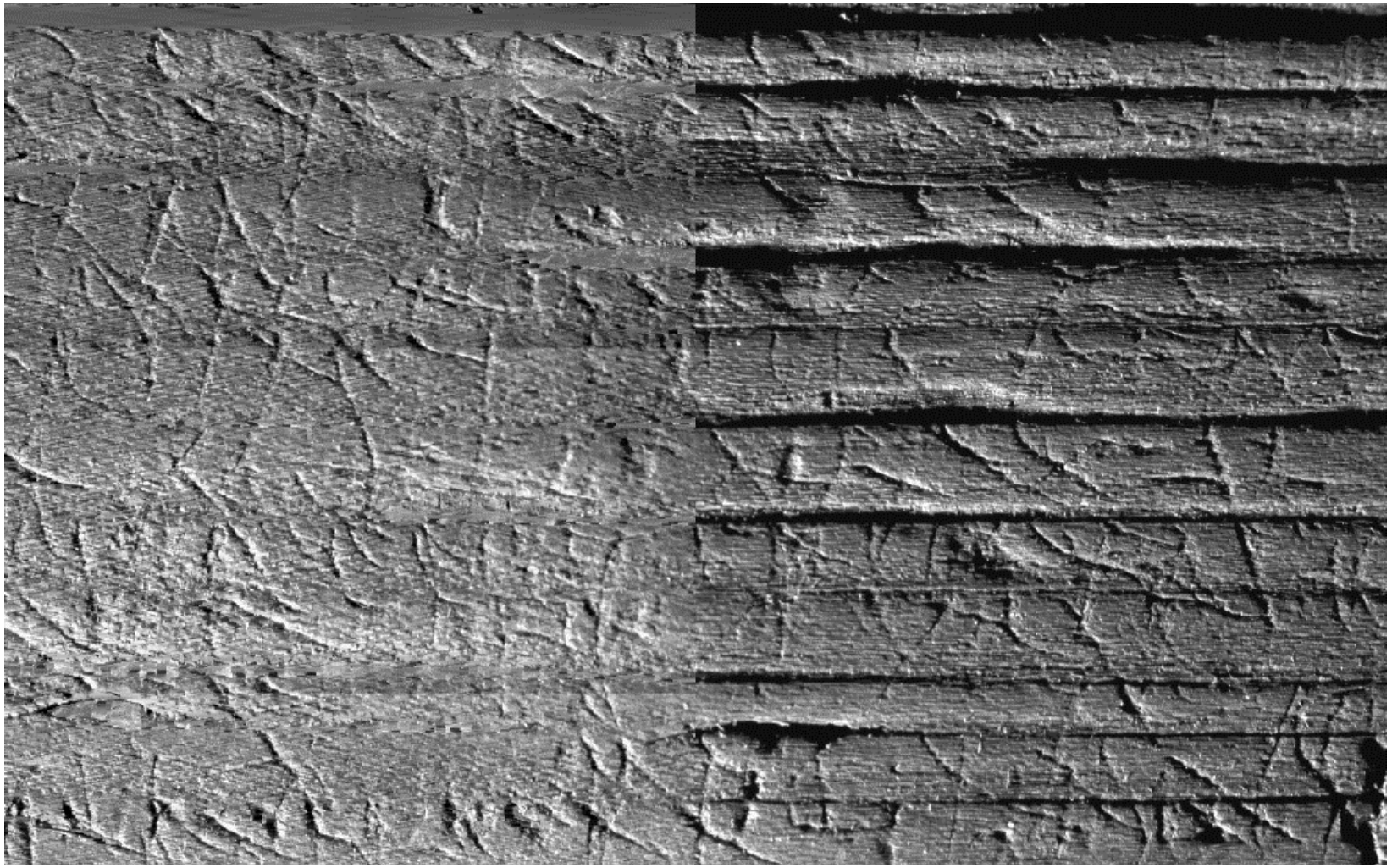
Roger’s rocking reading and a moment of inspiration

Stilus tablet fragment



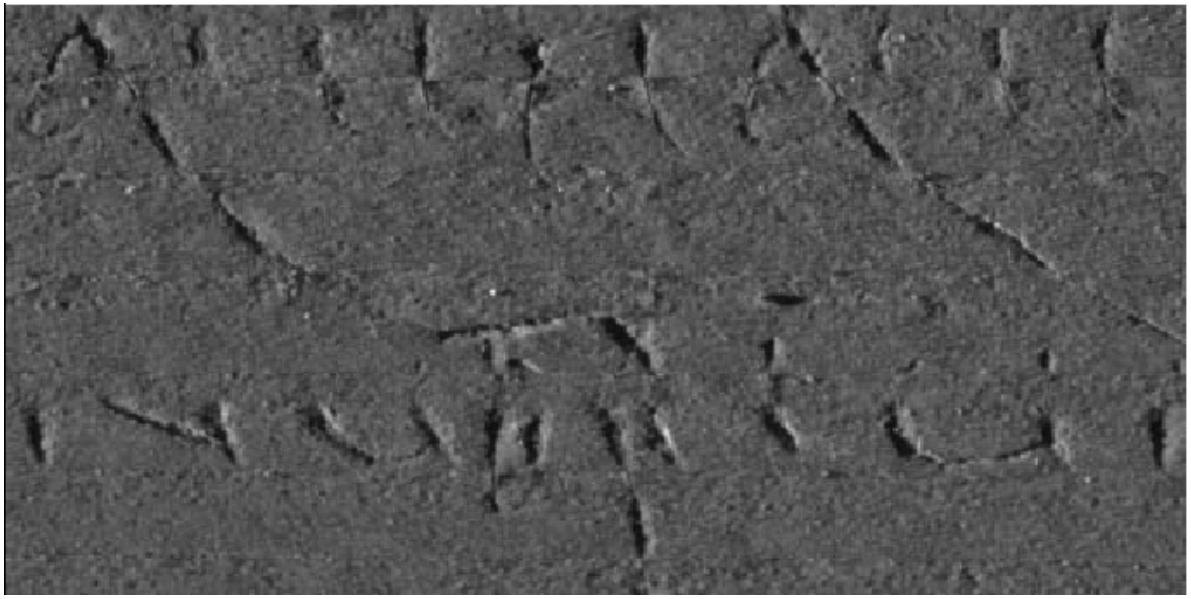
QUINQUE, NUTRIUI

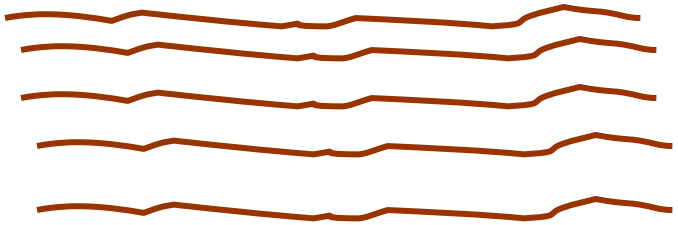
Bye bye woodgrain



Original tablet

Removal of wood grain based on a model of Lambertian reflectance of tablet surface, and observation that n(x,y) varies relatively quickly in y-direction but slowly in x-direction …





Wood grain idealised as predominantly horizontal

Shadow stereo algorithm

pick an azimuthal light direction, then

take images at different elevations

1 for each:

a remove wood grain

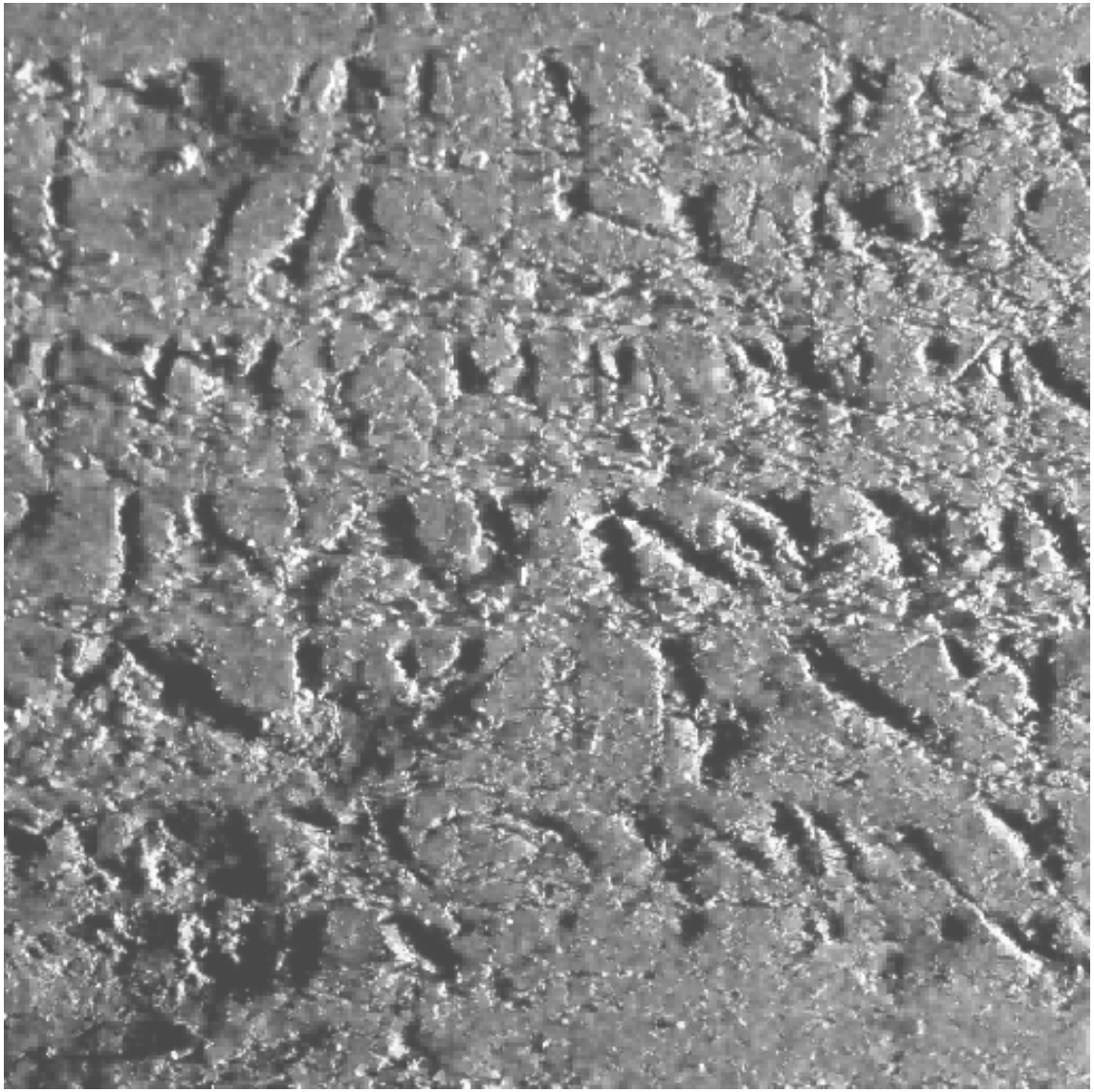
b find shadows adjacent to highlights

c use these to detect candidate strokes

2 detect those candidate strokes that move as they “should” do

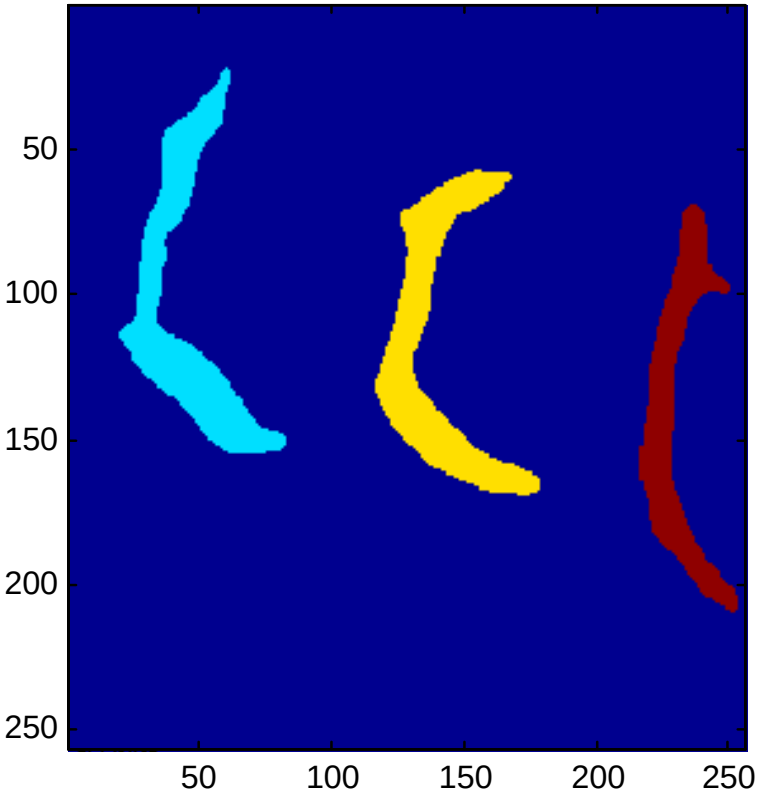
the hard bit is making these steps precise!

“Shadow stereo”



The movement of shadows gives a compelling sense of depth, and facilitates the differentiation between incisions and surface markings

Strokes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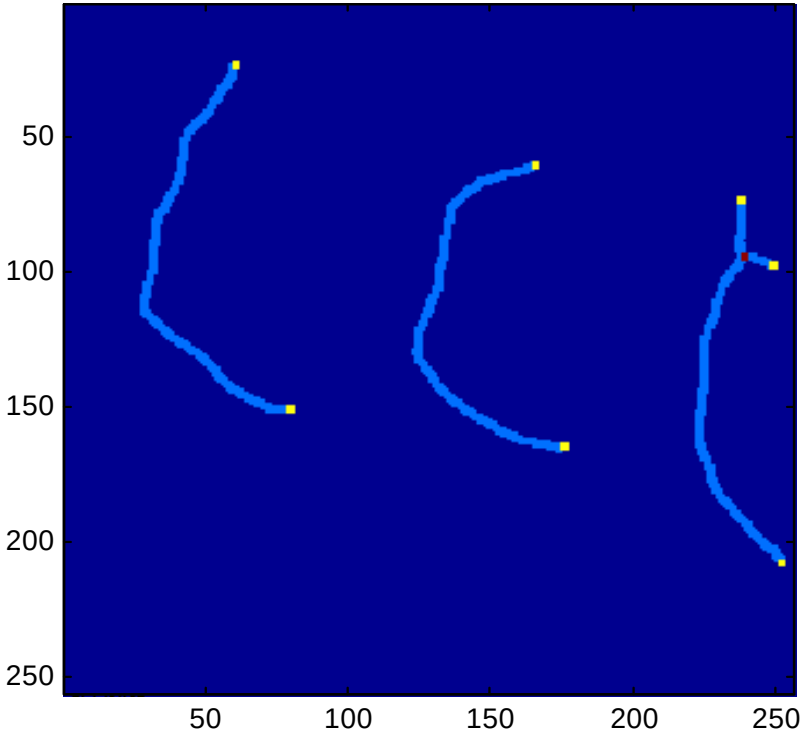
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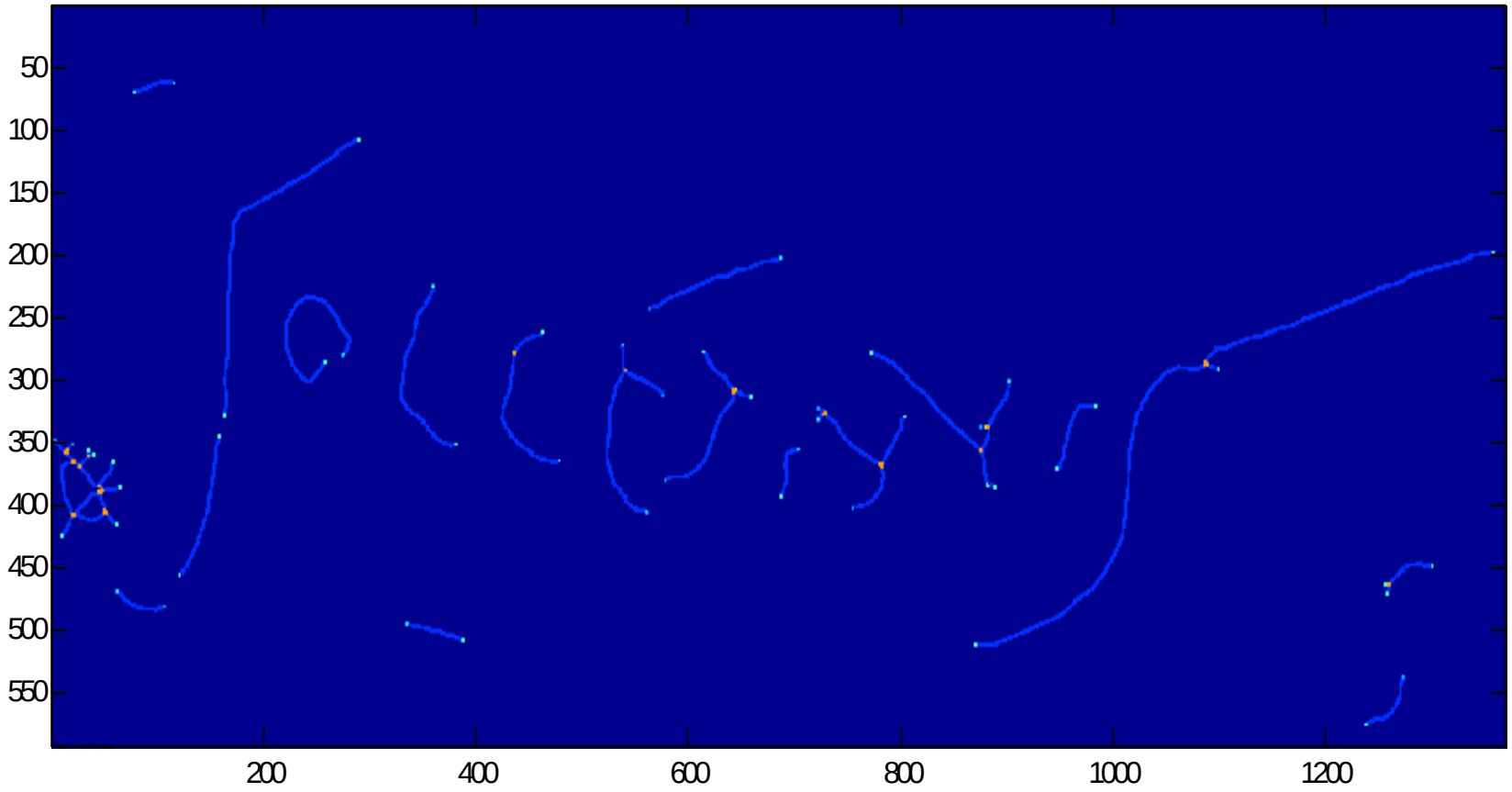
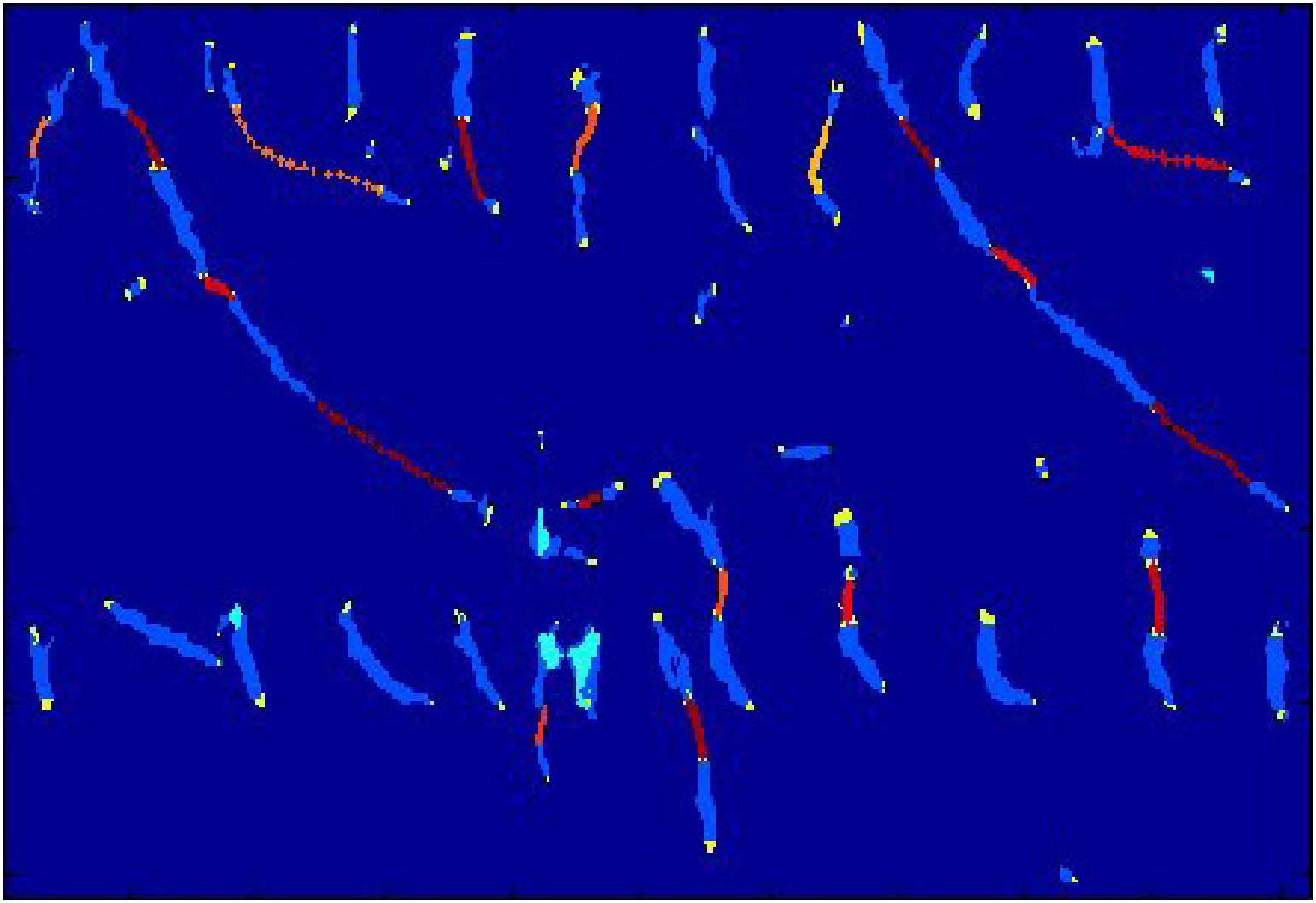
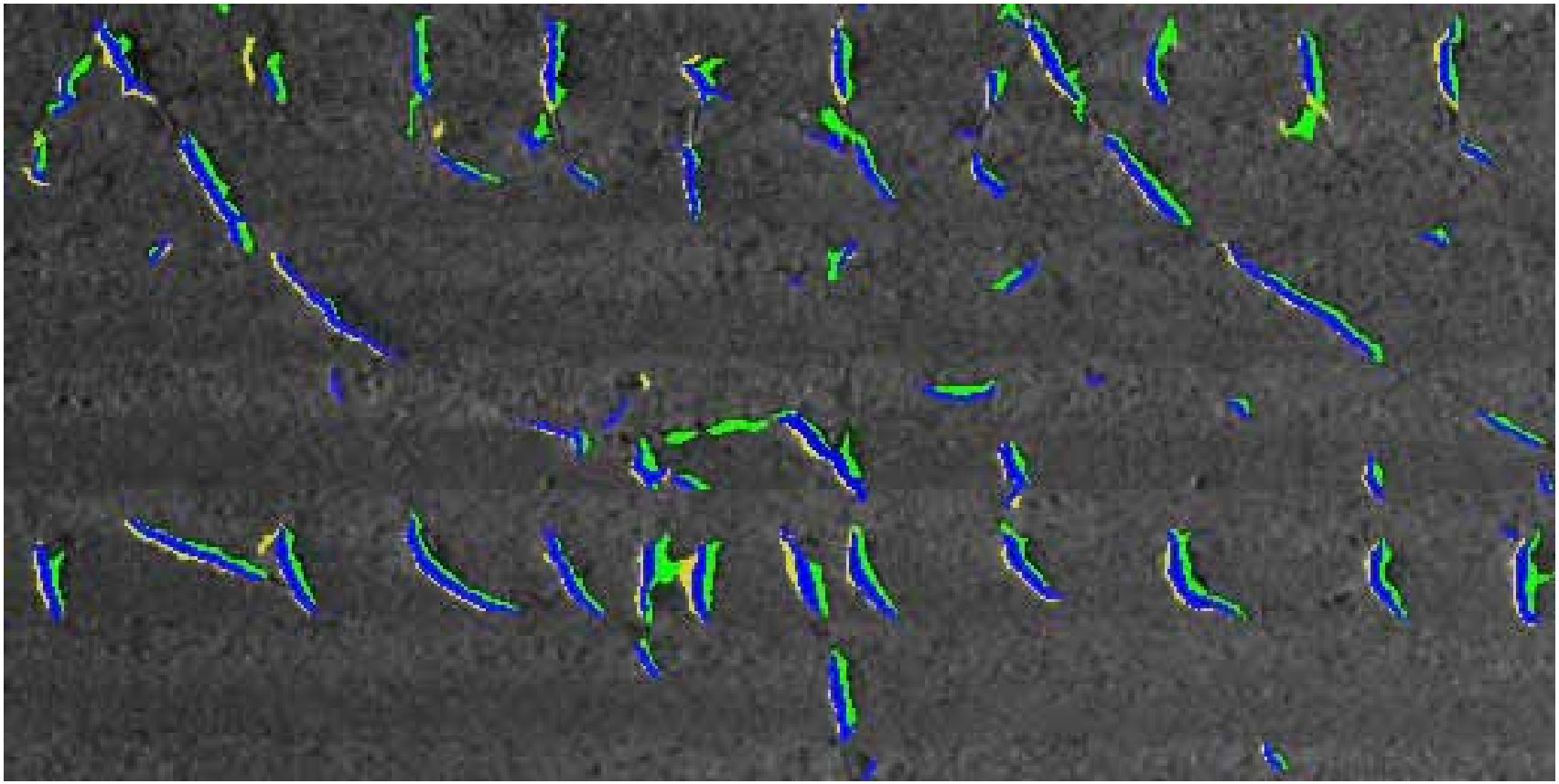
Stroke, end points and junctions





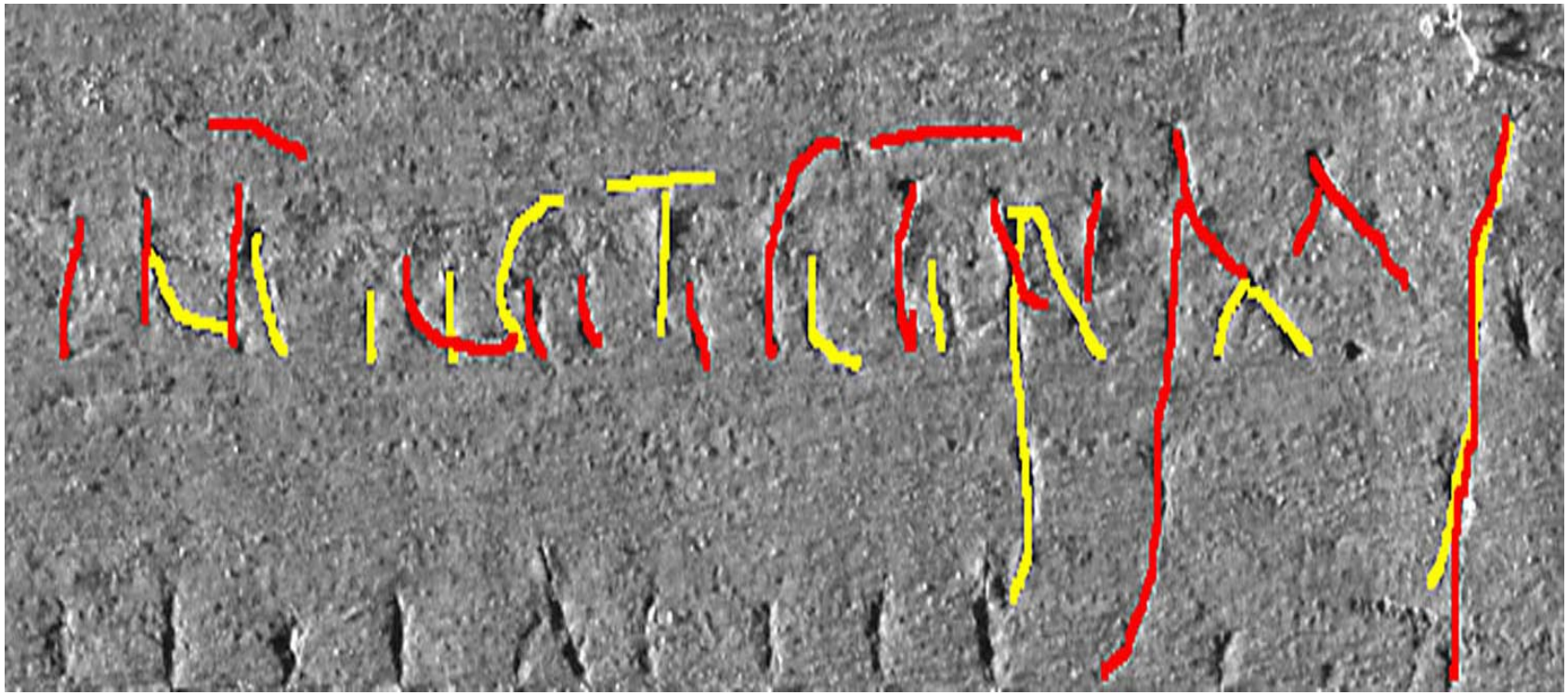
Filling in the gaps in strokes



Key: yellow: highlight,

Blue: transition from highlight to shadow,

Green: shadow



Tab.Vindol.I 25 (= II 247)

1983 transcript: **c…io inmatura ad metalla**

1994 transcript: **Lepidinam tuam a me saluta**

THE FRISIAN OX

GARGILIUS SECUNDUS N(UMMIS)
CXV A S[T]EL[O] RIIPERII
BEEOSO VILA LOPETEI
RITE UTI L(ICET) BOVEM
EMI TESTE CESDIO C(ENTURION)I
(Volgraff 1917)

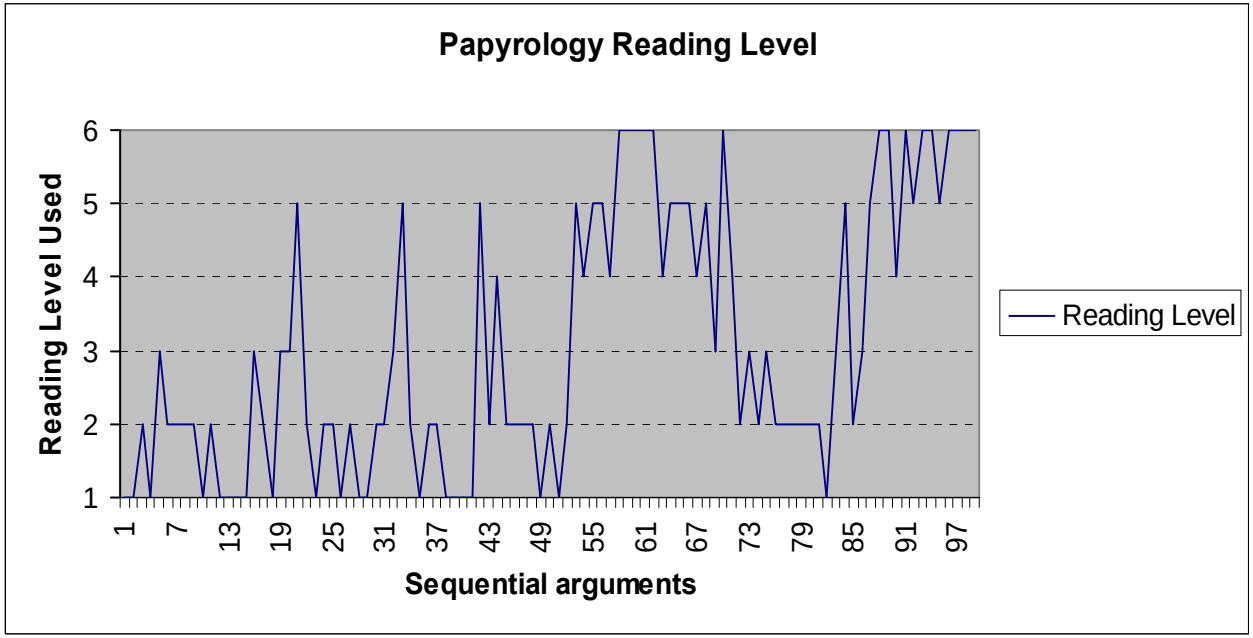
ȻARỌ ỊỤLI*A* SECUND*AẸ*
QU*OS* E*A* RE*DER*E
ḌEḄO QUA DIẸ PEȚIE-
RIT *AUT AD* QUEM
E*A RES PERTINEBI(T)*
***(*Bowman,Tomlin & Worp 2009)**

UNDERSTANDING TEXTS

"In the face of such discouragements [sc. the poor physical state of the papyrus], in whatever combination they may occur, the transcriber repeatedly finds that his most strenuous efforts to obtain a reading are frustrated. His only hope lies in supplementing his knowledge of handwriting with as full an understanding as he can get of the scribe's purpose in writing the text. He tries to take account of the text as a communication, as a message, as a linguistic pattern of meaning. He forms a concept of the writer's intention and uses this to aid him in transcription. As his decipherment progresses, the amount of text that he has available for judging the writer's intention increases, and as this increases he may be forced to revise his idea of the meaning or direction of the entire text, and as the meaning changes for him, he may revise his reading of portions of the text which he had previously thought to be well read. And so he constantly oscillates between the written text and his mental picture of its meaning, altering his view of one or both as his expanding knowledge of them seems to make necessary. Only when they at least cover each other is he able to feel that he has solved his problem. The tension between the script and its content is then relaxed: the two have become one."

(H.C.Youtie, 1973)

Knowledge elicitation



Key to "Reading level":

1. Stroke/feature
2. Character
3. Word/morphemic unit
4. Grammatical
5. Meaning of text fragment

Result of a transcript of a one-hour discussion between AKB/RSOT, with "knowledge" categorised using the McClelland-Rumelhart theory of reading.

Interpretation as a process of constraint propagation

HIGH LEVEL PERCEPTS

- Artefacts with writing from northwestern Europe, first century AD

  Some range of materials (potsherds, graffiti, metal, stone) and languages
- Writing on wood in classical antiquity

  Greek and Latin documents, different kinds of writing-tablets
- Texts written in Latin

  Cursive, capital, literary, documentary on variety of media

MID-LEVEL PERCEPTS

- Stilus tablets used in various formats

  Multiple sets (x2, x3), writing back and front, seals etc., including some practices indicating date. Not considered in original edition which assumes we have a complete document – now seems unlikely (deduced from content).
- Business documents, contracts of sale, legal agreements etc.

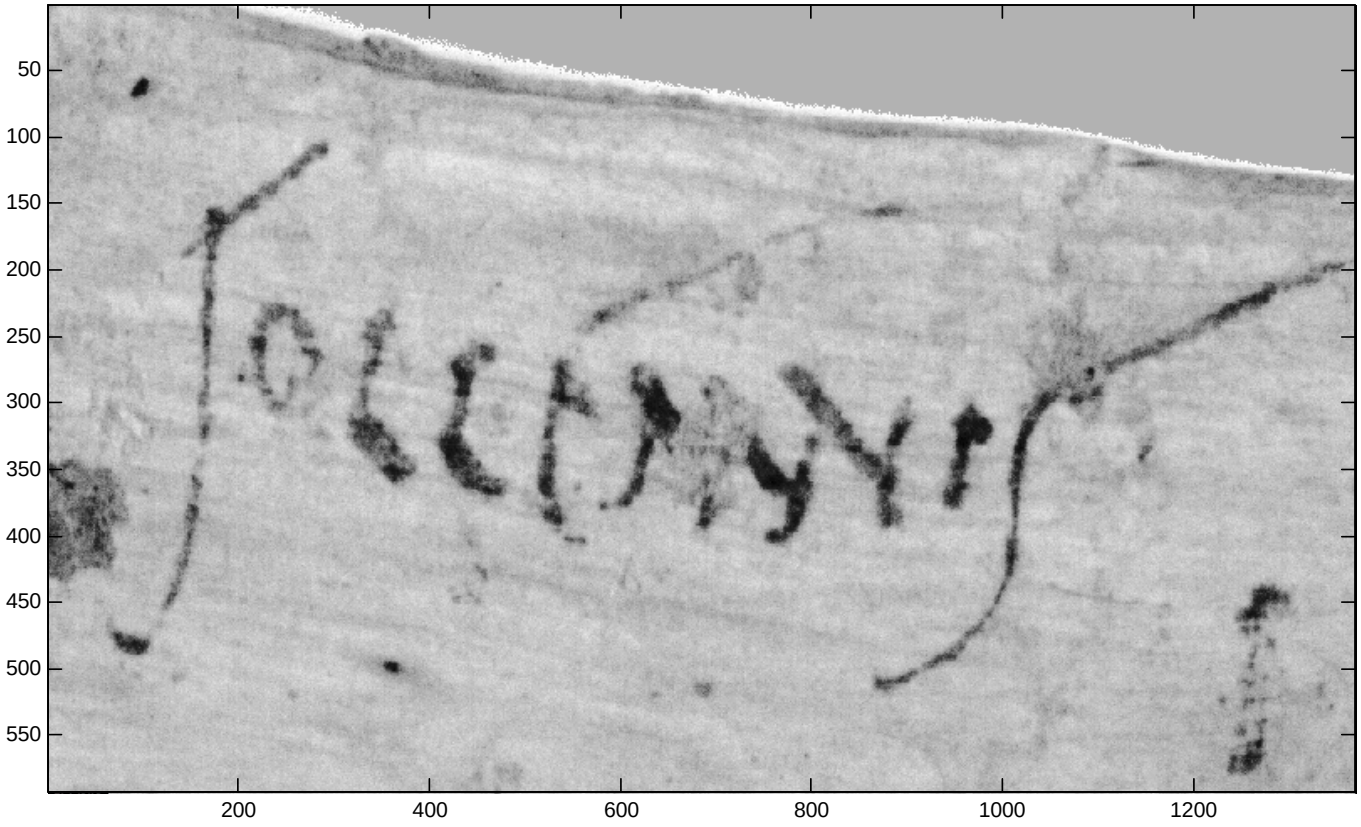
  Original hypothesis that tablet belongs to this category still appears valid, though neither original text nor the new one precisely fit formulae of comparable material. General similarity and assumption that at this date and place such documents might be more informal
- Latin texts written in Old Roman Cursive (ORC), pre-250 AD

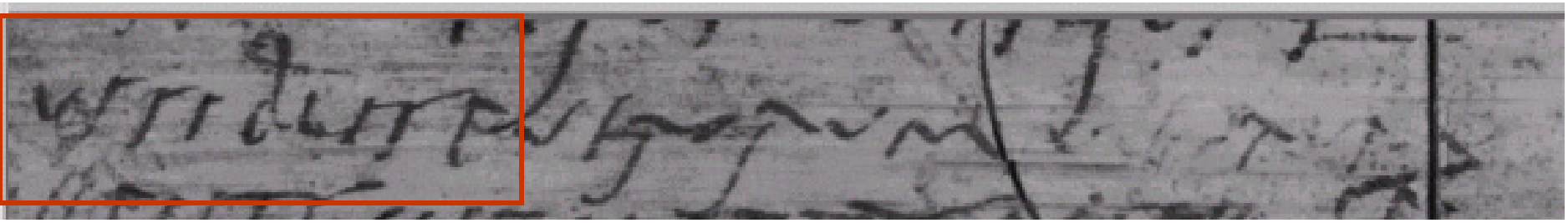
  General character of handwriting, might be challenged by specific palaeographical observations or by evidence which supported a date post-250, leading to reconsideration of classification of scripts.

LOW-LEVEL PERCEPTS

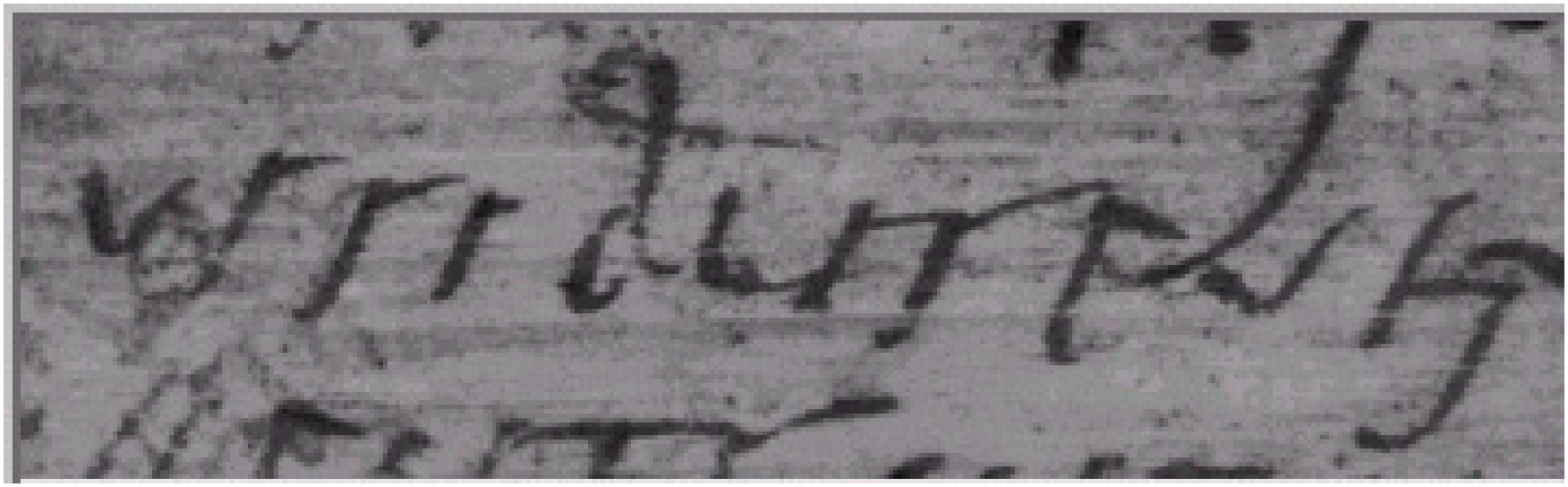
- Identification of scratches as letters or not
- Identification and classification of letter forms
- Construction of sequences of letters as words and sequences of words as sentences

A small part of an ink tablet

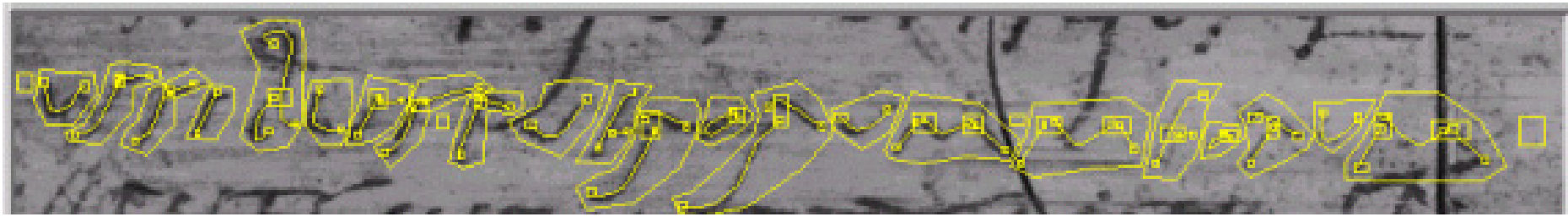




A line of text from an ink tablet



Zoom to show image complexity



Segmentation of characters and their strokes

iteration 0 MDL=86.36351 **interpretation**=(**u s s i b u r r p i e r o r u m m e u r u m**)

iteration 1 MDL=56.676826 **interpretation**=(**ussibuss p i e r o r u m meorum**)

iteration 2 MDL=56.111915 **interpretation**=(**u s s i b u r r puerorum meorum**)

iteration 6 MDL=47.301033 **interpretation**=(**ussibuss puerorum m e u r u m**)

iteration 7 MDL=36.863136 **interpretation**=(**ussibuss puerorum meorum**)

MDL interpretation using knowledge of words (and their frequencies), character shapes, and bigram frequencies

Image to Interpretation

- Team: Professors Alan Bowman (Ancient History), Mike Brady (Engineering Science), Mel Terras (UCL), Paul Robertson (MIT)
- Terras:
  - Compiled a lexicon of Roman words
  - Compiled a catalogue of character shapes found at Vindolanda
  - Observed Bowman and Tomlin interpreting stilus tablets in terms of a cognitive theory of reading
- Terras, Robertson and Brady built a program to incorporate these findings to suggest interpretations of a text

MDT Meetings

- Allow each case to be considered by a team of clinicians with expertise in different aspects of cancer management
  - Surgeon(s), radiologist(s), clinical and medical oncologist, pathologist(s), nurses, …
  - Ensure all patients receive the same, high-standard of care
- Require the presentation of a *complete set of relevant* information from a wide range of modalities
  - patient history
  - Images: radiology, pathology, … recent and past
  - Patient state, and likely tolerance of chemotherapy, interventions
  - (microarray data, epidemiology, …)
- Cost of bringing together such expertise is high, therefore process should be as efficient as possible to make best use of clinicians' time

Looking forward

- Turn the research prototype into a routinely useable piece of software
  - by helping AKB/RT read several tablets
- Curse tablets and other (seemingly impossible) “documents”*
- Grid enabled collaborations
- Dynamically Assembled Knowledge Sources

*can’t you guys do anything that is reasonably easy?