



CAMBRIDGE CLASSICAL STUDIES

*Orthographic Traditions
and the Sub-elite in the
Roman Empire*

NICHOLAS ZAIR

ORTHOGRAPHIC TRADITIONS AND THE SUB-ELITE IN THE ROMAN EMPIRE

This book makes use of digital corpora to give in-depth details of the history and development of the spelling of Latin. It focusses on sub-elite texts in the Roman empire and reveals that sophisticated education in this area was not restricted to those at the top of society. Nicholas Zair studies the history of particular orthographic features and traces their usage in a range of texts which give insight into everyday writers of Latin, including scribes and soldiers at Vindolanda, slaves at Pompeii, members of the Praetorian Guard and writers of curse tablets. In doing so, he problematises the use of 'old-fashioned' spelling in dating inscriptions, provides important new information on sound change in Latin and shows how much can be gained from a detailed sociolinguistic analysis of ancient texts.

NICHOLAS ZAIR is Senior Lecturer in Classics (Classical Linguistics and Comparative Philology) at the University of Cambridge and Fellow in Classics and Linguistics at Peterhouse. He recently held a Pro Futura Scientia Fellowship at SCAS (Uppsala) and CRASSH (Cambridge). He is also the author of *The Reflexes of the Proto-Indo-European Laryngeals in Celtic* (2012) and *Oscan in the Greek Alphabet* (Cambridge, 2016), and co-editor of *Migration, Mobility and Language Contact in and around the Ancient Mediterranean* (Cambridge, 2020).

CAMBRIDGE CLASSICAL STUDIES

General editors

J. P. T. CLACKSON, W. M. BEARD, G. BETEGH,
R. L. HUNTER, M. J. MILLETT, S. P. OAKLEY,
R. G. OSBORNE, C. VOUT, T. J. G. WHITMARSH

ORTHOGRAPHIC TRADITIONS AND THE SUB-ELITE
IN THE ROMAN EMPIRE

NICHOLAS ZAIR
University of Cambridge



CAMBRIDGE
UNIVERSITY PRESS



CAMBRIDGE
UNIVERSITY PRESS

Shaftesbury Road, Cambridge CB2 8EA, United Kingdom
One Liberty Plaza, 20th Floor, New York, NY 10006, USA
477 Williamstown Road, Port Melbourne, VIC 3207, Australia
314–321, 3rd Floor, Plot 3, Splendor Forum, Jasola District Centre, New Delhi – 110025, India
103 Penang Road, #05–06/07, Visioncrest Commercial, Singapore 238467

Cambridge University Press is part of Cambridge University Press & Assessment,
a department of the University of Cambridge.

We share the University's mission to contribute to society through the pursuit of
education, learning and research at the highest international levels of excellence.

www.cambridge.org

Information on this title: www.cambridge.org/9781009327664

DOI: [10.1017/9781009327633](https://doi.org/10.1017/9781009327633)

© Faculty of Classics, University of Cambridge 2023

This work is in copyright. It is subject to statutory exceptions and to the provisions
of relevant licensing agreements; with the exception of the Creative Commons version
the link for which is provided below, no reproduction of any part of this work may take
place without the written permission of Cambridge University Press.

An online version of this work is published at doi.org/10.1017/9781009327633 under a Creative
Commons Open Access license CC-BY-NC-ND 4.0 which permits re-use, distribution and
reproduction in any medium for non-commercial purposes providing appropriate credit to the
original work is given. You may not distribute derivative works without permission. To view
a copy of this license, visit <https://creativecommons.org/licenses/by-nc-nd/4.0>

All versions of this work may contain content reproduced under license from third parties.

Permission to reproduce this third-party content must be obtained from these third-parties
directly.

When citing this work, please include a reference to the DOI [10.1017/9781009327633](https://doi.org/10.1017/9781009327633)

First published 2023

A catalogue record for this publication is available from the British Library.

A Cataloging-in-Publication data record for this book is available from the Library of Congress.

ISBN 978-1-009-32766-4 Hardback

ISBN 978-1-009-32767-1 Paperback

Cambridge University Press & Assessment has no responsibility for the persistence
or accuracy of URLs for external or third-party internet websites referred to in this
publication and does not guarantee that any content on such websites is, or will
remain, accurate or appropriate.

Don't write naughty words on walls if you can't spell.

Tom Lehrer, 'Be prepared'

CONTENTS

<i>List of Figures</i>	<i>page x</i>
<i>List of Tables</i>	<i>xi</i>
<i>Foreword</i>	<i>xiii</i>
<i>Note on the Text</i>	<i>xiv</i>
<i>List of Abbreviations</i>	<i>xvi</i>
Printed Works	<i>xvi</i>
Online Resources	<i>xviii</i>
I Introduction	I
What This Book Is About	I
Sub-elite Education in Literacy	3
Defining ‘Old-fashioned’ Spelling	10
Standard and Non-standard Spelling	15
Structure of the Book	18
Methodology	19
Scribes, Writers and Authors	19
Finding and Counting Old-fashioned Spelling	21
The Sub-elite Corpora	26
The Tablets of the Sulpicii (TPSulp.)	28
The Tablets of Caecilius Jucundus (CIL 4.3340)	30
The Tablets from Herculaneum (TH ²)	31
The Tablets from London (WT)	31
The Vindonissa Tablets (T. Vindon.)	32
The Vindolanda Tablets (Tab. Vindol.)	32
The Bu Njem Ostraca (O. BuNjem)	33
Papyrus and Parchment from Dura Europos (P. Dura)	34
Graffiti from the Paedagogium	34
Curse Tablets (Kropp)	35
Letters (CEL)	35
Funerary Inscriptions from the Isola Sacra (IS)	36
Writers on Language	37
A Sketch of the Latin Vowel System through Time	39

Contents

Part I: Old-fashioned Spellings

2	<ai> for /æ/	47
3	<ei> and <e> for /i:/	50
	<ei> for /i:/	50
	<e> for /i:/	57
4	<o> for /u/	65
5	<o> for /u:/	74
6	Alternation of <u> and <i>	75
	/u/ and /i/ in Initial Syllables after /l/ and before a Labial	75
	/u/ and /i/ in Medial Syllables before a Labial	82
7	<uo> for /we/ before a Coronal	106
8	<uo> and <uu> for /wu/ and /uu/, and <quo> and <quu> for /k ^w u/	109
9	Double Letters to Write Long Vowels	129
10	<c> for /g/	132
11	<ii> for /jj/	134
12	<k> before /a(:)/ and <q> before /u(:)/	138
	<k> before /a(:)/	144
	<q> before /u(:)/	158
13	<qu> for /k/ before Back Vowels	165
14	<xs> for /ks/	169
15	Geminates and Singletons	182
	<ss> and <s>	182
	<ll> and <l>	192
	Singletons for Geminate Consonants after Original Long Vowels	199
16	<i>spepondi</i>	202
17	<i>popl-</i> and <i>pupl-</i> for <i>publ-</i>	203

Contents

Part II: *Apices* and *i-longa*

18	<i>Apices</i> and <i>i-longa</i> : Introduction	207
19	<i>Apices</i> and <i>i-longa</i> in the Isola Sacra Inscriptions	215
20	<i>Apices</i> in the Vindolanda Tablets	226
21	<i>Apices</i> in the Tablets of the Sulpicii	239
22	<i>Apex</i> Use in the Vindolanda and TPSulp. Tablets in Comparison	245
23	<i>Apices</i> in the Tablets from Herculaneum	250
24	<i>i-longa</i> in the Tablets of the Sulpicii and the Tablets from Herculaneum	251
25	Conclusions	258
	Old-Fashioned Spelling? Problems and Different Histories	258
	Optional Spellings and Sub-elite Education	262
	The Education of Scribes and Stonemasons	271
	Optional Spellings: Evidence for Sound Change	276
	<i>Appendix: <uo> and <uu> in Catullus</i>	280
	<i>Bibliography</i>	283
	<i>Index</i>	295

FIGURES

1	Early Latin vowels	page 39
2	Early Latin diphthongs	39
3	Latin vowels	41
4	Latin diphthongs	42

TABLES

1	<ei> in the curse tablets, undated and first to fourth (or fifth) century AD	page 55
2	<o> for /u/ in the curse tablets	68
3	<i>lub-</i> and <i>lib-</i> in inscriptions (omitting forms of <i>libēns</i> from AD 100)	77
4	<i>clupeus</i> and <i>clipeus</i>	80
5	<u> and <i> in some second century BC inscriptions	84
6	Words with <u> spellings in the third and second centuries BC	86
7	<u> and <i> in superlatives in <i>-imus</i>	98
8	<i>monumentum</i> and <i>monimentum</i> in the Isola Sacra inscriptions	103
9	<i>contubernalis</i> and <i>contibernalis</i> in the Vindolanda tablets	104
10	<uo> and <uu> 100–50 BC	111
11	<uo> and <uu> spellings at Vindolanda	124
12	<uo> and <uu> in the Caecilius Jucundus tablets	126
13	<c> for <g> in the Isola Sacra inscriptions	133
14	Inscriptional spellings with <k> and <c>	148
15	<k> spellings in the Vindolanda tablets	151
16	<k> in the Isola Sacra inscriptions	155
17	<q> and <c> before <u> in the Claudius Tiberianus letters	162
18	<q> before <u> in the curse tablets	163
19	<xs> at Vindolanda	171
20	<xs> and <x> in the London tablets	174
21	<xs> and <x> in <i>dixit</i> in the Caecilius Jucundus tablets	176
22	<xs> and <x> in other words in the Caecilius Jucundus tablets	177

List of Tables

23	Use of <xs> and <x> by scribes and others in the Caecilius Jucundus tablets	179
24	<xs> in the curse tablets	180
25	<ss> at Vindolanda	184
26	<ss> and <s> in the tablets of the Sulpicii	188
27	Unetymological <ss> for /s/ in the curse tablets	190
28	<ss> and <s> in the London tablets	192
29	<ll> and <l> in the tablets of the Sulpicii	194
30	<i>millia</i> and <i>milia</i> in the Caecilius Jucundus tablets	197
31	<i>Apices</i> in the Isola Sacra inscriptions	216
32	<i>i-longa</i> on short /i/ in the Isola Sacra inscriptions	220
33	<i>i-longa</i> on long /i:/ in the Isola Sacra inscriptions	221
34	<i>i-longa</i> on /j/ in the Isola Sacra inscriptions	222
35	<i>Apices</i> in the Vindolanda tablets	227
36	Distribution of <i>apices</i> in the Vindolanda tablets	232
37	<i>Apices</i> on vowels in non-final syllables at Vindolanda	234
38	<i>Apices</i> in the tablets of the Sulpicii	240
39	Distribution of <i>apices</i> by vowels and diphthongs in the tablets of the Sulpicii	242
40	<i>Apices</i> in different corpora	246
41	Use of <i> for /i:/ in the tablets of the Sulpicii	254
42	Use of <i> for /j/ in the tablets of the Sulpicii	254
43	Use of <i> for /i/ in the tablets of the Sulpicii	254
44	Use of <i>in</i> and <i>in</i> by following segment in the tablets of the Sulpicii	255
45	Use of <i>in</i> and <i>in</i> according to the case of its complement in the tablets of the Sulpicii	256
46	Possible cases of <uo> and <quo> in the archetype of Catullus	281

FOREWORD

This book was written with – and could not possibly have been without – the support of a Pro Futura Scientia Scholarship held at the Centre for Research in the Arts, Social Sciences and Humanities at Cambridge and the Swedish Collegium for Advanced Study in Uppsala, funded by Stiftelsen Riksbankens Jubileumsfond. The staff at both institutions contributed hugely to the work I did there.

My thanks are owed to the following people, who helped me in ways great or small: Jim Adams, Moreed Arbabzadah, David Butterfield, Felice Costabile, Robrecht Decorte, Wolfgang de Melo, Emmanuel Dupraz, Benjamin Fortson IV, Marco Mancini, Alex Mullen, Philomen Probert, Giulia Sarullo, Rosanna Sornicola; and the attendees at seminars at SCAS and the Department of Archaeology and Ancient History at Uppsala University, the Faculty of Classics in Cambridge and at the conference on Writing Conventions and Pragmatic Perspectives at the Université Libre de Bruxelles. No doubt I have forgotten many others. Particular gratitude goes to James Clackson, Katherine McDonald, and Stephen Oakley, all of whom read drafts of the whole thing and provided comments and advice, and to Victoria Fendel, who provided essential research assistance.

Andrea Scheibler (Scheibler Editorial) made sure the bibliography had all the right things in it and saved me from a number of mistakes. Michael Sharp, Katie Idle, Liz Davey of Cambridge University Press, and Lesley Hay of Hay Editorial provided a smooth path to publication.

Rachele De Felice and Kitty Zair ignored the book as best they could, but they get thanked anyway.

NOTE ON THE TEXT

This book uses the standard conventions of epigraphy, phonology and phonetics, and Indo-European linguistics. Unfortunately, these to some extent overlap so that the same symbols may be used for more than one purpose; in other cases the ‘same’ element may be represented in more than one way. I draw attention to this here, in the hope of avoiding confusion for the reader: which convention applies should in every case be clear from context.

Where inscriptional forms are being represented, [] surround missing letters, { } surround letters engraved in error, < > surround letters supplied by the editors to replace those omitted or engraved in error, and () enclose the expansion of an abbreviation.

In quoted editions of literary texts, [] surround parts of the text that should be removed and < > a portion of text supplied by the editor.

When individual graphemes are being discussed, they are enclosed within < > (graphemes from the Latin alphabet are not italicised when between angled brackets); on the rare occasions when the actual symbol used for the grapheme is being discussed, this is not enclosed within angled brackets.

Phonemes and sequences of phonemes are enclosed within // and phones within [] (phonetic transcription is as broad as possible). Phonemes and phones are represented according to the conventions of the IPA alphabet, as laid out in the IPA Handbook (The International Phonetic Association 1999). Reconstructed forms are preceded by an asterisk *,¹ and use the standard orthography of historical linguistic and Indo-Europeanist literature. There are three discrepancies between the two that I flag up here. The first is that the labiovelar and palatal approximants (glides) written /w/ and /j/ ([w] and [j]) respectively in the IPA are written **-u̯-* and **-j̥-* in

¹ And a form which should not be reconstructed is preceded by [×].

Note on the Text

reconstructions; as the second element of tautosyllabic diphthongs, these are written /u/ and /i/ in phonemic/phonetic representation (e.g. /ai/ [ai]), but as **-u̇-* and **-i̇-* in reconstructions (e.g. **-ai̇-*). The second is that the vowels of the Latin phoneme system that derive from Proto-Indo-European **e* and **o* are represented as /ɛ/ and /ɔ/ respectively. The third is that long vowels in Latin words and reconstructions are marked by use of a macron, thus: *nōtum*; in the IPA they are marked by use of the symbol :, thus: /nɔ:tum/. I mark long (and, where occasionally relevant, short) vowels in Latin words when I am referring to that word as a lexeme; long vowels are not marked when quoting actual forms found in inscriptions or other texts, nor when I am using a Latin word borrowed into English.

Given that much of this book is devoted to counting particular spelling features, I have preferred to use numerals rather than words even in running text, since this makes it easier to quickly identify the key information in the text.

ABBREVIATIONS

Printed Works

- AE *L'Année Epigraphique*
- CEL Cugusi, Paulo (1992–2002). *Corpus Epistularum Latinarum Papyris Tabulis Ostracis Servatarum*. Florence, Edizioni Gonnelli
- CIL Mommsen, Theodor et al. (1863–). *Corpus Inscriptionum Latinarum*. Berlin: George Reimer and Walter De Gruyter
- GL Keil, Heinrich (1855–80). *Grammatici Latini*. Volumes 1–7. Leipzig: Teubner. Reprint (2009). Cambridge: Cambridge University Press
- ICUR *Inscriptiones Christianae Urbis Romae. Nova series*
- IEW Julius Pokorny (1959). *Indogermanisches etymologisches Wörterbuch*. Bern and Munich: Francke Verlag
- ILA Cagnat, René, Alfred Merlin and Louis Chatelain (1923). *Inscriptions latines d'Afrique (Tripolitaine, Tunisie, Maroc)*. Paris: Éditions Ernest Leroux
- ILCV Diehl, Ernst (1925–31). *Inscriptiones Latinae Christianae Veteres*. Berlin: Weidmann
- IS Helttula, Anne (2007). *Le iscrizioni sepolcrali latine nell'Isola sacra*. Rome: Institutum Romanum Finlandiae
- Kropp Kropp, Amina (2008). *Defixiones. Ein aktuelles Corpus lateinischer Fluchtafeln*. Speyer: Kartoffeldruck-Verlag

List of Abbreviations

- O. BuNjem Marichal, Robert (1992). *Les ostraca de Bu Njem*. Tripoli: Grande Jamahira Arabe, Libyenne, Populaire et Socialiste
- OLD Glare, P. G. W. (ed.) (2012). *Oxford Latin Dictionary*. Second edition. Oxford: Oxford University Press
- P. Dura Welles, C. Bradford, Robert O. Fink and J. Frank Gilliam (1959). *The Excavations at Dura-Europos Conducted by Yale University and the French Academy of Inscriptions and Letters, Final Report V, Part I, The Parchments and Papyri*. New Haven, CT: Yale University Press
- P. Mich. VIII Youtie, Herbert C. and John G. Winter (1951). *Michigan Papyri VIII. Papyri and Ostraca from Karanis. Second Series*. Ann Arbor, MI: University of Michigan Press
- Tab. Vindol. Bowman, Alan K. and J. David Thomas (1983). *Vindolanda: The Latin Writing Tablets*. London: Society for the Promotion of Roman Studies
- Bowman, Alan K. and J. David Thomas (1994). *The Vindolanda Writing Tablets (Tabulae Vindolandenses II)*. London: British Museum Press
- Bowman, Alan K. and J. David Thomas (2003). *The Vindolanda Writing Tablets (Tabulae Vindolandenses III)*. London: British Museum Press
- Bowman, A. K., J. D. Thomas and R. S. O. Tomlin (2010). The Vindolanda writing-tablets (*Tabulae Vindolandenses IV, Part 1*). *Britannia* 41, 187–224
- Bowman, A. K., J. D. Thomas and R. S. O. Tomlin (2011). The Vindolanda writing-tablets (*Tabulae Vindolandenses IV, Part 2*). *Britannia* 42, 113–44

List of Abbreviations

- Bowman, A. K., J. D. Thomas, and R. S. O. Tomlin (2019). The Vindolanda writing-tablets (*Tabulae Vindolandenses IV*, Part 3): new letters of Iulius Verecundus. *Britannia* 50, 225–51
- TH² Camodeca, Giuseppe (2017a). *Tabulae Herculaneses. Edizione e Commento. Volume I*. Rome: Edizioni Quasar
- TPSulp. Camodeca, Giuseppe (1999). *Tabulae Pompeianae Sulpiciorum. Edizione critica dell'archivio puteolano dei Sulpicii*. Rome: Edizioni Quasar
- T. Vindon. Speidel, Michael Alexander (1996). *Die römischen Schreibtafeln von Vindonissa. Lateinische Texte des militärischen Alltags und ihre geschichtliche Bedeutung*. Brugg: Gesellschaft Pro Vindonissa
- WT Tomlin, Roger S. O. (2016). *Roman London's First Voices. Writing Tablets from the Bloomberg Excavations, 2010–2014*. London: Museum of London Archaeology

Online Resources

- EDB Epigraphic Database Bari, www.edb.uniba.it
- EDCS Epigraphik-Datenbank Clauss/Slaby, manfredclauss.de
- EDH Epigraphic Database Heidelberg, edh.ub.uni-heidelberg.de
- EDR Epigraphic Database Roma, www.edr-edr.it
- LLDB Computerized Historical Linguistic Database of Latin Inscriptions of the Imperial Age, lldb.elte.hu
- TLL Thesaurus Linguae Latinae Online tll.degruyter.com

CHAPTER I

Introduction

What This Book Is About

Flavius Cerialis was the prefect of the Ninth Cohort of Batavians at the fortress of Vindolanda, in northern Britain, in the late 90s and early 100s AD. He was probably a Batavian noble, and necessarily of equestrian rank. We have some texts probably written in his own hand, including a draft of a letter (Tab. Vindol. 225), of which Adams (1995: 129) has observed that '[i]ts orthography is consistently correct, and it has two types of old-fashioned spelling (the etymologically correct *-ss-* in *occassio*, twice, and *saluom*)'. On the basis of this and other evidence, he concludes that Cerialis' father was probably made a Roman citizen for loyalty to Rome and that Cerialis received a formal education in upper-class Roman literary culture.

But 'old-fashioned' spelling is by no means restricted to texts written by the highly educated upper class.¹ As Adams notes (1995: 130–1), examples can also be found in the writing of the scribes of Vindolanda, showing that education received by these professionals, whose spelling is generally highly standard, had apparently included such features. And in fact, even in a text whose spelling is aberrant enough to give 'support to the idea that [the writer] may have been a civilian trader without access to military scribes' (Adams 1995: 130–1, on Tab. Vindol. 343, letter from Octavius), there is evidence that this writer too had been taught to use 'old-fashioned' spellings (although not always correctly).

It turns out that Octavius is by no means the only writer who combines substandard and 'old-fashioned' spelling: we will see examples from, among other places and times, first century AD

¹ On the problems of defining 'old-fashioned' spelling (and the reasons for the scare quotes around the term), see pp. 10–15.

Pompeii, second century AD Egypt and fourth century AD Britain. This – along with other types of what I shall call ‘optional’ spelling features – provides a unique, and unexpected, insight into the kind of education that was received by those who did not belong to the highest stratum of society, predominantly in the first to fourth centuries AD.² As will be discussed below, our direct access to knowledge about sub-elite education, in the form of information provided by ancient authors, is very limited. Consequently, if we want to find out about this important question in the study of Roman society, we must take indirect approaches.³

By ‘optional’ spellings I mean those which were available for writers educated in the standard orthography of the day to use (and were hence not considered incorrect), but whose absence would not have led the educated to consider their writer to be un- or under-educated. In addition, they are non-intuitive, that is they will not be produced by a writer who has simply learned a basic mapping of individual letters to sounds.

In this book I will consider two categories of optional spelling: ‘old-fashioned’ features (on the definition of which see pp. 10–15) and diacritics used to mark vowels and glides in the form of the *apex* and *i-longa*. To do this, I use a range of corpora whose writers can be assumed, in the main, to belong to the sub-elite, even though certain of the texts in some of them may have been written by those who belong to the higher echelons of society (e.g. the equestrian prefect Cerialis at Vindolanda); as far as our knowledge allows, I will take the background of the writers

² The problem of the date of the start and finish of the imperial period is of course a long-standing one. I have chosen to focus on the first to fourth centuries partly because this is the date range that the corpora I will be examining mainly come from – although some, such as the curses and the letters, also include a few texts from a little earlier or a little later (for the corpora, see pp. 26–36) – and partly because it is difficult to distinguish between texts in the fifth century before and after the traditional date for the fall of the (western) Roman empire of 476. An argument could be made for starting either at the beginning of the Augustan period in 31 BC or, perhaps more plausibly, its end in AD 14, especially since Augustus’ reign seems to have acted as something of an inflection point in the switch from many ‘old’ to ‘new’ orthographic features. Where it seems particularly relevant – for instance in the discussion of <uo> for /wu/ and /k^wu/ on pp. 109–28 – I have used the Augustan period as a dividing point. But, again, it is not always easy to distinguish between ‘first century’ (BC or AD) texts and ‘Augustan’ texts, so on the whole I have gone for the more straightforward definition of my period by centuries.

³ A good example of this, though taking account of a different type of data, is Morgan (1998).

into account. In addition to this primary purpose, a secondary, but not unimportant, aim is to contribute to the understanding of the development of Roman orthography – and in some cases also sound change – more generally, in order to be useful for both epigraphists and linguists.

Sub-elite Education in Literacy

The question of the extent and type of literacy in the ancient world is a perennial one and is difficult to answer. [Harris \(1989: 259–73\)](#) estimates levels of literacy under the Roman empire to be no greater than 15% in Italy and 5–10% of the population in the Western provinces. These figures are problematic in a number of ways and are really only ‘guesstimates’. More important is his emphasis on the great variation in literacy across the empire, which was affected by a large number of factors, including social class (including slave vs free), wealth, occupation, gender, geography (e.g. location in the empire, rural vs urban, local infrastructure), linguistic background and many others.⁴

There is also the issue of how to define literacy, which is hard enough to establish in the modern day: clearly most male members of the elite had received an education which rendered them capable of reading and writing highly complex literary works, but on the evidence available to us it is often difficult to know whether, for example, a craftsman who could write his name could do only this or much more. However, what is clear is that literacy, while not wide, could be deep, in the sense that certain members of the sub-elite were often literate and could read and write to a fairly high level. We have plenty of evidence for slaves of the elite acting as secretaries and reading-machines for their masters, for instance, but there are many other occupations, both among slave and (sub-elite) free, where literacy is attested or implied, and the written word was pervasive, even if it was not a great impediment to be illiterate ([Harris 1989: 196–233](#); [Willi 2021: 14–19](#)). For example, the majority of those carrying out business with the financier family of the Sulpicii in Puteoli, and in the similar tablets from

⁴ See also the chapters regarding the Roman empire in [Kolb \(2016\)](#).

Herculaneum (on which, see pp. 28–31), were literate, since they were able to write out a contract in their own hand (about a fifth of these *chirographa* were written by someone else; Camodeca 2017b: 24). Both they and the scribes who wrote the rest of these documents achieved a largely standard orthography (for some exceptions, see p. 262).

However, what is lacking is much evidence for the educational system by which those in the sub-elite learnt to read and write. Bloomer (2013: 451), for example, tells us:

[T]he Roman boy or girl of the first century CE came to grammar school about the age of seven, already knowing the alphabet. Reading, writing, and arithmetic were learned here. The child would learn to write and then read Greek; Latin followed. After basic literacy (including memorization and recitation) the child learned grammar, mythology, and literary criticism all together while reading a poetic text and listening to the teacher's exposition. A set of exercises from aphorism to fable and description, themselves increasingly complex narrative building blocks, led to the finished speech. At the final stage of declamation, the advanced boy learned a system of composition and delivery of mock deliberative and legal speeches.

What Bloomer does not specify is that this describes the educational career of a child who was a member of the elite. Works by writers like Quintilian, on whom Bloomer is leaning here, were written by the elite for the elite; they were not interested in describing the education of the sub-elite: as Sigismund-Nielsen (2013: 289) says, '[w]e meet freeborn children from the lower classes very infrequently in our sources. They were simply not interesting enough'.⁵

Nonetheless, as we have established, it is clear that literate education could be available to the sub-elite (see also Mullen and Bowman 2021: 61). Slaves could be taught in a *paedagogium* in their owner's villa; slaves of the imperial household were taught

⁵ Although Apuleius (*Metamorphoses* 9, 17) represents the wife of a baker as having been the fellow-pupil of the well-born wife of a town councillor. The colloquia of the *Hermeneumata Pseudodositheaana* (edited and translated by Dickey 2012–15) provide a number of vignettes of children attending school, but, as far as one can tell, they seem to have belonged to relatively wealthy families (the families own slaves, including nurses and *paedagogi*; one child owns a number of books, and has a father who is a magistrate – and of course they could pay school fees); for helpful discussion of these passages, see also Dickey (2017: 7–47).

in the Paedagogium on the Palatine – presumably often to a high level (Sigismund-Nielsen 2013: 296; although note the scepticism of Harris 1989: 247–8). Scribes, whose work will form much of the data used in this study, clearly were educated in some fashion – and, as I shall show, in a fashion that in some respects at least was different from that of non-scribes – but we know very little about how they were trained (Morgan 1998: 32).

Likewise, there appears to have been some literacy education that took place in the army, perhaps for scribal purposes (see pp. 273–6), perhaps for soldiers more generally;⁶ the tendency for letters written from and to Vindolanda to end with a greeting in a different hand from that which writes most of the letter suggests that some level of literacy among non-scribes was not uncommon. Harris (1989: 253–5) suggests that literacy was much higher among legionaries than auxiliaries, but at least some auxiliaries could write, as demonstrated by the letters of Chrauttius from Vindolanda (Tab. Vindol. 264 and 310). Chrauttius will have been a Batavian or Tungrian auxiliary, and probably learnt a non-standard version of Latin in the army, perhaps showing some influence from his first language (Adams 1995: 129–30), but is capable of writing a greeting formula.

Similarly, Bowman and Thomas (1994: 74) suggest that the military reports with the heading ‘*renuntium*’ were written by the *optiones* making the report themselves, on the basis of the different hands of the writers. Adams (1995: 102–3) has argued that the appearance of *debunt* ‘they ought’ in place of standard *debent* suggests that the exemplar on which these reports are based was also written by a non-scribe (perhaps also one of the *optiones*). He observes that this provides evidence of different degrees of education among the writers at Vindolanda: ‘[t]he *renuntia* thus give us an intriguing glimpse of a social class (probably that of the *optiones*) who regularly used the substandard form *debunt*, yet were literate’ (Adams 1995: 131; emphasis in the original).

⁶ On the importance of writing and written documents in the army, see Speidel (1996: 57–64).

Introduction

Further evidence of education at Vindolanda comes from lines of Virgil, possibly Catullus, and pseudo-Virgil (Tab. Vindol. 118, 119, 854 and 856), which were presumably produced for writing practice, although the ‘literary’ hands used are different from the usual scribal scripts. The editors suggest that 118 may have been the output of children of the prefect Flavius Cerialis, although there is no evidence of such a connection for 854 and 856.⁷

It might be assumed that the education undergone by sub-elite members of society largely followed the same pattern as that described by Bloomer above, except that education stopped at some earlier point in the process – exactly at which stage might depend on the resources and aims of the child’s parents, on what teaching was available or other factors. To some extent, this is probably true; in the context of learning Greek in Hellenistic and Roman Egypt, Morgan (1998: 56–7) finds that papyri and other writing materials containing learning exercises and school texts have a different geographical distribution, with letters and alphabets widely scattered, including in villages, as are wordlists and literature, while scholia, rhetorical exercises and grammatical texts are far more restricted, especially to more urban areas:⁸ she concludes, ‘[i]t looks rather as though the number of people in Upper Egypt whose education progressed as far as learning grammar and rhetoric was a very small proportion of those who acquired some basic literacy and read some literature’ (Morgan 1998: 57).

However, we should be careful of making too many assumptions along these lines: even if we assume the Egyptian situation is representative of learning elsewhere in the empire, we can seldom identify any clues about the social background of those using these materials, so it is possible that they still largely reflect the education of a fairly small elite.⁹ Moreover, Morgan (1998: 67–73) has emphasised, again on the basis of the Egyptian Greek material, that the process by which children were educated was less

⁷ On literacy and education in the army elsewhere, see Speidel (2016: 188–9) and Stauner (2016: 800, 805–8).

⁸ Syllabaries, surprisingly, are less widely distributed.

⁹ Although Morgan (1998: 139–41) suggests that the focus on accepting one’s lot found in gnomic sayings in schooltext papyri may reflect their aim at sub-elite learners.

a curriculum whereby everyone studied the same thing, but some people dropped out earlier than others, but rather a system involving certain ‘core’ exercises and texts, and a much wider ‘periphery’ whose contents were heterogeneous and depended on the choice of the teacher (and presumably other factors, such as access to texts). Morgan includes in the ‘core’ the kind of basic literate education that to some extent this book focusses on:

[e]verybody, so far as we can see, learned to read and write through reading and writing letters, alphabets and words, though syllabaries may not have been so popular. It is plausible to suppose that everyone read and copied gnomic sayings . . . It seems likely that Homer was very widely read, at least up to the end of the Roman period. Beyond these, what our survivals represent is less a curriculum than a free-for-all. (Morgan 1998: 70)

It makes sense that learning to read and write should be at the core for everyone, since very basic literacy is perhaps open to less variation than other types of education.¹⁰ But the periphery might have been very different from what Morgan finds in Egypt, depending on the kind of use that literacy was to be put to. For example, shorthand, which is used in a number of texts at Vindolanda (Tab. Vindol. 122–6), was presumably not part of the standard educational system but was a speciality of those who were being educated as scribes or secretaries. And even at the level of the core, some variation existed: as already noted, syllabaries seem to be used less than other learning materials, in Egypt at least. And Quintilian (*Institutio oratoria* I.I.26–32) mentions various approaches to learning to read and write of which he approves (ivory letter shapes to play with) or disapproves (learning the names and order of the letters before their shape; putting off the most difficult syllables; haste in moving on to pronouncing words and sentences).

As we shall see, there might also be variation as to what spellings a teacher might favour: they could be conservative or innovatory. The teachers themselves might also be of higher or lower literacy levels, have access to more or fewer resources, or even make

¹⁰ Although the debate surrounding ‘phonics’ vs ‘whole language’ approaches to learning to read English in modern societies (Hempenstall 2005) suggests that this is not as straightforward as it may appear.

Introduction

greater or lesser effort. It is not unreasonable to suppose that, on the whole, the cheaper the teacher, the less they might have to impart and the less enthusiasm they might have to impart it. The contexts in which literate education took place might also have varied significantly; both ancient and modern discussions assume that it is children who are learning to read and write, but again, the Vindolanda tablets might provide an exception, if we assume that soldiers like Chrauttius learned to write only in the army, and hence presumably as adults. Another example of learning taking place after childhood comes from the tablets of the Sulpicii of Puteoli, where the Claudian letter \mathfrak{A} in place of <u> for /w/ is found in TPSulp. 5 (by a scribe), 27 (non-scribe), 32 (scribe), 48 (both scribe and non-scribe), 77 (non-scribe) and 101 (scribe), mostly in the names of the consuls *Vitellius* and *Vipstanus*, but once in *uenalium* ‘for sale’ (77) and once in *uadimonium* (5). All of these tablets are from AD 48 (apart from 5, which is undated) and reflect the introduction of the Emperor Claudius’ new letters (on which, see [Oliver 1949](#)). Clearly, some scribes and non-scribes alike had heard about and adopted this new letter, at least for the formal context of consular dating. Scribes in the army and elsewhere might also have received additional training, on top of whatever literacy skills they arrived with. And much of this assumes some kind of formal education, with a paid teacher: some may have learnt informally, from their parents, friends or peers, in which case the process might have been quite different, and presumably less systematic.

It does seem likely that scribes must have received some kind of education for their role. The fact that the spelling of the scribes in the tablets from Pompeii, Herculaneum and Vindolanda contains so few substandard features in itself implies a certain degree of homogenisation amongst these groups, which might be due to specific education (perhaps in the form of top-up training). However, it is also possible that people who became scribes were more likely to have already received a high-quality education in standard spelling. As we shall see, the enquiries in [Parts I](#) and [II](#) will reveal other ways in which scribes show homogenisation in spelling that implies a process of education specifically for scribes.

As important as the question of what was taught, and how, in different contexts is how well it is taught (or, since teaching is at least a two-person process, learnt). That is, the difference in educational content when it comes to spelling might not be very great between those who are well taught and those who are badly taught; the major difference might be their ability to use what they have been taught consistently according to the canons of the elite standard. For example, two writers may both have learnt that the digraph <ae> is used to spell certain words which contain the vowel /ɛ:/; one of them consistently remembers which words contain <ae>, while the other remembers only some words or only remembers some of the time, and the rest of the time uses <e>, or hypercorrects by using <ae> in words for which the standard spelling requires <e>. In this case, the two writers have received the same educational content (existence and use of <ae>) but not the same quality of education. One could imagine yet another writer whose education has been so basic that they were simply taught the names and values of the individual letters corresponding to the sounds in their idiolect; this writer would therefore never have learnt the existence of <ae> and will always write <e> for /ɛ:/.¹¹ Here this has been a difference in content as well as quality.

This distinction allows us to be more precise in our examination of whether the content of the orthographic education which was received by elite or sub-elite, or standard and non-standard spellers, was much the same, or not. If it was not, ‘old-fashioned’ or otherwise non-intuitive features such as *apices* and *i-longa* will appear only in the writing of elite or standard spellers; if it was, we should expect to find old-fashioned spellings in both elite and sub-elite writings, by both standard and substandard

¹¹ A possible example of someone whose education may have been of this type is N. Blaesus Fructio, whose *chirographum* in the tablets of Caecilius Jucundus from Pompeii (CIL 4.3340.26) contains a remarkable number of spellings which must reflect his pronunciation in a span of 17 words or parts of words: <e> for /æ/ (*B]lesius* for *Blaesius*, *Cecilio* for *Caecilio*), raising of /ɛ/ before another vowel (*Thrasia* for *Thrasea*), single /l/ in *milia* for *mīllia*, loss (or assimilation?) of /k/ before /t/ (*oto]gentos* for *octōgentōs*, *autione* for *auctiōne*, *fata* for *facta*), loss of nasals before stops (*Iucudo* for *Iucundō*, *Popeis* for *Pompeis*), lack of word-final nasals and epenthesis in /gn/ clusters (*si]genataru* for *signātārum*). The only instances where the spelling is non-intuitive is in his own name *Fructio* and, apparently, the final letter of *actu]m*.

spellers: any differences in the orthography of these categories will then be ones of consistency or correctness, reflecting quality of education rather than content.

Defining ‘Old-fashioned’ Spelling

A good example of the complicated issues involved in identifying ‘old-fashioned’ spellings is the letter of Suneros (CEL 10), from Oxyrhynchus, dated to the Augustan period. We find the following features:

- <ei> for /i/ </i:/ by iambic shortening in *tibei* for *tibi* ‘to you’, and for /i/ in *uocareis* for *uocāris* ‘you will have called’ (in error, since the /i/ in the final syllable was never long, but presumably due to confusion with the perfect subjunctive *uocārīs*).
- <e> for /i:/ (*deuom* for *dīuum* ‘of the gods’).
- <xs> for <x>: *adduxsit* for *addūxit* ‘(s)he brought’, *Oxysrychitem* for *Oxyrhynchitem*, *maxsuma* for *maxima* ‘greatest’.
- <u> for /i/ before a labial: *maxsuma* for *maxima* ‘greatest’.
- <q> for /k/ before <u>: *qum* for *cum* ‘when’.
- <uo> for /wu/: *uolt* for *uult* ‘wants’, *deuom* for *dīuum* ‘of the gods’.

The editor Cugusi describes <ei> as a ‘sign of antiquity’ (‘segno di antichità’) and <uo> in *uolt* as an ‘archaising spelling’ (‘grafia archaizzante’) but for *deuom* notes that the ending ‘-om continued in use more or less to the end of the Republic’ (‘-om ci porta pressappoco alla fine della Repubblica’), describes <q> as ‘probably already in this period a “scholarly” spelling’ (‘probabilmente già in questo periodo grafia “scolastica”’), does not consider <xs> old-fashioned, and does not comment on <u> in *maxsuma*. He sees <e> in *deuom* as due to a confusion between /e:/ and /i:/ found in inscriptions (for slightly more clarity here, see also Cugusi 1973: 667). Adams (2016: 208–9) says that Suneros ‘uses the old spelling *tibei*, and *deuom* is archaising on two counts.¹² *Vocareis* is a false use of orthographic archaism’. However, on the whole he takes a nuanced approach, emphasising that use of <u> continued

¹² Presumably use of <e> and <uo>, although elsewhere in his commentary on this letter he does not actually mention the <uo> spelling. But since he is explicitly talking about orthography here, I do not imagine that he means the genitive plural in -om rather than -ōrum as one of the counts.

Defining ‘Old-fashioned’ Spelling

into the first century AD, and that ‘[s]pelling reform does not take place overnight, and personal preference was a factor’ (Adams 2016: 205).

As I shall show in the rest of this book, the ‘old-fashioned’ nature of these spellings is overemphasised by Cugusi and even by the more careful Adams. Even leaving aside the question of when in the Augustan period the letter was written (since habits probably changed a fair amount between 31 BC and AD 14), most of these spellings were still in fairly common usage at that time. This is the case for <ei> for /i:/ (Chapter 3); /wɔ/ had become /wu/ probably not much earlier in the century, and <uo> was still the more common spelling, although a move to use <uu> in official orthography does seem to be visible (Chapter 8). The use of <u> for <i> in *maxsuma* is still found in the first century AD in high-register texts but was perhaps moving out of the standard (Chapter 6). As for <xs> (Chapter 14) and <q> before /u/ (Chapter 12), these were always minority usages in the Republic but were beginning to lose favour in official orthography of the time; their use was perhaps not particularly striking in the context of an informal letter. The use of <e> in *deuom* may reasonably be considered old-fashioned (Chapter 3). On the whole, Suneros was perhaps a conservative speller (as well as a substandard one),¹³ but most of his spellings are not archaic for the time.

In fact, despite the frequency with which terms such as ‘archaising’ or ‘old-fashioned’ are used, as with the letter of Suneros, to describe the spelling of a given document, defining them is surprisingly difficult, not least because there are several ways in which a spelling could be said to fall into such a category. The least useful definition is that which compares the spelling of a text with the kind of idealised, abstract and anachronistic notion of ‘standard’ Latin spelling that appears in editions of Latin literary texts and often also in inscriptional texts (including in the large online corpora).

Where the spelling feature in question represents a phoneme or series of phonemes which have undergone change in the history of

¹³ Cf. *Oxyrychitem* for *Oxyrynchitem*, *patiarus* for *pateārus*, *demonstrabit* for *dēmōnstrābit*, and *cuibus*, perhaps for *cuiūis*.

Latin, it is possible to define ‘old-fashioned’ against this sound change. Thus, for example, once the diphthong /*ei*/ developed to /*e:*/ around the middle of the third century BC, the spelling <ei> could be considered ‘old-fashioned’ relative to <e>, and likewise once /*e:*/ had become /*i:*/ around the middle of the second century, the use of both <ei> and <e> could be considered old-fashioned relative to <i>.

Such a definition proves rather unhelpful, in a number of ways. In the first place, it ignores the fact that spelling takes time to catch up to phonological change (if it ever does): as we shall see, the use of <ei> and <e> demonstrably continued long after the relevant sound changes took place, but only after a certain time will their use have been considered old-fashioned. Secondly, under this sound-change-based definition of ‘old-fashioned’, it would be necessary to consider the continued use of <ae> to represent /*ε:*/, the result of monophthongisation of the diphthong /*aε*/, old-fashioned from the point at which the sound change first took place.¹⁴ But this definition fails to identify the difference, at least under the empire, between (correct) use of <ae>, which was simply the standard spelling – and whose absence would mark out the writer as undereducated – and use of <ei>, whose absence would not have the same effect (for more on this, see 50–57). Lastly, many of the features called ‘old-fashioned’ are not the result of sound changes, for example use of <xs> beside <x>, or <k> and <q> beside <c> to represent /*k*/. Identification of ‘old-fashioned’ spellings only with regard to sound change will therefore not help us with these cases.

So the definition of ‘old-fashioned’ needs to be usage based: spellings are ‘old-fashioned’ when they are no longer part of the core repertoire of standard orthography. This is not to say that they are necessarily substandard; simply that their use is not necessary for a writer’s orthography to be accepted as hewing to the educated standard (on the use of the terms ‘standard’ and ‘substandard’, see pp. 15–18). Depending on the context, and on the status of individual features, their usage may have made the writer seem to

¹⁴ First from the second century BC in non-Roman Latin, and then widespread across the empire in the first few centuries AD, although perhaps maintained by elite speakers for longer (Adams 2013: 71–81).

Defining 'Old-fashioned' Spelling

readers to be highly educated, conservative, idiosyncratic, fuddy-duddy or any number of other effects which it is difficult or impossible for us to pin down.

Taking these issues into account, I adopt three methods of assessing whether spellings were 'old-fashioned'. Firstly, I have considered evidence from the writers on language whose works are dated more or less to the period being considered in this book (i.e. from the first to the fourth centuries AD). For more information on these authors, see pp. 37–9. These authors sometimes tell us (relatively) explicitly of their view on the currency of a particular spelling; even when they do not directly provide us with this information, the very fact that they mention something suggests that its existence was relevant to their intended audience.

There are, however, several issues that we must be careful of when dealing with this kind of information. The tradition of writing about language was tralatitious; its audience was also primarily interested in the reading of works of literature often dating from several centuries previously. The effect of these characteristics might be to foster mention of orthography which was very highly archaic by the time of the writer – perhaps not at all or barely used by anyone at the time.

Furthermore, different writers might have different attitudes towards orthography, preferring either more modern or more old-fashioned spellings, which may lead us to misanalyse the 'old-fashionedness' of particular orthography. In some cases the authors tell us explicitly about their approach; for example, Quintilian paints himself as (somewhat) in favour of more modern spelling, at least insofar as this reflects contemporary speech:

ego, nisi quod consuetudo optinuerit, sic scribendum quidque iudico, quomodo sonat. hic enim est usus litterarum, ut custodiant uoces et uelut depositum reddant legentibus. itaque id exprimere debent, quod dicturi sumus.

For my part, I think that, except for what is maintained by tradition, we should write as we speak. Because this is the purpose of letters: to represent sounds and, as it were, to echo what has been put down to their readers. So they ought to express what we say. (Quintilian, *Institutio oratoria* 1.7.30–31)

Lastly, it must be remembered that, while the writers on language had different backgrounds and audiences, they were writing

for the (children of) the elite, or their teachers (or at least for those who had the resources to aim for elite status for their children). Consequently, their claims about the status of particular spellings are not necessarily likely to represent the habits of the sub-elite. Indeed, as [Biddau \(2016: 51–2\)](#) observes, we cannot be sure that anyone at all shared a writer’s view.

The second method is to investigate the spelling of ‘official’ inscriptions emanating from and concerning the imperial (and perhaps local) elite and legal system, or of other texts known to be written by members to the social elite, on the basis that this represents standard orthography, and that spellings which have fallen out of use here are consequently ‘old-fashioned’. As with looking to the statements of the writers of language, this has the effect of privileging the elite over the sub-elite in defining the standard (although this is not in itself necessarily incorrect, since the development and imposition of a standard orthography is often a top-down process).¹⁵ It is also less easy than it sounds, since there was not one genre of ‘official’ inscriptions: it is often claimed, for example, that legal texts continued certain spellings for longer than other kinds of texts. Should we, then, discount legal texts? And what, if any, other distinctions should be made? While these are interesting questions, they are not the focus of the present investigation, nor is there the space to do a thorough investigation of ‘official’ orthography across the whole of the chronological span that I am considering. Consequently, I do not draw distinctions between the different types of ‘official’ inscriptions, and I only treat them separately from the overall picture of Roman

¹⁵ The question arises here of who exactly was responsible for drafting official inscriptions: in all likelihood this responsibility did not actually fall on emperors or senators, but rather on members of the government bureaucracy known as *scribae* (as perhaps suggested by Plutarch, who, writing of the Late Republic, refers to them as ‘always having the public records and the laws under their control’, οἱ διὰ χειρὸς αἰεὶ τὰ δημόσια γράμματα καὶ τοὺς νόμους ἔχοντες, *Cato Minor* 16.2; text from [Perin 1919](#)). These will predominantly have belonged to the sub-elite (although they could rise socially; and Horace represents a probably atypical career, receiving an elite education and holding a military position normally reserved for members of the equestrian or senatorial ranks prior to becoming *scriba* to a quaestor after being on the losing side in the civil war; on *scribae*, see [Hartmann 2020](#)). Nonetheless, what matters here is the existence of a (somewhat) standardised spelling characteristic of official inscriptions, regardless of who was actually responsible for this spelling.

Standard and Non-standard Spelling

epigraphy as a whole mentioned in the following paragraph when it seems particularly relevant.

My final method of identifying ‘old-fashionedness’ in spellings has been to carry out searches among the massive epigraphic corpus collected as the EDCS, which allow me to roughly identify the frequency of a particular orthographic feature. For most features I have only carried out searches for the whole period of the first to fourth centuries AD, but where relevant, I have searched more precisely within that range to give an idea of changing usage over the period.

The information that these three methods provide on the status of a given spelling will not necessarily be consistent – just as a reader or writer’s view of how ‘old-fashioned’ a feature was may have varied depending on their education, social background or even personality, as well as the genre or register of text. This being the case, it is perhaps unsurprising that one result of the research carried out in this book will be, among other things, to cast doubt on the idea that there was a single, easily identifiable category of ‘old-fashioned’ spelling: this is not to say that use of a given orthographic feature was never seen as ‘old-fashioned’: simply that the point at which a spelling became ‘old-fashioned’ (if it ever did), varied across time as well as according to other variables. Nonetheless, I will follow common (modern) practice in continuing to refer to the particular type of optional spelling practice discussed here as ‘old-fashioned’ for now, while highlighting the problems and inconsistencies in using this term – and dropping the scare quotes. I will return to the question of the use of the term ‘old-fashioned’ in the conclusion (258–61).

Standard and Non-standard Spelling

In this book I will often talk about standard and substandard spelling (as well as old-fashioned spelling); indeed, one of my main claims is that old-fashioned spelling can be found in the writing of substandard spellers as well as those whose spelling is otherwise standard. The idea that Latin of the Classical period had undergone a process of language standardisation is widely held (see e.g. [Rosén 1999](#); [Versteegh 2002](#); [Adams 2007](#): 13–17;

Clackson and Horrocks 2011: 77–288; for an overview of bibliography, Nikitina 2015: 3–9; and on the teaching of the standardised language in the later empire, Foster 2019).

However, recently scholars have emphasised the ways in which standardisation of spelling was not complete in the first century BC, and that orthographic variation continued to be found even in the writing of the highly educated elite, and in official inscriptions at least into the first century AD; see, for example, Clackson (2015); Nikitina (2015); Adams (in press). Clackson (2015) rightly emphasises both that the continued discussion of spelling variants in writers on language can be evidence of diversity in orthography and that there is still variation in spelling in official inscriptions of the first centuries BC and AD (based on the findings of Fischer 1995). He concludes that

[w]ith so much variation in surviving documents, it is only possible to say which spellings are ‘correct’ and which are ‘incorrect’ with the benefit of hindsight. Spellings which were endorsed by later grammarians and became current in educational texts appear to us now to be the ‘correct’ spellings, and pass without comment. A Roman of the first century CE, however, may well have had different views, or may not have recognised a single ‘correct’ form ... Quintilian is certainly aware that different spellings were possible, and is able to defend one spelling against another, but we must be wary of any idea that the spellings which are recommended by Quintilian, or indeed those found in the *Res Gestae*, are already ‘standardized’ at the date they are written. If the autograph manuscripts of Cicero had survived, we might have different views about what was considered ‘correct’. Writers, including the drafters of authoritative law-codes, did not yet share a set of codified norms, nor was any such set universally accepted. At the end of the first century CE, the process of standardization, at least in orthography, was not yet complete. (Clackson 2015: 325)

However, the fact that some variation was acceptable in spelling does not necessarily mean that there was no such thing as standard orthography at all. The types of spellings that Clackson and other scholars have focussed on as showing variation in the first centuries BC and AD are precisely those that are usually called ‘archaic’ or ‘old-fashioned’: Clackson mentions the spelling of *pecūnia* ‘money’ as *pequnia*, <u> for <i> before labial consonants, particularly in superlatives and ordinals, <uo> for <uu>, and use of <ii> to represent /jj/ in words like *maior* and *eius*. These are spellings which are often traced back to older writers, and indeed

often associated with particular named great men of literature or politics. To some extent, and with variation depending on exactly how outmoded the older spelling came to seem, either the newer or the older spelling was acceptable: as Quintilian says, ‘on these matters, the school teacher should use his own judgement: for this ought to have the greatest weight’ ([i]udicium autem suum grammaticus interponat his omnibus: nam hoc ualere plurimum debet, Quintilian, *Institutio oratoria* 7.30). These are separate from ‘barbarisms’, which include ‘that vice known as a barbarism, of which examples are found everywhere, anyone can easily come up with instances of for himself, such as adding to any word a letter or a syllable or taking one away or replacing one with another or putting the right letter in the wrong place’ (illud uitium barbarismi cuius exempla uulgo sunt plurima, sibi etiam quisque fingere potest, ut uerbo, cui libebit, adiciat litteram syllabamue uel detrahat aut aliam pro alia aut eandem alio, quam rectum est, loco ponat, Quintilian, *Institutio oratoria* 5.10).

This kind of spelling is not acceptable: it is a *uitium*.¹⁶ And it is this kind of spelling I will refer to as substandard: things like for /w/, <e> for /æ/ or for short /i/, or absence of <h> in certain lexemes. Quintilian does not explicitly mention features like these at all, because it would be unthinkable for someone teaching pupils of the social level which Quintilian is writing about to introduce them as acceptable.¹⁷ But subsequent scholars would do so, sometimes with great enthusiasm (as in the list of corrections known as the *Appendix Probi*; Powell 2007). These spellings reflect sound changes which have taken place in the Latin of their users (and often quite possibly of even elite speakers), but have not been admitted into the orthography of educated writers, and instead mark out their users as ill- or under-educated. Only very rarely do we find them in official inscriptions or those commissioned by the elite. Nor do we find them very much in some of the sub-elite texts which we will be looking at here, notably the tablets

¹⁶ Although there is a certain amount of leeway in some circumstances (Quintilian, *Institutio oratoria* 5.5).

¹⁷ He does mention omission of the aspirate at 7.19–20, but in fact is unsure whether this is indeed a barbarism, precisely on the basis that it could be seen to reflect the orthographic habits of the ancients.

Introduction

at Vindolanda, Pompeii and Herculaneum. This is particularly true of those texts and sections of texts which are written by scribes, who had presumably received an education which encouraged such lack of variation (for more on this, see pp. 271–6), but even in most texts which seem to have been written by non-scribes, differences in orthography are relatively minor, which makes texts which do diverge significantly from this norm, such as those of Octavius and Florus at Vindolanda (Tab. Vindol. 343, 643 respectively), and C. Novius Eunus in the tablets of the Sulpicii (TPSulp. 51, 52, 67, 68), all the more striking.

Structure of the Book

After the Introduction, the book consists of two parts, followed by a conclusion. The first part, consisting of [Chapters 2–17](#), deals with old-fashioned spellings, starting with spelling involving vowels and moving on to consonants. In each case, I outline the circumstances that led to the spelling under discussion becoming old-fashioned and provide some context for the use of this spelling in the epigraphic record more generally, mostly in the form of investigation carried out by means of searches of the EDCS. I have not taken a uniform approach in this, both because different spellings require different focus on aspects of their use and because the nature of the database means that different types of search were possible for different spellings. Where relevant, I have also discussed what Roman writers on language had to say about a particular usage. I then provide data on, and discussion of, the usage of each particular spelling in the sub-elite corpora.

The second part, consisting of [Chapters 18–24](#), focusses on two types of what might be considered diacritics: *apices* and *i-longa*, primarily in the Isola Sacra funerary inscriptions, the Vindolanda tablets and the tablets of the Sulpicii, since in these corpora their use seems to be restricted largely to stonemasons and scribes, and therefore provides insight into specifically professional writing traditions and education.

In the conclusion, I summarise my findings on these optional spelling features, focussing on three areas: what I have learnt about the use of old-fashioned spellings over time and in different

Methodology

social or geographic contexts; what this investigation tells us about education and social level, and in particular what we can learn about the education that scribes received; and what my research has revealed about sound change in Latin.

Methodology

Scribes, Writers and Authors

Writing in the ancient world was not necessarily a one-person job (Clackson 2011: 36–8). This is perhaps most obvious when we consider inscriptions whose creation required special skills, such as those carved in stone: very often the stonemason must have been working from a copy of the inscription written on some other material. This copy could have been written by the stonemason himself, but often it must have been written by someone else, perhaps by the person who commissioned the inscription or by a third party (or parties) who acted as intermediaries. However, the same is also true even for more ‘informal’ texts which were written on materials which ostensibly required less specialist skills than carving on stone. Very often, those writing on wax or wood tablets, papyrus or ostraca will not have been the author of the text, but scribes, presumably writing to dictation. The texts themselves often provide hints that this is the case. For example, the Claudius Tiberianus archive from Egypt early in the second century AD contains six letters from Claudius Terentianus to Claudius Tiberianus (see pp. 35–6), the main texts of which are written in four different hands.

Likewise, in the Vindolanda tablets it is quite common for a different hand to add a short message at the end of a letter, presumably in the handwriting of the author, whereas the rest of the letter is written by a scribe. This shows that the use of a scribe is not dependent on the author of a text being illiterate. On the *chirographa* in the TPSulp. tablets, which feature two versions of the same text, one written by a scribe and the other by the person taking out a loan, see pp. 28–30. The same may also be true for the writing of curse tablets; although the temptation is to take these texts, which often contain ‘vulgar’ features in spelling and

language, as representing the unmediated language of their authors, we know that the creation of curse tablets could involve experts who sometimes used handbooks of formulas. It is not unlikely that these experts could also have been responsible for the writing of the texts, or that an illiterate author had someone else write the text (Gager 1992: 5; Clackson 2011: 37; McDonald 2015: 136).¹⁸

Consequently, in this work I will distinguish between the author of a text (i.e. the person responsible for its wording) and the writer (i.e. the person who physically wrote the text); these may be the same person or different people; a text might have more than one writer (as in the case of the letters with a personal message at the end); and a text could have more than one author (e.g. as in the case of a curse tablet whose message is based on a template provided by an expert but with input from the person who commissioned the curse). I will use the term ‘scribe’ to refer to a professional writer who is writing a text on behalf of someone else.¹⁹

One of the consequences of the frequent uses of scribes is that we cannot make any assumptions about the educational level of writers of texts on the basis of linguistic features other than spelling, and conversely that we cannot make assumptions about the education of authors on the basis of spelling (unless we have evidence to think that writer and author are the same person). For a good example, consider the letter of Chrauttius from Vindolanda (Tab. Vindol. 310), whose spelling is perfectly standard, but whose language is idiosyncratic (Adams 1995: 129–30). This presumably reflects the fact that Chrauttius dictated the text to a scribe, who naturally used his own knowledge of orthography but faithfully wrote down what Chrauttius said without correcting it.

¹⁸ Although Tomlin (2018: 334) states that ‘we have no evidence yet (in the duplication of texts, for example, let alone of handwriting) that the Bath tablets were actually written to order by professional scribes. The wide spectrum of hands and literacy, which extends even to illiterate tablets with scribbled patterns to look like writing, suggests that one was expected to write one’s own’ (but cf. Harris 2016: 154–5 for a quite different analysis of the evidence).

¹⁹ This does not necessarily equate to the use of the term *scriba* in Latin, which predominantly means ‘a person who has charge of public records, accounts or sim.’ (OLD s.v.; and see fn. 15).

Finding and Counting Old-fashioned Spelling

In the first part of this book I examine the use of old-fashioned spellings in the corpora. In general, these have been under-studied, but even when they have been noticed, there are methodological issues that have not been addressed. For example, collecting the numbers of a particular feature in a writer's output, or in a whole corpus where these are more unified generically or temporally, is not particularly useful when we do not also have the numbers of instances where this feature could have been used but has not – in other words, we need to know the frequency of a particular feature, not only the raw numbers.²⁰ This is particularly necessary given the range in the number of words and types of text, as well as the chronological and geographical range of the various corpora which I have used.

In the main, therefore, I have tried where possible to count each example of both a particular optional spelling and its standard equivalent. This is not always easy, because in some cases the standard spelling is so common as to make counting excessively burdensome. For instance, <ae>, the counterpart of old-fashioned <ai>, is extremely frequent because the diphthong it represented appears in many lexemes and in frequent endings, while <ai> is so rare as to be almost non-existent in the corpora. There would be no point in counting examples of <ae>. In these cases I will give an indication of the frequency of the standard spelling without providing precise numbers. In corpora where there is likely to be less homogeneity among the various writers, such as the letters or the curse tablets, I have usually only counted this type of feature when a given text or writer within the corpus also uses the old-fashioned variant.

I chose which old-fashioned features to examine on the basis of those that appear in the sub-elite corpora I have been using. Thus, for example, I do not discuss the use of <oe> for /u:/ because this spelling is not found.²¹ I have also not included three types of

²⁰ As Adams (2013: 51) underlines: he includes the evidence of corpora even if they do not include instances of the features he is examining 'because the absence of examples may itself be revealing'.

²¹ With the possible exception of the name *Coera[si?]* (CIL 4.3340.103) if this belongs to a name beginning /ku.ra:-/.

spelling even though they appear frequently. These are absence of <h> when writing aspirated stops in Greek words and in Latin words to which a spelling with <h> became attached (like *pulcher*, *triumphus* etc.); use of <u> or <i> for <y> in Greek words; and use of unassimilated spellings (like *conlabsum* for *collapsum*). In the case of the first two it is true that absence of <h> and <y> could be seen as old-fashioned,²² but it is also possible that their absence could reflect the inability of the writer to know where they should be used (since many speakers will have pronounced the aspirates as plain stops, and <y> as /i/ or /u/). Consequently, this absence can reflect substandard rather than non-standard spelling (which is of course relevant to education in itself, but this sort of spelling is not the focus of the present work).

As for the unassimilated spellings, their status within the Roman orthographical tradition is complicated. It seems that to a large degree their use was both optional – like old-fashioned spelling – and not deprecated in educated writing, with variation continuing throughout the imperial period, and inconclusive discussion of their use being frequent in grammatical works. The details of which unassimilated forms are favoured is extremely complex (see [Nikitina 2015](#): 71–106 for a discussion of their use in legal and ‘official’ texts of the first centuries BC and AD; and [Adams in press](#)). In some cases, the unassimilated writing reflects an earlier stage of the language, but its continuation will be mainly due to the synchronic co-existence of forms which show the unassimilated consonant (e.g. the preposition *ad* and the preverb *ad-* in *aduertō*, *admoneō*, *addicō* etc.; *collābor* beside *collāpsus*) rather than to an unbroken educational tradition; consequently, I do not consider its use old-fashioned. In addition, I have not included features which exist on the borderline between phonology and morphology, such as third declension ablatives in *-ī* and gerundives in *-undus* vs *-endus*.

I have already discussed the problem of defining standard and old-fashioned spelling, and the necessity of doing so in terms of usage. Unfortunately, although scholars often refer to old-fashioned or archaising spellings, they seldom provide thorough

²² The letter <y> is not found in Roman alphabet inscriptions until the early first century BC ([Weiss 2020](#): 30 fn. 37). The use of <h> to mark aspirates is found from about 150 BC ([Penney 2011](#): 234).

evidence regarding not only when particular spellings first appeared but also when the older spelling stopped being used, along with a timeline suggesting at what point the innovatory spelling began to become the standard spelling. This is no doubt because such a task has been – and to some extent still is – extremely difficult. Handbooks of epigraphy or historical linguistics seldom provide this kind of thorough evidence, and collecting examples and identifying dates for them can take a long time. The huge amount of texts and metadata contained in, and searchability of, modern epigraphical online databases such as the EDCS, the Epigraphic Database Roma (EDR), the Epigraphic Database Heidelberg (EDH) and the Computerized Historical Linguistic Database of Latin Inscriptions of the Imperial Age (LLDB) can make a huge difference to this sort of research: for an example of a study which makes excellent use of these new resources, see [Mancini \(2019\)](#), which is also discussed later ([Chapter 14](#)).

The primary online database that I have used is the EDCS. This is because it contains by far the greatest number of inscriptions, has the most useful search features and provides metadata of various sorts, links to other databases and scans of early editions. However, it also has significant limitations.²³ These basically boil down to two types of issue. The first is how to get the results that one wants from a search. Search is only possible on letter strings, meaning that in many cases a search for a particular string will produce output which includes many irrelevant sequences. While there is an ‘and not’ function, this is also limited to a single string, and so is not as useful as it could be. As a result, one has to be quite careful and precise about what strings one searches for, and even then it is often necessary to manually check the output and remove false positives.²⁴ Furthermore, at the time I was carrying out most

²³ Many of these are circumvented in the LLDB, which allows more contextually targeted searches, and are also tagged for a remarkable array of linguistic/orthographic features (although it also has its own limitations when searching for old-fashioned rather than standard spellings). Unfortunately, I was not aware of this database at the time I carried out most of the research for this book, so I have only used it on occasion to supplement the research done using the EDCS.

²⁴ Unfortunately for me, only after I had carried out most of the searches on the EDCS for this book did I discover (courtesy of Rhiannon Smith) that one could search for strings at the beginning and/or end of a word by placing a space at the beginning or end of the

of the research, in addition to the normal search function on the whole EDCS, there was also a ‘no solutions’ search, which in theory ignored examples of a particular string which are resolved abbreviations, and the unfortunately named ‘wrong spelling’ search. While these allowed some useful narrowing of the search parameters, the output produced by the different searches was rather unpredictable: for example, a given spelling was sometimes considered ‘wrong’ and sometimes not, and might turn up in the full search, in the ‘wrong spelling’ search, or both.²⁵

One way of getting round this problem is simply to download the entire corpus and run searches on it by other means than the web interface. However, without sophisticated programming knowledge which I lack, this is not necessarily easier, not least because the inconsistency is inherent in the way that the inscriptions have been inputted into the corpus itself. Thus, a given spelling is sometimes marked up using a notation <X=Y>, where X is the ‘correct’ spelling and Y the deviant variant, sometimes marked by an exclamation mark between brackets following the end of the word: (!), and sometimes not marked at all.

An example of the problems: looking for examples of *arcarius*, I searched for ‘arcari’ in the full search, with a date of ‘01 to 400’ (25/01/2021). This gave 90 results, which had to be manually checked. This resulted in 14 inscriptions containing the lexeme *arcarius*, including abbreviated and restored forms in which the sequence *arc* was actually attested; it also included 13 inscriptions containing the sequence *ark*. Although these instances of *arkarius* were all marked up in the output with the notation <c=k>, none appeared in the ‘wrong spelling’ search for ‘arcari’, which provided another three instances not included in the search for

word; e.g. ‘arcari’ will only produce inscriptions with the word *arcari*, not, for example, *barcarius* (this information is given in a rather unclear fashion on the search advice page at <https://db.edcs.eu/epigr/hinweise/hinweis-en.html>). This meant that my searches were less simple and required more checking than would otherwise have been the case, but I do not think it will have made much difference to the results.

²⁵ At some point, ‘wrong spelling’ was renamed to ‘original texts’ (the change had occurred at least by 23/03/2021, although the ‘wrong spelling’ category remained on the homepage for some time longer); and ‘no solutions’ was renamed as ‘search without expanded abbreviations’. Along with this seems to have come an improvement in the distinction between the standardised and non-standardised spellings that I complain about here.

‘arcari’. This seems to have something to do with abbreviations: all in the full search were *ark(ari)*.

The second issue is that the readings, datings and other information provided by the database are not necessarily accurate,²⁶ and most inscriptions are anyway not provided with a date. Ideally, therefore, one would check all readings and datings of inscriptions containing a given spelling which has been found in a search of the database in the editions and other literature. However, given the frequency which many spellings of this type demonstrated, it became clear that such a task was simply not possible. For example, the searches required to find examples of <uo> for /uu/ produced literally thousands of results – many of these could be discarded relatively easily, but even this still took considerable time, and the subsequent work to check readings and datings took even longer. In the end, despite the dedication and initiative of Victoria Fendel, who helped to do this, and despite various shortcuts,²⁷ I came to the conclusion that such a task was simply not feasible within the bounds of the present project.

The work of myself and Dr Fendel on this front has fed into the discussion of the spellings <uo> for /uu/, <uo> for /we/ before a coronal, <qu> for /k/ before a back vowel, and <ai> for <ae>, but in the main I have taken a different approach. Where the numbers make it necessary, for a given spelling I have mostly restricted the searches in the EDCS to inscriptions within a relevant date range. Since, as already noted, the database does not provide a date for many (probably most) inscriptions, this means that these undated inscriptions, many of which are nevertheless relevant, are omitted from the results of the search. This should be borne in mind when comparing distribution of spellings in terms of numbers of inscriptions. The hope is that even with this loss of data, the distribution of dated spellings more or less represents the distribution across the whole corpus.²⁸

²⁶ A particularly unfortunate example is the dating of CIL 1².581 to AD 186 instead of BC (as of 25/01/2021).

²⁷ Such as checking readings and dates for some Italian inscriptions in the EDR, which seems to be somewhat more reliable than the EDCS, rather than in the original editions (I have in all cases made it clear when a dating comes from the EDR).

²⁸ It should also be noted that the EDCS provides a moving target, in that both the number of inscriptions included and the information provided about them are constantly growing.

Introduction

Different approaches to checking results have been adopted depending on the amount of data for a given spelling. In every case where I give a reference to an edition, the spelling has been checked against the edition. When giving numbers of inscriptions in the tens, I have checked the output to remove restorations and false positives, but have not usually checked against the editions; when the number of inscriptions reaches the hundreds, I have not even done this. On the whole, the smaller numbers are of old-fashioned spellings, while the larger numbers are of standard spellings, so there is probably a tendency for the standard spellings to seem even more common relative to the old-fashioned spellings than they really are.

In the collection of old-fashioned spellings from the corpora, I have not included readings which are highly doubtful or sequences of letters which cannot be understood. With regard to abbreviations and restorations I have taken a common-sense approach: I have not included cases such as *Sex.* for *Sextus*, since it does not rule out that the author might have used <xs> when spelling the word out in full, but I have included abbreviations like *k.* for *castra*. Naturally, I do not include spellings which are found only as restorations, but I do include cases like *peq[u]nia*, where we can be sure of what the missing letter is. All percentages are given as the nearest whole number.

The Sub-elite Corpora

In this book I use corpora as a way of indirectly assessing the type of education received by the members of the sub-elite in the Roman empire. The sub-elite can be defined straightforwardly as all inhabitants of the empire who were not ‘senators, the equestrian class, and the local governing class’ (Toner 2009: 3). Such a definition of course obscures many important distinctions among the several tens of millions who occupied this position, including slave vs free (and vs freed), ‘affairistes’ vs ‘average workers’ vs labourers, women and men, urban vs rural, etc. (see e.g. Toner 2009: 1–5; Courier 2017; Grig 2017: 18–21). Unfortunately, we cannot investigate the orthography of the texts in the corpora with as much granularity as we would like, but the corpora do allow some distinctions to be

drawn, particularly scribes vs non-scribes (especially in the tablets of the Sulpicii and of Caecilius Jucundus from Pompeii, and at Vindolanda), and military vs non-military writers (in the form of the texts from the army at Vindolanda, Vindonissa, Dura Europos, Bu Njem, and the Claudius Tiberianus letters as opposed to the other texts).

I have chosen corpora in which it is a reasonable assumption that the majority of writers did not belong to the elite of the empire. In most of them we have a fair idea about the social status of the writers; in addition to scribes and soldiers, identifiable writers of the texts include slaves, contractors and praetorian guards, although there is seldom enough evidence to allow strong conclusions to be drawn about the type of education which these categories of person received. The major exception to this is the curse tablets, which often provide very little or no information about the writer of the text (who may or may not be different from the author). It is often implied that these are by definition written by members of the sub-elite: ‘they come to us largely unmediated by external filters; unlike ancient literary texts, they are devoid of the distortions introduced by factors such as education, social class or status, and literary genres and traditions’ (Gager 1992: v).²⁹ However, as already noted (pp. 19–20), this is not necessarily the case.

We might assume that tablets with multiple substandard features were not written by a member of the elite, but, just as a high level of orthographic education does not imply a high social position, lack of success in achieving a high level of education does not necessarily rule out membership of the elite (at least as far as writing goes). However, there were relatively low barriers to entry in the creation of these texts, which were not, after all, intended to be read by the public. So where the author and writer were identical, there is at any rate no reason to assume that curse tablets were created more by the elite than the sub-elite; and professional writers of curses would have belonged to the sub-elite.

²⁹ And note the title of Kropp (2008b): *Magische Sprachverwendung in vulgärlateinischen Fluchtafeln (defixiones)*.

Introduction

These ‘sub-elite’ corpora, then, predominantly include texts produced by sub-elite writers. But they do not necessarily only include texts written by the sub-elite. The Vindolanda tablets include letters, (parts of) which are written by prefects of the cohort and their wives, who probably belonged to the equestrian ranks; the corpus of letters includes a number which emanate from the upper levels of the civilian or military bureaucracy; and, as noted above, there is no reason why we should rule out the elite as authors or writers of curse tablets, for example. Where we can identify members of the elite within the corpora, their usage provides a useful point of comparison with the conclusions drawn on the basis of the other texts.

My choice of corpora is obviously skewed by what has survived the vicissitudes of history, as well as what was available to me in good editions (somewhat more restricted than usual during the pandemic, due to lack of library access for part of the time). Within these constraints, I have used corpora which are internally coherent in terms of place, time, social circumstance or genre, while providing coverage of the geographical and chronological extent of the Roman empire.

The Tablets of the Sulpicii (TPSulp.)

The archive of the Sulpicii (Camodeca 1999) consists of 127 documents written on wax tablets found in 1959 around 600 metres outside Pompeii. Their wax, and the writing upon it, was remarkably preserved along with the wooden sides and backing. The tablets make up the archive of a family of bankers, the Sulpicii, of whom the most frequent members identified are C. Sulpicius Faustus, his freedman C. Sulpicius Cinnamus, and, in the 60s AD, a C. Sulpicius Onirus. They provide the records of a number of types of transactions such as loans, agreements, oaths and legal cases (and in one case a letter). They often contain consular dates demonstrating a range from AD 26 to 61 (but primarily between 35 and 55). The tablets mostly refer to business taking place in Puteoli, but with instances at Capua, Volturnum and Rome.

The documents generally consist of two or three tablets connected together. In the case of the diptychs, this provides an

internal pair of wax surfaces (as it were, pages 2 and 3) and an external pair of wooden surfaces (pages 1 and 4). Most of the documents consist of two versions of the text; in the diptychs, one is found on the inside pages, and one on the outside pages (in this case in ink on the wood), along with the names and symbols of the witnesses. In the triptychs, the additional wax surface (page 5) hosted the second version of the document. In addition, some have an *index*, a brief description of the contents for convenient identification, either inked or scratched into the wood.

There is a distinction to be made between two types of documents: *testationes* and *chirographa*, which pertain to different types of legal records (for a breakdown of which, see [Camodeca 1999](#): 34 fn. 103). In the first type, which are generally written in the third person, we can assume that all parts of the tablet were written by a scribe or scribes, although not necessarily by the same scribe. *Chirographa*, which formed a contract between two people and are written in the first person, have the inner version written by the other party to the agreement. These often begin *scripsi*, implying that they are indeed written by the other party, and that this section is in their actual handwriting is shown by a couple of further pieces of evidence. The strongest piece consists of instances in which one person has written on behalf of another because, we are told, the party to the contract is not literate (TPSulp. 46, 78, 98); if it were standard practice for the contract to be written by a scribe, this information would not need to be included. Likewise, the Greek *chirographum* in TPSulp. 78 and the one in Latin but using the Greek alphabet (TPSulp. 115) presumably reflect the fact the writers could not speak or write Latin respectively, but, being literate in Greek, were required to write themselves rather than relying on a scribe. In addition, there are a number of instances where the spelling of the inner writing differs significantly from the more standard spelling on the outside, implying that a different person wrote the inner and outer versions of the text;³⁰ of course, it would be possible that this writer was also a scribe, although if so not a very well-trained one.

³⁰ Notably, the contracts written by C. Novius Eunus, on which see [Adams \(1990](#); and [2016](#): 210–20).

I assume that all *testationes* and all of the writing on the exterior of tablets or on page 5 of a triptych are the product of scribes (though more than one scribe may have written the relevant parts), while all the writing on the interior pages of *chirographa* are written by individuals who were probably not professional scribes.³¹

The Tablets of Caecilius Jucundus (CIL 4.3340)

L. Caecilius Jucundus was an *argentarius* operating in Pompeii; 153 wax tablets from his archives are preserved and were published by Zangemeister as CIL 4.3340. Almost all of these pertain to his activity as an intermediary between buyer and seller in an *auctio*; a small number record money paid to the city of Pompeii for the rental of various goods belonging to the city. Apart from two tablets dated to AD 15 and 27, the former referring instead to L. Caecilius Felix, perhaps a relative of Jucundus and his predecessor in the business, all the tables in which the date is preserved come from between AD 52 and 60.

The records of the transactions follow three different structures: they may be written entirely in the third person, with both interior and exterior copy written by scribe; or one part is written in the first person, by the seller him- or herself or a deputy (as demonstrated by the substandard spelling in the exterior text of 26, 38, 40 and 45, and the use of the Greek alphabet in 32). In these tablets, either the interior is written in the third person by a scribe, with the exterior in the first person, or the tablets take the form of a *chirographum*, with two copies of the contract written in the first person, with the interior written by an individual and the exterior by a scribe, as in the

³¹ Unfortunately, Camodeca does not anywhere provide a list of which documents are *testationes* and which are *chirographa*. He does state (Camodeca 1999: 34 fn. 103) that there are 44 *chirographa* and 80 *testationes* (giving a total of 124 documents instead of 127). In the same footnote he provides a list of the type of act recorded in the document and whether these are recorded as *testationes* or *chirographa*. On the basis of this, his comments on, and categorisation of, individual texts within the edition, and the indications contained in the documents themselves, I conclude that the following texts are *testationes*: TPSulp. 1–21, 23–26, 28–29, 31–39, 40–44, 60–65, 83–88, 90–97, 99, 104–107, 116–27 (to a total of 78/127; note that this includes 1bis); and that the following texts are *chirographa*: 22, 27, 45–47, 48–49, 50–59, 66–79, 81–82, 89, 98, 100–103, 108–115 (to a total of 48/127). Note that there is no document 30 in the edition. This leaves TPSulp. 80, which is a letter; this could be the work of a scribe or the author. I cannot explain the divergence between my own calculations and those of Camodeca.

The Sub-elite Corpora

chirographa of the tablets of the Sulpicii (for an apparent exception to these structures, see p. 178 note b). On the tablets and their contents, see [Andreau \(1974: 14–25, 311–12\)](#), [Meyer \(2004: 149–50\)](#).

The Tablets from Herculaneum (TH²)

Some 160 or so wax tablets were also found in Herculaneum during excavations in the 1930s and subsequently, containing similar financial records to those of the Sulpicii and Caecilius Jucundus, and dating from 8 BC to AD 75 (although primarily to the last twenty years of this range). The heat they were subjected to, resulting in the carbonisation of the wood, has meant that they have physically survived better since excavation than the tablets of the Sulpicii; unfortunately it also resulted in the melting of the wax, meaning that in general only those parts written in ink directly onto the wooden surface of the tablets remains, primarily witness lists but also sometimes a third version of the interior and exterior copies as in the other tablets. [Camodeca \(2017a\)](#) gives 42 of these texts, previously published in a variety of venues, in anticipation of a complete edition.³²

The Tablets from London (WT)

A total of 405 waxed tablets used for writing were discovered in an archaeological excavation in the City of London between 2010 and 2014, of which 181 – all those which showed traces of text – were published by [Tomlin \(2016\)](#), along with two stylus labels (only one inscribed) and two wooden tablets written on with ink. Almost all date from the second half of the first century AD to the early second century, or are undated, with four coming from the second century after AD 125, and one from the third century. They include correspondence, financial or legal documents, accounts and other miscellaneous genres.

The context of the texts is sub-elite: those mentioned include coopers, brewers, transport contractors, businessmen, slaves,

³² In fact he re-edits most of them; [Camodeca \(2017a: 9–10\)](#) criticises the first publication of the texts between 1946 and 1961 in the strongest terms.

Introduction

decurions, a bodyguard of the governor and auxiliary soldiers (a probable equestrian prefect of auxiliaries, *Classicus*, is named in WT 33); not all of them were written in London, and some letters were definitely sent to London. There is some evidence of a scribe as the writer of at least one text (WT 29), who appears to have got the author's name wrong and corrected it.

The Vindonissa Tablets (T. Vindon.)

From AD 16 or 17 to 101, three legions, along with auxiliaries, of the Roman army were consecutively stationed at an army camp at Vindonissa (modern-day Windisch in Switzerland). From this camp have emerged a collection of 65 wax tablets whose wooden backing shows readable traces of writing, and which have been edited by [Speidel \(1996\)](#). These date from around AD 30 to 101, and consist largely of letters, but also other genres of text, including a record of discharge from the army, a receipt, a promissory note and a contract.

The Vindolanda Tablets (Tab. Vindol.)

The Roman fort at Vindolanda (near to what would become Hadrian's wall) preserves a large collection of texts written in ink on wooden tablets from between AD 85 and 130, the majority from about a decade starting around AD 92. Many of these are letters, either sent from or received at Vindolanda, but they also include other genres, including literary texts, reports and lists. The auxiliary cohorts who occupied the fort in this period were Tungrians and Batavians, (presumably) mostly Germanic speakers from Gallia Belgica and Germania. Germanic and Celtic names are frequent in the texts. The cohorts were led by equestrian prefects, of whom we have correspondence of Julius Verecundus, prefect of the First Cohort of Tungrians, and Flavius Cerialis, prefect of the Ninth Cohort of Batavians, along with that of the latter's wife Sulpicia Lepidina.

It is presumed that the majority of the texts are written by scribes: this is most clear from the letters, where the author often

writes a brief message in their own hand at the end (for other evidence, see p. 226 fn. 3); it is also suggested by the high level of consistent standardness in the texts. There are, however, some texts whose writers are probably not scribes, which will be discussed as appropriate in the rest of the book.

The Vindolanda tablets were published in Tab. Vindol. II (Bowman and Thomas 1994), III (Bowman and Thomas 2003) and IV (Bowman, Thomas and Tomlin 2010, 2011 and 2019). Tab. Vindol. II was digitised as a website called Vindolanda Tablets Online,³³ and both Tab. Vindol. II and III were also available at another site called Vindolanda Tablets Online II,³⁴ which along with the printed editions, I used in this book. For the sake of completeness I give their URLs in the footnotes. However, both sites are no longer directly accessible, and all the Vindolanda material is available on RIB Online.³⁵

The Bu Njem Ostraca (O. BuNjem)

The garrison at Bu Njem in Libya, ancient Gholaiia, called Golas by the Romans, has left behind a corpus of documents consisting of 146 ostraca (not all with readable writing on them) and five fragments of wall plaster with writing on them, published by Marichal (1992). The ostraca which give information as to the date come from between AD 253 and 259. The garrison was abandoned shortly after 259. On the basis of an analysis of the names, Marichal (1992: 65) concludes that the soldiers are auxiliaries, of which the great majority were recruited in Africa. The documents cover a range of genres, such as receipts, reports and correspondence, with some authors being of high rank (e.g. O. BuNjem 75, sent by a procurator), but this is not the case for the majority (see also Adams 1994 on the background and language of the Bu Njem ostraca).

³³ Originally at vindolanda.csad.ox.ac.uk.

³⁴ Originally at vto2.classics.ox.ac.uk; after 02/10/2020, I made use of some of its functionality at web.archive.org/web/20170617170346/http://vto2.classics.ox.ac.uk/.

³⁵ The tablets can be found at romaninscriptionsofbritain.org/tabvindol.

Introduction

Papyrus and Parchment from Dura Europos (P. Dura)

Dura Europos, in the province of Syria (later Syria Coele), was captured in AD 164 or 165 under the Emperor Lucius Verus and was eventually taken by the Persians in 256. From at least 208, it was garrisoned by a cohort of auxiliaries, the Cohors XX Palmyrenorum, and practically all of the texts in Latin come from an archive which was left behind when the room in which they were contained was abandoned in order to allow building works connected with the siege of 256. They include a number of official letters, ‘morning reports’ (daily reports of the status of the cohort and its personnel), rosters and lists of various sorts, a collection of judicial decisions by a tribune (although only one is in Latin) and a festival calendar (the *feriale Duranum*). These date to the last fifty years or so of Dura’s occupation by the Romans. I have used the edition of Welles et al. (1959), except for the letters, where I have followed the text as given by CEL 55–68, 70–80. I have included all texts found in the archive, with the exception of the *feriale Duranum*, since this official document did not originate at Dura (although of course it could have been copied there) and is likely to reflect the orthography of the authority from which it emanated.

Graffiti from the Paedagogium

The building known as the Paedagogium on the Capitoline hill was built in AD 92 and features a number of (mostly very) brief graffiti: the edition of Solin and Itkonen-Kaila (1966) provides 369, but some of these include only pictures rather than words, and some are in Greek. The graffiti themselves date to the second and third centuries AD. On the basis of the graffiti, the building seems to have been used primarily by slaves: many of the names that appear in the graffiti are characteristic of slaves, and some of them refer to their writers as slaves or having servile occupations. The corpus is not large, and does not provide much useful information, but it seemed inappropriate to exclude it because of the likelihood that this building was indeed the *paedagogium*

The Sub-elite Corpora

of the imperial palace (Solin and Itkonen-Kaila 1966: 73–8; Keegan 2012). Consequently, it could provide evidence for the kind of literate education which the management of the imperial house considered appropriate for its slaves.

Curse Tablets (Kropp)

Kropp (2008a) provides a collection of 382 curse tablets in Latin from across the empire, dating from the second century BC to perhaps the fifth century AD, but with the majority coming from the first to fourth centuries AD. On the question of who was writing these texts, see pp. 19–20 and 27. I have only included in my data words clearly recognisable as Latin, in the Roman alphabet – words in the Greek alphabet (whether Greek or Latin), and magic words, have been omitted.

Letters (CEL)

CEL is a corpus of non-literary Latin letters preserved on papyrus, tablets and ostraca, dating from the first century BC to the sixth century, although the majority come from the first four centuries AD. They are from across the empire, although there is an emphasis on Egypt as the primary place where papyrus was preserved. The authors include a range of social circumstances, although the army is particularly well represented. In fact, a large number of the letters in CEL come from the other military corpora (Vindonissa, Vindolanda, Dura Europos, Bu Njem), and I have not included them a second time. Since the remaining letters mostly do not belong to large collections of the same origin, and given their general heterogeneity (other than genre), I have mostly not felt it useful to treat the letters as a single corpus for the purpose of statistics, and discuss them individually.

There are two major exceptions to this. The first is the ostraca from the wâdi Fawâkhir in Egypt, which probably date to the first century AD (CEL 73–80). CEL 73–78 appear to be written by the same person, presumably the author Rustius Barbarus; whether he is also the author of 79 and 80 is uncertain. These ostraca contain many substandard spellings (e.g. *que* for *quae*, *tan* for

tam, scribes for scribis, uirdia for uiridia, mittes for mittis, statim for statim, debio for debeō, habio for habeō, exiut for exiuit, sepius for saepius, çoļiçlos and colifclos for cauliculōs, casium for cāseum, lintiolo for linteolō, redda for reddam, massipium for marsūpium).

The second is the cache of papyrus letters from Karanis in Egypt, dating to the early second century AD.³⁶ The letters are either sent from Claudius Terentianus to Claudius Tiberianus (P. Mich. VIII 467/CEL 141–471/146, and CEL 143) or from Claudius Tiberianus to another person (472/147),³⁷ CEL 148 is too fragmentary to identify the author. The authors are both soldiers, and it is often supposed that Tiberianus was the father of Terentianus; there are further letters written in Greek. Whether they were first- or second-language speakers of Latin is a matter of discussion (Nachtergaele 2015). The letters are all written in different hands except for 468/142 and 143, and perhaps 470/145 and 471/146 (although Halla-aho 2003: 249 doubts these last two belong to the same scribe on the basis of the difference in the orthography). In addition, Terentianus may have written the greetings or addresses in a different hand from the rest of the letter in 468/142, 470/145 and 471/146 (Halla-aho 2003: 245, 250–1). Except for 472/147, all the letters contain substandard spelling, although to varying degrees, but also, as we shall see, old-fashioned spellings.

Funerary Inscriptions from the Isola Sacra (IS)

The necropolis on the Isola Sacra, between the ports of Ostia and Portus to the south-west of Rome, contains a large number of tombs and burials dating from the late first to the early fourth century AD. The corpus of inscriptions edited by Helttula (2007) contains 368 funerary inscriptions in Latin from the necropolis, almost all of which belong to the second to third centuries AD (I do not include the tiny number of non-sepulchral inscriptions, nor, obviously, those in Greek). The tombs commemorate, and were set

³⁶ For ease of comparison with other works, I give the Claudius Tiberianus letters both their number in CEL and in P. Mich. VIII, but I have used the text of CEL.

³⁷ CEL 143 seems to have contained the same material as 468/142 but is not an exact copy.

up almost entirely by, members of the sub-elite, including many freedmen and freedwomen, slaves and freeborn (many of whom will have been the children of freedmen and -women), and including a range of occupations (for a useful sketch, focussing on a subset of the tombs, but representative of the whole corpus, see [Tacoma 2016](#): 138–41; on the predominance of freedmen and -women in funerary inscriptions, see [Taylor 1961](#), with reference to the *Isola Sacra* at pp. 120–2). Some of these were slaves or freedmen of the imperial household, and some were, moreover, clearly affluent, but they cannot be said to have belonged to the small elite defined as the senatorial and equestrian classes.

Writers on Language

I give here a very brief overview of the Roman writings on language referred to in this book.³⁸ I have looked for material in the major writers of the first to fourth centuries AD. In the discussion of <k> and <q> I have also included some relevant later writers, mentioned by [Lindsay \(1894](#): 6–7), without carrying out a thorough search. For more information on all except Quintilian, see the editions cited, and the useful summaries in [Zetzel \(2018](#): 96–8, 231, 279–329). Where a text is quoted from another edition, but is also included in *Grammatici Latini* (GL; [Keil 1855–80](#)), I also provide a reference to GL. Texts are quoted as printed in the editions, except that I have changed *v* to *u* throughout, replaced capital letters at the start of sentences with lower case and used double quotes (“ ”) in place of various equivalent national conventions. I have made no attempt to make them consistent in other ways. In the translations I have not used brackets and slashes to distinguish phonemes from graphemes, since these are not concepts kept distinct by the authors. All translations are my own, except where noted.

- L. Caesellius Vindex. Second century AD. His writings are known only from excerpts in Cassiodorus' sixth century AD *De orthographia*, of

³⁸ I use the term 'writers on language' rather than 'grammarians' because not all the authors referred to here were grammarians, at least in the narrow sense of being *grammatici*, elementary school teachers. See [Zetzel \(2018](#): 8–10, 206–7 and *passim*).

Introduction

which I use the text of [Stoppacci \(2010\)](#), under the names Caesellius and L. Caecilius Vindex. To what extent either of these was actually written by Caesellius Vindex (see the contrasting comments of [Stoppacci 2010](#): clxvi–vii and [Zetzel 2018](#): 288), and whether they were altered before inclusion by Cassiodorus are uncertain.³⁹

- Flavius Sospater Charisius, *Ars grammatica*. Early 360s AD. [Barwick \(1964\)](#).⁴⁰
- Cleodnius, *Ars grammatica*. Fifth century AD. GL (5.1–79).
- L. Annaeus Cornutus. AD 20–65. His *De enuntiatione uel orthographia* is known only from excerpts in Cassiodorus' sixth century AD *De orthographia*, of which I use the text of [Stoppacci \(2010\)](#). These were not necessarily unchanged by Cassiodorus. An English translation is found in [Boys-Stones \(2018](#): 142–55), but he uses Keil's (GL 7.147–54) text, which is sometimes quite different.
- Curtius Valerianus. His work is known only from excerpts in Cassiodorus' sixth century AD *De orthographia*, of which I use the text of [Stoppacci \(2010\)](#). These were not necessarily unchanged by Cassiodorus. His date is uncertain (after the second century AD according to [Zetzel 2018](#): 288; fifth century AD according to [Stoppacci 2010](#): cxxxix).
- Diomedes, *Ars grammatica*. Late fourth century AD. GL (1.297–529).
- Donatus, *Ars grammatica maior*. *Floruit* mid-fourth century AD. [Holtz \(1981\)](#).
- Dositheus, *Ars grammatica*. Probably late fourth century AD. [Bonnet \(2005\)](#).
- Pompeius Festus, *De significatu uerborum*. Festus' lexicon was produced in the late second century AD, but based on, and abbreviated from, the work of Verrius Flaccus (c. 55 BC–AD 20). The extent to which the text of Festus reflects that of Verrius is debated (see [Glinister 2007](#): 11–12). Only a small fragment remains (Fest.), and the work is otherwise known only through an epitome (Paul. Fest.) made by Paulus in the eighth century. [Lindsay \(1913\)](#).
- Ps-Probus, *De catholicis*. Early fourth century AD, or later. GL (4.1–43).
- Ps-Probus, *Instituta artium*. Some parts written around AD 305, although not necessarily in the version preserved. GL (4.47–192).
- M. Fabius Quintilianus (Quintilian), *Institutio oratoria*. Written in the 90s AD; Quintilian lived from c. AD 35 to c. AD 100. [Ax \(2011\)](#), who largely follows [Winterbottom \(1970\)](#).
- Servius, *Commentarius in Artem Donati*. Early fifth century AD. GL (4.405–48).

³⁹ I am grateful to an attendee at a talk I gave at Uppsala University, whose name I have unfortunately lost, for pointing out to me the works of earlier writers on language to be found in Cassiodorus.

⁴⁰ The grammars of Charisius, Diomedes and Dositheus share a source for large parts of their grammars, so that what they say is often very similar (see [Zetzel 2018](#): 188).

A Sketch of the Latin Vowel System through Time

- Terentianus Maurus, *De litteris, de syllabis, de metris*. Late second or early third century AD. In verse. [Cignolo \(2002\)](#).
- Q. Terentius Scaurus, *De orthographia*. His *floruit* was during the reign of Hadrian (AD 117–138). [Biddau \(2008\)](#).
- Velius Longus, *De orthographia*. Probably first third of the second century AD. [Di Napoli \(2011\)](#).
- C. Marius Victorinus, *Ars grammatica*. Mid-fourth century AD. [Mariotti \(1967\)](#).
- Maximus Victorinus, *Ars grammatica*. Uncertain date: not before the last part of the fourth century AD. GL (6.187–215).

A Sketch of the Latin Vowel System through Time

Latin inherited from Proto-Italic a system consisting of five long and short vowels which are reconstructed as **i*, **ī*, **e*, **ē*, **a*, **ā*, **o*, **ō*, **u* and **ū*, as well as the diphthongs **ei*, **ai*, **oi*, **au*, *ou* (and at end of word the long diphthongs **ōi*, **āi* and perhaps **ēi*). In the International Phonetic Alphabet ([International Phonetic Association 1999](#)), I take the following vowel phonemes to have existed in early Latin ([Figures 1 and 2](#)).⁴¹

In the fourth century BC, the diphthong /*ou*/ monophthongised to /*o*/, as did /*oi*/ in most contexts, briefly giving a three-way contrast

/i:/ /i/ /u/ /u:/
/ɛ:/ /ɛ/ /ɔ/ /ɔ:/
/a/ /a:/

Figure 1 Early Latin vowels

/ɛi/ /ɔi/ /ou/
/ai/ /au/

Figure 2 Early Latin diphthongs

⁴¹ On the developments outlined here, see [Meiser \(1998: 57–60\)](#), [Adams \(2013: 37–89\)](#), [Leppänen and Alho \(2018\)](#), [Weiss \(2020: 71–3, 109–13\)](#).

among long vowels on the back axis.⁴² This /o:/ was raised to /u:/ in the third century, falling together with inherited /u:/.⁴³ Around the middle of the third century, the diphthong /ɛi/ underwent monophthongisation to close mid /e:/, briefly giving a three-way contrast among long vowels on the front axis. About a century later, this /e:/ was raised further to /i:/, thus falling together with inherited /i:/.⁴⁴ In the second century, the off-glide of the remaining diphthongs /ai/ and /ɔi/ was lowered to /aɛ/ and /ɔɛ/. The effect of these changes was thus to restore the five-vowel long/short system at the cost of the diphthongs.

At some point long /ɛ:/ and /ɔ:/ underwent raising to /e:/ and /o:/,⁴⁵ eventually falling together in most Romance variants with /i/ and /u/ (after the loss of contrastive vowel length in Romance, the date of which is disputed, but probably towards the fourth or fifth century AD).⁴⁶ It is often supposed that /i/ was phonetically [i], facilitating the merger with /e:/. From the first century AD onwards, there is already evidence of /i/ being spelt with <e>, originally probably reflecting a phonetic lowering to [e] in certain contexts.⁴⁷ From the second century BC the diphthongs /aɛ/ and /oɛ/ were monophthongised, at least in non-Roman Latin; this was widespread across the empire in the first few centuries AD, although the diphthongs were perhaps maintained by elite speakers for longer. The latter developed to /e:/ on the basis of its reflexes in Romance (e.g. Italian *pena* /pena/ ‘punishment’),⁴⁸ while the

⁴² /oi/ > /oɛ/ was apparently retained in *poena* ‘punishment’, *Poenus* ‘Phoenician’, *foedus* ‘ugly’, *foedus* ‘treaty’, *moenia* ‘walls of a town’, perhaps as a spelling pronunciation. According to Meiser (1998: 87), /oi/ was retained after /t/ and /p/, except where there was an /i(:)/ in the following syllable (hence *pūnīre* ‘punish’, *Pūnicus* ‘Phoenician’), but this requires another explanation for the retention of *moenia*. Greek borrowings and various contractions which took place after the fourth century increased the number of words containing /oɛ/.

⁴³ For example, *Loucina* (CIL 1².371, 1².360, 1².1581; although these inscriptions date from the third century BC or later, so the spelling with <ou> is already a historical spelling) > *Locina* (CIL 1².359) > *Lūcina* (an epithet of Juno); **louksnā* > *losna* (CIL 1².549) > *lūna* ‘moon’; *oino(m)* (CIL 1².9) > *ūnum* ‘one’. CIL 1².9 is from the second half of the third century at the earliest, so the spelling is historical (cf. *Luciom* < **loukiom* and possibly hypercorrect *plourime* for *plūrimī* < **plousomoi*, given the comparative *plūs* < **plous*; Clackson and Horrocks 2011: 142).

⁴⁴ **ueikī* > *ueci* (CIL 1².2874) > *uīcī* ‘of the village’.

⁴⁵ As early as the second century BC, according to Leppänen and Alho (2018: 467).

⁴⁶ See Loporcaro (2015: 18–60), although some scholars have dated the change much earlier.

⁴⁷ And even earlier for some speakers, according to Marotta (2015).

⁴⁸ See Meiser (1998: 62).

Introduction

/ui/

/ɛi/ /ɛu/

/au/

Figure 4 Latin diphthongs

(on which, see pp. 59–64); [o] for /u/ was probably somewhat later (and perhaps also originally only in final syllables or unstressed words).

An additional feature of the vowel system is the tendency to shortening of word-final vowels that occurred between the third century BC and perhaps the first century AD (or possibly even later). All long vowels followed by a single consonant other than /s/ underwent shortening at the beginning of the second century BC if they were in the final syllable of a polysyllabic word (Weiss 2020: 139–40). Iambic shortening also shortened word-final long vowels in words which originally were of iambic shape, such as *bene* ‘well’ < *benē*, *ego* ‘I’ < *egō*. In the early Classical period this was largely restricted to words which did not clearly form part of a productive paradigm, where long vowels were restored by analogy, and/or function words, which are particularly likely not to receive phrasal stress (Stephens 1985; Selkirk 1996; Fortson 2008: 176–258). Even the first singular present verbal ending in /ɔ:/ is sometimes found scanning short in first century BC poetry in iambic words, and by the end of the century word-final /ɔ:/ seems to have been shortened in non-iambic words as well, being attested in Horace, Ovid, Propertius and later poets (Platnauer 1951: 50–2; Leumann 1977: 110; Stephens 1986; Meiser 1998: 76–7; Weiss 2020: 138–9). It is unclear whether this was already a completed sound change or varied by phonetic or sociolinguistic context (or whether it is a poetic licence by analogy with the iambic forms); whether other word-final long vowels had also become shorter by then seems to be unknown.

By the third century AD, in discussing acceptable *clausulae* in oratory, the grammarian Sacerdos implies that at least among

some speakers long vowels in final syllables (and not just absolute final vowels) had become shortened (GL 6. 494.7–12), although also demonstrating that the educated knew which vowels were supposed to be long.⁵² I will assume here that isolated forms like *ego*, *mihi* and *tibi* had a short final syllable from the first century BC onwards, but that all other originally long final vowels, even in iambic word forms which are not paradigmatically isolated, were long. There is some evidence that, at least in some words which had undergone iambic shortening, knowledge of the original length of the vowel remained (e.g. scansion as *nemō*, *cauē*, *mihī*, *tibī*, spellings such as *egó*, *tibei*, *tibe*, *tibì*).

Apparently also by the first century BC, at least some vowels in some words had been lengthened before *r* followed by another consonant (Leumann 1977: 114; Weiss 2020: 195). This is demonstrated by forms like *aarmeis* (AE 2008.473, first century BC) ‘weapons (abl.)’, and by reflexes of these vowels in Romance or in languages into which words containing this sequence were borrowed, as in Latin *ōrdō* ‘order’ > Logudorese *órdene*, borrowed into Welsh as *urdd*. However, not all instances of this sequence show lengthening (e.g. Italian *fermo* from *firmus* ‘firm’, not **fīrmus*, notwithstanding *Firmi*, CIL 6.1248, AD 38–49). Whether the difference is due to social variation or the phonetics of this sequence, or some other factor, remains unclear.

⁵² See Adams (2013: 46–7) and Leppänen and Alho (2018: 472); the discussion of this same matter by Adams (2007: 264 fn. 244) is confusing. For some more instances of shortening of final vowels, see Adams (1999: 116–17).

PART I
OLD-FASHIONED SPELLINGS

In the late third or early second century BC the off-glide of the diphthong /ai/ was lowered to /ae/, leading to a change in spelling from <ai> to <ae> (see p. 40).¹ The use of <ai> for <ae> in inscriptions of the first–fourth centuries AD, especially in genitive and dative singulars of the first declension, is actually not particularly difficult to find, even in quite large numbers (although given the thousands of examples of <ae>, the frequency is probably still very low).² Some, but not all, of these will be due to Greek influence,³ misreadings, or mistakes by the stonemason. Use of <ai> seems to have been one of the spellings favoured by Claudius (Biddau 2008: 130–1), but examples can still be found long afterwards.

It is clear that Quintilian considers the <ai> spelling already highly old-fashioned:

ae syllabam, cuius secundam nunc e litteram ponimus, uarie per a et i efferebant, quidam semper ut Graeci, quidam singulariter tantum, cum in datium uel genetium casum incidissent, unde “pictai uestis” et “aquai” Vergilius amantissimus uetustatis carminibus inseruit. in isdem plurali numero e utebantur: “hi Sullae, Galbae”.

The syllable *ae*, whose second letter we now write with the letter *e*, they used to express differently with *a* and *i*, some in all contexts, like the Greeks, others only in the singular, when in the dative or genitive case, whence Virgil, who adored archaism, inserted ‘*pictai uestis*’ and ‘*aquai*’ in his poems. In the same words

¹ Including in the originally disyllabic first declension genitive singular /ai:/ > /ai/ > /ae/. The development to a diphthong had taken place already by the time of Plautus (Weiss 2020: 251).

² For example, *deai* (AE 2011.199, second century AD), *piētissimāi* (CIL 6.11825, second century AD, EDR114976), *Maximāi* (AE 1977.74), *conserbai* for *conseruae* (AE 1977.237, third century AD, EDR076772); *saipe* (CIL 5.1863, AD 251–300, EDR007230), *Iulīai* (Besnier 1898, no. 60, AD 215). Searching for ‘ai’ on EDCS produces too many false positives for a systematic collection.

³ There are certainly examples in Greek names, for example datives *Thesbiai* (CIL 5.6371), *Zonesai* = *Dionysiāi* (CIL 6.1588).

Old-fashioned Spellings

they used *e* in the plural: ‘*hi Sullae, Galbae*’. (Quintilian, *Institutio oratoria* 1.7.18–19)

The <ai> spelling is attributed to the *antiqui* by Velius Longus (5.4 = GL 7.57.20–58.3), Terentius Scaurus (5.2.2 = GL 7.16.7–10) and Festus (Paul. Fest. 24.1–2) but Marius Victorinus suggests that it may have been in vogue in the fourth century, which is not impossible given its presence in inscriptions, as already mentioned (although Marius recommends his charges always to use <ae>):

AE syllabam quidam more Graecorum per AI scribunt, ne illud quidem custodientes omnes fere qui de orthographia aliquid scriptum reliquerunt praecipunt, nomina femina casu nominatio A finita plurali in AE exire, ut ‘Aeliae’, eadem per A et I scripta numerum singularem ostendere, ut ‘huius Aeliai’, inducti a poetis, qui ‘pictai uestis’ scripserunt, et quod Graeci per I potissimum hanc syllabam scribunt . . .

Certain people write the syllable *ae* as *ai*, in the Greek manner, paying no attention to the teaching of practically everyone whose writing on orthography is preserved, which is that feminine nouns whose nominative is in *-a* should have plurals ending in *-ae*, as in *Aeliae*, but the singular cases in *-ai*, as in *huius Aeliai*, following the example of the poets, who wrote ‘*pictai uestis*’, and because the Greeks wrote this syllable with *i* . . . (Marius Victorinus, *Ars grammatica* 4.38 = GL 7.14.1–6)

Use of <ai> for <ae> is extremely rare in the corpora. There are only 2 instances in the curse tablets from the first to fourth centuries AD.⁴ The use of *Maicius* beside *Maecius* (Kropp 1.7.1/1, mid-first century AD, Altinum) could perhaps be attributed to Greek influence, since many of the names listed on the tablet are Greek. In 1.5.2/1 (around AD 50, Capua) *quaistum* is the only instance of /ai/ in this tablet, which otherwise shows a number of substandard

⁴ There are two possible examples in a tablet of the second century BC (Kropp 1.5.4/1), not long after the lowering of /i/ as second element in a diphthong. *Denatai* (2.2.3/1, Baetica, first century BC) may be an old-fashioned spelling; there is an example of final *-o(m)* for *-um*, although all other instances of /u/ in final syllables are spelt with <u>: *deibus* 3 times, *inferabus*, *uotum*. The writer also uses <ei> for /i:/ in *deibus* ‘gods’, three times, and for [i:] in *einfereis* for *inferis* ‘gods below’, which at this period is probably not particularly old-fashioned. The omission of final <m> may already be substandard by the first century BC, and there are other signs of substandard spelling, notably omission of final stops in *quo* for *quod* (if not an ablative in error) and *solua* for *soluat*, and raising of /ε/ to /i/ in *dioso* for *deorsum*; <s> for <rs> is not certainly substandard: it appears in the Sententia Minuciorum of 117 BC (CIL 1².584), and Velius Longus (13.8) states of *deorsum* that ‘some people have pronounced *deorsum* with double *s* as *dossum*’, without criticism.

spellings: *ilius* for *illius*, *uita* for *uītam*, *ipsuq* for *ipsumque*, *mado* for *mandō*, *Sextiu* for *Sextius*. Greek influence is of course possible, but there is no other internal or external evidence for it.

In the Vindonissa tablets, we have the dative *Secundi*{i}na<e> (T. Vindon. 41), where only one stroke of the final letter II <e> is observed. Given how rare the use of <ai> is in the corpora it seems unlikely that that it is intended here (although the editor notes the fashionability of <ai> under Claudius). The possibility that the second stroke of the <e> was simply not preserved on the wooden backing of the tablet must be strong.

There is also a single example of <ai> in the dative in the Isola Sacra inscriptions, in *Marcianai* (IS 308, undated). The editors suggest that this is a morphological borrowing from Greek, perhaps to distinguish the dative from the genitive. The (surviving) inscription reads *d(is) m(anibus) Marcianai Donatus*, so there is no evidence that the composer was a Greek-speaker (nor was the inscription found *in situ*, so there are no other known inscriptions from the same tomb). It is the case that many of the people commemorated in these inscriptions have Greek names, which sometimes have Greek morphology. There are also three instances of a Latin name with a Greek first declension nominative (*Saluiane* 89, *Manteiane* 196, *Galitte* 288; see Adams 2003: 490), and there is at least one instance of the hybrid Greek/Latin first declension genitive *-aes* attached to a Roman name, in *Aureliaes* (74).⁵ Greek influence, while by no means certain, seems at least as likely as an old-fashioned spelling.

⁵ There are also *Axiaes* and *suaes* (198), but the case usage in this inscription is rather unclear. On the *-aes* genitive, see Adams (2003: 479–83).

CHAPTER 3

<ei> and <e> for /i:/

Around the middle of the third century BC, the diphthong /*ei*/ underwent monophthongisation to close mid /*e*/; about a century later, this /*e*/ was raised further to /*i*/, thus falling together with inherited /*i*/ (see p. 40). We will see that neither <ei> nor <e> for /*i*/ – and for /*i*/ which results from shortening of /*i*/ – are very well attested in the corpora. Nonetheless, even after the first century BC/Augustan period a few plausible examples of each do pop up, in the case of <ei> in one of the Claudius Tiberianus letters, which in general often seem to preserve old-fashioned spelling, and, in the case of <e>, at Vindolanda.

<ei> for /i:/

The effect that this monophthongisation had on spelling was a subject of considerable discussion in the second and first century BC and beyond. The advantage of <ei> was that it provided a spelling that allowed /*i*/ and /*i*/ to be distinguished, but Roman writers disagreed on the exact contexts in which <ei> should be used, with Lucilius, Accius and Varro all apparently taking differing positions (Somerville 2007; Nikitina 2015: 53–8; Chahoud 2019: 50–3, 57–9, 67–9).

The use of <ei> for /*i*/ was still extant in literary contexts towards the end of the first century BC and perhaps later. The Gallus papyrus (Anderson et al. 1979), probably from c. 50–20 BC, with the reign of Augustus particularly likely, contains the spellings *spolieis* for *spoliīs*, *deiuitora* for *dūitiōra*, *tueis* for *tūis* and *deicere* for *dīcere*, all with <ei> for **eī* beside *mihi* (whose final syllable scans heavy) and *tibi* (with light final

syllable) <*-ei>¹ <ei> for /i:/ is attested in manuscripts of authors as late as Aulus Gellius (13.4.1, writing in the second century AD), along with corruptions which suggest scribes dealing with the unfamiliar spelling (Gibson 2011: 53–4). According to Nikitina (2015: 58–70), legal texts and ‘official’ inscriptions of the first century BC show a tendency to prefer <ei> for /i:/, especially from original /ei/, whereas from the Augustan period there is a clear move to using the <i> spelling, with very occasional instances of <ei>.

The Roman writers on language send mixed messages about the status of <ei>. In the late first century AD, Quintilian says:

diutius duravit, ut e et i iungendis eadem ratione, qua Graeci, ei uterentur: ea casibus numerisque discreta est, ut Lucilius praecipit . . . quod quidem cum superuacuum est, quia i tam longae quam brevis naturam habet, tum incommodum aliquando; nam in iis, quae proximam ab ultima litteram e habebunt et i longa terminabuntur, illam rationem sequentes utemur e gemina, qualia sunt haec “aurei” “argentei” et his similia.

The habit of joining *e* and *i* together lasted rather longer, on the same reasoning as the Greeks used *ei*: and this usage is decided by case and number, as Lucilius teaches . . . This is entirely superfluous, because *i* has the same quality, whether long or short, and sometimes it is actively inconvenient; because in words which end in an *e* followed by long *i* (like *aureī* and *argenteī*) we would have to write two *es*, if we followed this rule [i.e. *aureei*, *argenteei*]. (Quintilian, *Institutio oratoria* 1.7.15–16)

It is not clear from this passage whether or not there are contemporaries of Quintilian who still use <ei>; although he only mentions Lucilius, the fact that Quintilian feels the need to argue against it may suggest that in fact there are. The same is true of Velius Longus’ discussion:

hic quaeritur etiam an per ‘e’ et ‘i’ quaedam debeant scribi secundum consuetudinem graecam. nonnulli enim ea quae producerentur sic scripserunt, alii contenti fuerunt huic productioni ‘i’ longam aut notam dedisse. alii uero, quorum est item Lucilius, uarie scriptitauerunt, siquidem in iis quae producerentur alia per ‘i’ longam, alia per ‘e’ et ‘i’ notauerunt . . . hoc mihi uidetur superuacaneae obseruationis.

Now I turn to the question whether certain words should be written with *ei* as in Greek. For some have written long instances of *i* in this way, while others have

¹ For an attempt to explain this distribution, see Somerville (2007).

Old-fashioned Spellings

been content to use an *i-longa* for this long vowel or to have given it a mark. Still others, among whom is Lucilius, have written it in various ways, since they have written long *i* sometimes with *i-longa* and sometimes with *ei* . . . This seems to me to be unnecessary pedantry. (Velius Longus, *De orthographia* 5.2 = GL 7.55.27–56.15)

However, Charisius (Barwick 1964: 164.21–29) attributes to Pliny (the Elder) a rule for explaining when third declension accusative plurals are in *-eis*, suggesting that at least some writers in the first century AD used <ei>, at least in this context, and in the late second or early third century AD, Terentianus Maurus also implies that <ei> is still in use, at least in particular lexemes and endings:

sic erit nobis et ista rarior diphthongos ‘ei’, ‘e’ uidemus quando fixam principali in nomine: ‘eitur in siluam’ necesse est ‘e’ et ‘i’ conectere, principali namque uerbo nascitur, quod est ‘eo’. sic ‘oueis’ plures et ‘omneis’ scribimus pluraliter: non enim nunc addis ‘e’, sed permanet sicut fuit lector et non singularem nominatum sciet, uel sequentem, qui prioris saepe similis editur.

For us that diphthong <ei> is rarer, when we see <e> fixed in the original word: in ‘*eitur in siluam*’ it is necessary to join <e> and <i>, because <e> occurs in the base word, which is ‘*eo*’. In the same way, we often write ‘*oueis*’ and ‘*omneis*’ in the [accusative] plural: here we are not adding an <e>, rather it is retained from the nominative plural so that the reader knows it is not the nominative singular or the case which follows it [i.e. the genitive], which is often identical. Terentianus Maurus, *De litteris* 459–466 = GL 6.339.459–466

Marius Victorinus (*Ars grammatica* 4.4 = GL 6.8.13–14) attributes the <ei> spelling to the *antiqui*, and at 4.59 (GL 6.17.21–18.10) notes that the *priores* used it to represent the nominative plural of second declension nouns as opposed to the genitive singular. He follows this with the observation that the use of <ei> is a topic which has exercised all writers on orthography, although without making it clear whether any modern writers use it (he himself appears to be opposed).

Diomedes, however, in the late fourth century, is much more explicit that he considers this spelling out of use:

ex his diphthongis ei, cum apud ueteres frequentaretur, usu posteritatis explosa est.

Of these diphthongs, *ei*, while it was used frequently by the ancients, has been rejected in subsequent usage. (Diomedes, *Ars grammatica*, GL 1.427.14–15)

Any kind of conclusive, or even representative, survey of the use of <ei> in the inscriptional context is made extremely difficult by the problems involved in searching on the online databases. The string 'ei' in standard spelling represents several sequences of phonemes, while 'i' represents (at least) /j/, /i/ and /i:/, all highly frequent phonemes. It is thus extremely difficult to get results which are restricted to the use of <ei> which is desired, and completely impossible to compare it with instances of <i> for /i:/ (and even more impossible, so to speak, to isolate cases of /i:/ < /ei/). I carried out a search for the sequence '{e}i' on a plaintext copy of all the inscriptions in the EDCS downloaded on 18/06/2019. After removing cases of <ei> which did not represent /i:/ or /i/, I identified a maximum of 15 dated to the first four centuries AD.² However, this is highly likely to undercount the total instances, partly because of the usual problems with this database, partly because of my own decisions of what to include.³ Nonetheless, this does not suggest that <ei> was in common usage in this period (as of 06/04/2021, the database finds 150,594 inscriptions dated from the first to fourth century AD).

In general, the corpora agree with this picture, since <ei> for /i:/ is entirely absent from the Vindonissa, Vindolanda and London

² In fact the number of these spellings in which <ei> is old-fashioned is probably fewer. The Greek names *Ei[sid]orus* (AE 1981.58), *Neicomedias* (AE 1983.900) are apt to reflect Greek spelling of /i:/ as <ei>. The same could conceivably be true of AE 1978.797, a bilingual inscription from Asia which contains *leiber[to]* for *libertō* and *[d]eis* for *dīs*, and of CIL 3.12283, which is a copy of a rescript of Hadrian, along with a Greek translation from Athens, and contains *peregreinae* and *pe[re]greinum* for *peregrīnus*, -a, so in theory could have <ei> by the influence of Greek spelling. There is no motivation for the use of <ei> to represent short /i/ in *feisco* (AE 1890.48) and *Seilvano* (AE 1990.56), so its use may reflect a mistake of some sort. In *uoueit* (AE 1957.337) for *uōuit*, the second vowel was originally long, and in *eigni* (CIL 9.3071, a verse inscription from the third century AD with a number of other old-fashioned spellings) <ei> probably reflects raising of /i/ ([e] or [i]) to [i] before [ŋ] (Weiss 2020: 142). The digraph <ei> represents /i:/ in AE 1978.797 and CIL 3.12283, and in *sueis* (AE 1994.428, CIL 5.1950), *heic* (1977.83; dated by AE to the Republican period; first century AD according to EDR076632), *cuncteis*, *quei*, *ueixit* (CIL 14.2485), *ueix(it)* (AE 1972.115), *anneis* (Giglioli 1949–50: 50–1; 'età tarda'), *Antoneinus* (CIL 3.314). The vowel represented by <ei> comes from /ei/ in all of these except in the Greek names, *eigni*, *peregreinae* and *Antoneinus*.

³ It must be remembered that many inscriptions in the database are undated (this was even more the case in 2019); the datings, or readings, on the database are not particularly reliable; there will be many inscriptions in the database in which cases of <ei> are identified with '(!)' at the end of the word, or are not flagged at all; I excluded inscriptions with a date range which extended both into the first century BC and AD.

tablets, the TPSulp. and TH² tablets, the Bu Njem ostraca, the Dura Europos papyri, and the graffiti from the Paedagogium.⁴ There are a couple of examples where <ei> is used for the sequence /i.i:/: one in the Caecilius Jucundus tablets (*[ma]ncipeis*, CIL 4.3340.74, for *mancipiīs*), in the scribal portion of a tablet which is undated but presumably belongs to the 50s or 60s AD; and one in the Isola Sacra inscriptions (*macereis*, IS 1, for *māceriīs*).

There are two possibilities to explain these spellings. The first is that the sequence /i.i:/ has contracted to give /i:/ (Adams 2013: 110). In this scenario, <ei> is being used to represent the remaining /i:/. The second possibility is that the speaker has undergone raising of /ε/ to /i/ before another vowel in words like *aureus* ‘golden’ > /aurius/ (Adams 2013: 102–4). If this were the case, <ei> could be a hypercorrect spelling for /i.i:/. An example of such hypercorrection can be found in *Terenteae* for *Terentiae* in another Isola Sacra inscription (IS 27). There is no way to distinguish between these possibilities: neither inscription shows any other old-fashioned or substandard features (and nor do any of the other inscriptions from the same tomb, in the case of IS 1).

Otherwise, only the curse tablets and letters provide a certain amount of evidence for the continuing use of <ei> either to represent /i:/, [i:],⁵ or etymological /i:/ which became /i/ by iambic shortening (on which, see p. 42), in words like *ubi* ‘when’ < *ubi* < *ubei*.⁶

In the curse tablets <ei> is found, on the whole, in fairly early texts: in Kropp 10.1.1, from the later second century BC, and 1.4.4/3, 1.4.4/8, 1.4.4/9, 1.4.4/10, 1.4.4/11, 1.4.4/12, 2.1.1/1, 2.2.3/1, all from the first century BC, <ei> is used frequently (but not necessarily consistently), including for iambically

⁴ I take *eirimus* for *erimus* ‘we will be’ (P. Dura 82.6) to be a typo on the part of the editors.

⁵ Although note the use of <ei> in *heic* for *hic* in a letter on an ostrakon (BAS93-15-21; Bagnall and Sheridan 1994, no. 6) from Bir ‘Abu Sha’ar in Egypt, in a hand of the second century AD.

⁶ A complication is introduced here by the fact that iambic shortening was already taking place at the time of Plautus, at a stage when original /ei/ had become /e:/, but before its further raising to /i:/ (Weiss 2020: 138). Given that /e:/ fell together with /i:/, it is possible that shortened /e/ also fell together with /i/. Alternatively, since iambic shortening was apparently an ongoing process, it may not have been lexicalised in words like *ubi* until after /e:/ > /i:/.

Table 1 <ei> in the curse tablets, undated and first to fourth (or fifth) century AD

	Tablet	Date	Place
Apeiliae	Kropp 1.4.3/1	No date	Ostia
eimferis	Kropp 1.4.4/1	First–second century AD	Rome
seiue seiue seiue	Kropp 1.5.3/1		Cumae
infereis	Kropp 1.5.3/2	First century AD	Cumae
sanguinei	Kropp 3.6/1	First or early second century AD	Caerleon
Deidio	Kropp 4.3.2/1	Fourth or fifth century AD	Gallia Aquitania

shortened /i/ in *tibei* (1.4.4/3). There are a handful of other examples, although some are in undated tablets (see Table 1).⁷ 1.4.4/1, dated to the first two centuries AD, has the spelling *suom* twice, and otherwise is entirely standard (including *nisi*, whose final vowel would have been /i:/ prior to iambic shortening). 1.5.3/2 has largely standard spelling, though it is possible that the writer had the /e:/ and /i/ merger, given the spellings *Caled[um]*, *Cale[dum]* for *Calidum* and *niq[uis]* for *nēquis* and possible *ni[ue]* for *nēue* if correctly restored. However, the author could also be using the variant *nī* for *nē* in the latter two. In 3.6/1, *sanguinei* reflects the (originally *i*-stem) ablative **-īd*; <i> is used for the iambically shortened final vowel of *tibi* and for /i:/ in *ni* ‘if not’. Substandard spellings are found in *domna* for *domina* and hyper-correct *palleum* for *pallium*. In the case of the very late *Deidio* (4.3.2/1), the use of <ei> may have been preserved in the family name: <i> is used for /i:/ in *oculique*. The writer shows substandard spelling in *bolauerunt* for *uolāuērunt* and *pedis* for *pedēs*.

Likewise, in the letters most examples of <ei> are found in texts dated to the first century BC or the Augustan period. In the case of

⁷ I omit *eide* 1.5.6/1; the editor apparently sees this as an erroneous spelling for *item*. I wonder if it is meant to represent *eidem* ‘the same people’; the syntax of the sentence is hard to understand.

CEL 3, from the second half of the first century BC, the writer seems not to have learnt the rule of when to use <ei> well, deploying it for short /i/ in *sateis* for *satis* and *defendateis* for *dēfendātis* alongside /i:/ in *s]ei* for *sī* and *conserueis* (twice) for *conseruīs*. If the author Phileros is also the writer he may not have been a native speaker of Latin. CEL 12, dated to 18 BC, has <ei> in *eidus* for *īdūs*. CEL 10, from the Augustan period, includes <ei> for iambically shortened /i/ in *tibei* beside <i> in *mihi*, and, mistakenly, in the second person singular future perfect *uocāreis* for *uocaris* by confusion with the perfect subjunctive *uocārīs*. Alongside these, the genuine cases of /i:/ (originally <ei/ in *quī* and *sī* are spelt with <i>. This letter is characterised by both conservative spelling features alongside substandard orthography (on which, see pp. 10–11). CEL 13, from the early first century AD, includes *tibei* (beside *tibi*); other instances of etymological /ei/ are spelt with <i> in *illīs* and *scripsi*.

Probably the latest example of <ei> in the corpora is *reſçreibae* (P. Mich. VIII 469.11/CEL 144) for *reſcībe* in the Claudius Tiberianus letters, in which most other instances of /i:/ are spelt <i>, including original /ei/ in *uidit*, [*a]ttuli*, *tibi* (with iambic shortening). This letter also includes three instances of the dative singular of *illa* written *illei*, as well as *ille[i]*. This could represent Classical *illī* but scholars have instead suggested that it be understood as an innovative feminine dative /ille:i:/ which lies behind Romance forms such as Italian *lei* ‘she’ (Cugusi, in the commentary in CEL; Adams 1977: 45–7; 2013: 459–64).⁸ Adams makes the point that in the other letters of the Claudius Tiberianus archive the masculine dative is always spelt *illi*, and that *illei* in this letter is therefore more likely to be a specifically feminine form. This is not a strong argument, however, since none of the other Tiberianus letters is written by the same hand. None of the other scribes uses <ei> at all, while that of 469/144 also uses it in *reſçreibae*. So the fact that in the other letters the masculine dative is *illi* tells us nothing about the spelling *illei* in 469/144.

⁸ On the rather complicated analogical process which may have produced this form, see the discussion in Adams (2013).

<ei> and <e> for /i:/

Similar forms appear in the letters of Rustius Barbarus from the first century AD: a feminine dative *illei* (CEL 75), and a genitive *illeius* (CEL 77), the gender of whose referent cannot be determined. Nowhere else in these ostraca written by the same hand is there any example of /i:/ being spelt with <ei> (and there are very many examples of /i:/); this includes one instance of *illi* (in the same letter 77, probably masculine). Now, it is conceivable that this has something to do with the unique genitive and dative endings of pronouns: perhaps <ei> was preserved as a spelling in the educational tradition to mark out these curious endings; this would be particularly relevant in the genitive where original *illīus* underwent shortening to *illius*. The spelling with <ei> could then preserve a memory of the original length. However, in this case, given the existence of other evidence for similar feminine genitive and dative forms in Latin put forward by Adams, and the absence of other instances of <ei> for /i:/ in Rustius Barbarus, there is a strong possibility that *illei* and *illeius* represent special feminine forms rather than *illī* and *illīus*. Since these forms are therefore present in a corpus of similarly early date, it cannot be ruled out that *illei* in the Claudius Tiberianus letter is also a form of this type, rather than having <ei> for /i:/.

<e> for /i:/

In addition to the continuing use of <ei> for /i:/, <e> too apparently remained an infrequent possibility to represent /i:/. Quintilian provides the relevant examples *leber* for *liber* and *Dioue Victore* for *Iouī Victorī* in his list of old spellings at *Institutio oratoria* 1.4.17, implying that they are no longer in use, and I have not found any other reference in the writers on language. There are significant difficulties in finding examples of <e> for /i:/ in the epigraphic record as a whole; I have found 114 instances on LLDB in the first four centuries AD.⁹ This number is almost certainly too high since some cases will be

⁹ I carried out searches for ‘i: > E’ and ‘i: > E’, with a date range of 1–400, counting ‘a hit even if the date is of a narrower interval than the interval given (even only a year)’ and ‘a hit even if the date is of a wider interval than the interval given (in either direction or in both)’ on 24/08/2021. These gave 60 and 90 results respectively, which I checked to remove instances already in the corpora, mistakes and uncertain cases.

things like a mistaken use of the ablative *-e* in place of dative *-ī*, and many examples are for original /i:/, not from /ei/: these may be hypercorrect of course, but may also suggest that a different explanation should be sought. Nonetheless, these results imply that the <e> spelling did survive to some extent, although the spellings with <e> must represent a tiny proportion of all instances of <i> for /i:/.

Unsurprisingly, then, in the corpora there are only a very small number of examples of <e> for /i:/, of which a couple are very plausible. One is *deuom* (CEL 10) for *dīuom* ‘of gods’ in Sumeros’ letter from the Augustan period characterised by conservative as well as substandard spelling (see pp. 10–11). Another is *amecos* (Tab. Vindol. 650) for *amīcōs* ‘friends’ in a letter at Vindolanda authored by one Ascanius who was apparently a *comes Augusti*, and hence of relatively high rank. The text is all in a single hand, but we cannot tell if it was that of Ascanius himself or a scribe. The letter was sent to Vindolanda and therefore does not necessarily reflect the same scribal tradition. The spelling is all otherwise standard, as far as we can tell. Adams suggests (2003: 535) that the maintenance of pronunciation of /e:/ < /ei/ ‘was seen as a regionalism and belonged down the social scale’, but this does not fit well with the social context of the Vindolanda letter (although of course it could be a feature of the scribe’s Latin rather than Ascanius’).¹⁰ However, Festus (Paul. Fest. 14.13) notes *amecus* as an old spelling,¹¹ so it may be better to see the spelling as old-fashioned.

In the curse tablets, a first century BC instance of <e> for /i:/ may be *nesu* (Kropp 1.4.2/2), if this stands for *nīsum* ‘pressure, act of straining’, although this text has a number of errors of writing (see p. 132 fn. 2).¹² Otherwise we find only 4 instances of <e>, all from Britain: *deuo* for *dīuō* (Kropp 3.15/1, 3.19/3) ‘god’, *demediam* (3.15/1) for *dīmidiam* ‘half’, and *requerat* (3.7/1) for *requīrat* ‘may he seek’. Adams (2007: 602) suggests that *deuo* could reflect a British pronunciation of *deo* ‘god’, or be

¹⁰ Moreover, if Weiss (2020: 316) is right to derive *amicus* from **h₁/2m_h3ih₁-ko-*, the medial vowel came from **ī*, not **e_i*, so there would never have been a pronunciation with /e:/, and the <e> spelling would be a false archaism.

¹¹ ‘However, the old writers said *ameci* and *amecae*, with the letter <e>’ (*ab antiquis autem ameci et amecae per E litteram efferebantur*).

¹² The two examples of *sermonare* for *sermōnārī* in 1.4.4/3 I take to be a switch from deponent to active infinitive rather than a case of <e> for /i:/.

a code-switch into British Celtic, for which *dēuos* would have been the word for ‘god’;¹³ at any rate, it is not a good example of <e> for old-fashioned /i:/. We could have a hypercorrect old-fashioned spelling with <e> for /i:/ < *ī in *demediam*, but perhaps instead one should think of confusion between the prepositions *dī-* and *dē-*. Nor is *requeratat* a plausible example, since the writer of the text has made a large number of mistakes in the writing of the text (as distinct from substandard spellings), such as *memina* for *fēmīna*, *capolare* for *capitulāre*, *pulla* for *puella*, *uulleris* for *uolueris*, *llu* for *illum*, *Neptus* for *Neptūnus* etc.

In the tablets of the Sulpicii, C. Novius Eunus writes *dede* (TPSulp. 51.2.13) for *dedī* ‘I gave’. This could well be an old-fashioned spelling, since Eunus uses other old-fashioned spellings (see pp. 187, 202–4, and 262).¹⁴ But we could also imagine repetition of the first syllable by accident (and Eunus is prone to mechanical errors in his writing, as shown by *ets*, 51.2.9, for *est*, *Cessasare*, 52.2.1, for *Caesare*, and *stertertios*, 68.2.5, for *sestertiōs*).

In the Isola Sacra inscriptions, there is one example of *coniuge* (IS 249, second–third century AD) in place of dative *coniugī* ‘for his wife’. There are no other substandard features in this short text, but perhaps this is a slip into the ablative (or even the accusative with omission of final <m>) rather than an old-fashioned spelling. The dative ending is spelt with <i> in *merenti* ‘deserving’.

A much more complicated situation arises where <e> represents short /i/ from long /i:/ by iambic shortening (see p. 42) or other types of shortening. This could be an old-fashioned spelling, reflecting the mid-point of the development /ei/ > /e:/ > /i:/. But from the first century AD onwards, at least some speakers in certain contexts use <e> for /i/, presumably due to a lowering of /i/ to [e] and the raising of (original) /ɛ:/ to /e:/; with the loss of

¹³ Less likely, in my view, is the idea that it is a hypercorrect form of *deo* (Smith 1983: 917).

¹⁴ An alternative explanation could be that <e> actually stands for [e] < /i/ here, with the same lowering of word-final /i/ discussed directly below. It cannot be completely ruled out that the final vowel was short, either due to iambic shortening (although *dedī* probably resisted iambic shortening by analogy with other verbs of non-iambic shape), or because all absolute word-final vowels were already short by AD 37 (on which, see p. 42). However, Eunus, despite displaying a vast number of substandard spellings in his *chirographa* (see p. 262), does not show any other evidence for the lowering of /i/ to [e].

vowel length distinctions these phonemes would end up falling together as /e/ in the precursor of most Romance varieties (see p. 40). In cases where original /ɛi/ > /e:/ > /i:/ underwent iambic or other types of shortening, it is then difficult to tell whether <e> for <i> is old-fashioned or substandard, and each example needs careful investigation.

Adams (2013: 51–5) entertains the possibility that several <e> spellings in the Rustius Barbarus and Claudius Tiberianus letters may be old-fashioned, and notes the following observation by Quintilian:

“sibe” et “quase” scriptum in multorum libris est, sed, an hoc uoluerint auctores, nescio: T. Liuium ita his usum ex Pediano comperi, qui et ipse eum sequebatur. haec nos i littera finimus.

Sibe and *quase* are written in the books of many authors, but I do not know whether this is what the authors intended: I have learnt from Peditanus – who followed him in doing this – that Livy used these spellings. We write these words with a final *i*. (Quintilian, *Institutio oratoria* 1.7.24)

Quintilian clearly thought this spelling was old-fashioned (in addition to what he says in this extract, it forms part of a list of archaic spellings), and Adams (2013: 54) follows him, saying that ‘[i]t is inconceivable that Livy and other literary figures used such spellings as a reflection of a proto-Romance vowel merger that was taking place in speech. They must have been using orthography with an old-fashioned flavour to it’.¹⁵ According to Adams, use of <e> is retained from the time when *sibi* was still /sibe:/.

However, I have my doubts about this. Quintilian himself is aware, as shown by his comment ‘sed, an hoc uoluerint auctores, nescio’, that it was possible for an author’s spelling to become corrupted by subsequent copyists (as noted by De Martino 1994: 743). It is striking that the examples given by Quintilian are of <e> in absolute word-final position. Adams (2013: 51–62, 67) has identified /i/ in closed word-final syllables as showing evidence

¹⁵ Adams’ point would presumably also apply to a popular explanation for Livy’s spelling, which posits that it reflects a feature of his Paduan dialect (e.g. De Martino 1994: 743; Cresci Marrone 2012: 306–7). Quintilian, of course, does not say this, and it seems unlikely that Livy would use such a non-standard spelling in a text which was intended for public circulation (see also Ax 2011: 334–5).

of lowering to [e] in the first and second centuries AD. The apparent frequency of <e> in words like *tibe* and *nese* might instead be taken as showing that this lowering also affected /i/ in absolute word-final position. If lowering of /i/ to [e] had already happened, at least in words like *sibi* and *quasi*, by the first century AD, it is not impossible that it could have entered the manuscript tradition of earlier literary authors by the time of Quintilian.

In either case, it is probably not coincidental that the words in question all involve final /i/ resulting from iambic shortening. If Adams is right that this is an archaism, the old-fashioned spelling could have been retained in these words because iambic shortening applied to forms like /sibe:/ and produced a variant /sibe/; after /sibe:/ became /sibi:/ (and then /sibi/) the standard spelling *sibi* followed, but *sibe* remained as an alternative spelling.¹⁶ This would explain, for example, why <e> is only found to write synchronic short /i/ in *tibe* in the Rustius Barbarus letters, despite a large number of instances of synchronic /i:/ < /ei/, which is what we might expect an old-fashioned use of <e> to represent. If, on the other hand, <e> in these words is due to lowering of /i/ in final syllables, it is also not surprising that the examples are in originally iambic words: iambic shortening of /i:/ is one of the very few sources of absolute word-final short /i/ in Latin.

The explanation by lowering seems particularly likely in the case of the Rustius Barbarus letters. As Adams (2013: 55) notes, ‘these letters are very badly spelt, with no sign of hypercorrection or other old spellings, and there is an outside chance that *tibe* here

¹⁶ An intriguing hint that iambic shortening may be connected with the use of <e> is provided by the inscription from the tomb of Publius Cornelius Scipio (CIL 1².10), which belongs to the mid-second century BC (between 170 and 145 BC, EDR109039), i.e. around the time when /ei/ > /e:/ had become /i:/. In this inscription, original /ei/ is written <ei> in *quei* for *quī* ‘who’, *gesistei* for *gesistī* ‘you bore’, *sei* for *sī* ‘if’, *facteis* for *factīs* ‘deeds’, but with <e> in *tibe*, the only originally iambic word. A similar pattern is also found in the inscription of Lucius Cornelius Scipio (CIL 1².9) where the originally iambic verbs *fuet* for *fuit* ‘was’ and *dedet* for *dedit* ‘gave’ have the vowel in their final syllable written with <e>, while *cepit* ‘took’, which has a long vowel in the first syllable, has <i> in the final syllable. However, this inscription also has *plourime* for *plūrimī* in a non-iambic word, and is almost certainly from too early a period for <i> in *cepit* to reflect /i:/ < /e:/ < /ei/ rather than /i/ < /e/ in a final syllable (Wachter 1987: 126, 305–6, 317; Clackson and Horrocks 2011: 99–100), notwithstanding the uncertainty regarding its dating, on which see Clackson and Horrocks (2011: 138–42).

is a phonetic spelling'. We find 4 examples of the spelling *tibe* (CEL 73, 74, 76, 77) for *tibi* beside 8 of *tibi* (these are the only examples of absolute word-final short /i/ in the letters). This compares with 4 (certain) examples of <e> for /i/ in final closed syllables of a polysyllabic word (*scribes* for *scrībis* 'you write', CEL 74, *scribes*, *mittes* for *mittis* 'you send' 75, *scribes* 76),¹⁷ and 6 examples with <i> (*dixit*, *enim* 73, *talis*, *leuis* 74, *possim* 75, *traduxit* 77). The rate at which <e> is written for /i/ in these contexts is therefore almost identical,¹⁸ so it makes sense that the same explanation, lowering of /i/ to [e] in final syllables, should apply to both. Consequently, it seems more probable that the *tibe* spellings are substandard rather than old-fashioned.

The same explanation could pertain in most of the other examples of <e> for /i/ by iambic shortening in the corpora, and cannot be ruled out in any of the examples I now discuss, from the tablets of the Sulpicii, the Isola Sacra inscriptions and the Vindolanda tablets.

In the tablets of the Sulpicii we find *ube* for *ubi* < *ubei* 'when' in the *chirographum* of Diognetus, slave of C. Novius Cypaeus (TPSulp. 45.3.3, AD 37). Although there are no other examples of <e> for /i/ in final syllables, Diognetus also spells *leguminum* 'of pulses' as *legumenum*, suggesting that /i/ may have been lowered to [e] more generally in his idiolect (although short /i/ is otherwise spelt correctly several times, including in a final syllable in two instances of *accepit*).¹⁹ There are two examples of *sibe* in the Isola Sacra inscriptions, and these too are likely to be due to lowering. IS 27 contains several other substandard spellings, including *Terenteae* for *Terentiae*, *filis* for *filīis*, *qit* for *quid*, *aeo* for *eō*. IS 337 has *mea* for *meam* and *nominae* for *nōmine*. These may reflect carelessness on the part of the engraver rather than lack of education, since *mea* comes at the end of a line (and in space

¹⁷ *mittes* in 74 could be a future.

¹⁸ A Fisher exact test gives a *p*-value of 1 for these figures, i.e. the difference between the rates at which <e> occurs for /i/ in *tibi* and words ending in a consonant is not significant. Test carried out using the Easy Fisher Exact Test Calculator at Social Science Statistics (www.socscistatistics.com/tests/fisher/default2.aspx, accessed 29/03/2021).

¹⁹ An alternative possibility is that the spelling *legumenum* may have occurred under the influence of the nominative *legumen*, but we cannot know which of these explanations is correct.

created by erasure of a previous word or words), while *nominae* follows *poenae* and looks like the result of eyeskip. But the same carelessness could presumably have allowed <e> to be used, reflecting his pronunciation, instead of <i> in his copy of the text.

In the Vindolanda tablets *ube* (Tab. Vindol. 642) for *ubi* is the only instance of <e> for short word-final /i/.²⁰ The spelling in this tablet seems otherwise standard, and note in particular an instance of *tibi*. Adams (1995: 91; 2003: 533–5) has emphasised the general lack of confusion between /i/ and /e:/ in the Vindolanda tablets. But given that this appears to be the only text written in this hand, it was probably not written by a Vindolanda scribe,²¹ and that it has no other examples of /i/ in a word-final syllable, we cannot be absolutely sure that <e> is not due to lowering rather than being old-fashioned.

The final case of <e> for short final /i/ is *nese* (P. Mich. VIII 468/CEL 142, and CEL 143) for *nisi* in the Claudius Tiberianus archive. Could this be due to lowering? In 468/142, there are two other instances of <e> for <i>, both in a final syllable: *uolueret* for *uoluerit* ‘(s)he would have wanted’ and *aiutaueret* for *adiūtāuerit* ‘(s)he would have helped’ (beside 3 cases of <i>: *nihil*, [*ni*] *hil*, and *misit*). But apart from *nese* there are 10 examples of short /i/ spelt <i> in an open final syllable: *tibi* (twice), [*ti*] *bi*, *tibi*, *mihi* (4 times), [*mih*] *i*, *sibi*. In CEL 143, written by the same scribe, apart from *nese* there are no other instances of <e> for /i/, and 5 of short /i/ in an open final syllable: *tibi* (twice), *mihi* (twice), *mihi*. On the one hand, therefore, the writer of these texts did seem to have lowering in word-final syllables followed by a consonant. On the other, *nese* is the only example of possible lowering of /i/ in absolute word-final position, compared to 15 examples spelt with <i>. I am not certain whether use of <e> is due to lowering or is old-fashioned.

The situation is further complicated by the fact that the letters include some further instances of <e> being used for /i/ which are not due to iambic shortening but could also reflect old-fashioned

²⁰ In 617 there is a sequence *ibe*, but the context is too broken to allow us to be certain that it represents *ibi*.

²¹ The editors think it is ‘quite possible’ that both author and recipient were civilians, and comment on the distinctiveness of the hand.

spellings. The first vowel of *sene* (468/142) for *sine* was originally /i/, but the writer may have thought of *sine* as being connected with *sī* ‘if’. A hypercorrect spelling *seine* (CIL 1².583), presumably resting on this false etymology, is attested in the second century BC. The forms *nese*, *nesi* in 468/142, and *nese* in 143 also have <e> for /i/ in their first syllable. This could be an old-fashioned spelling accurately reflecting original /ε/ here, since *nisi* probably came from **ne seĭ* (Fries 2019: 94–7). The spelling *nesei* is attested in the two copies of the *Lex luci Spoletina* (CIL 1².366 and 1².2872, probably from the mid-second century BC), and *nesi* is mentioned by Festus (Fest. 164.1).²² Alternatively, it could be a hypercorrection, with analysis of the *ni-* in *nisi* as being derived from the alternative negative *nī* </ne:/ </nei/.

However, given that the writer (or author, dictating) of the text does have lowering of /i/ to [e], at least in final syllables followed by a consonant (i.e. in a position of minimal stress: Adams 2013: 60), it is still possible that it is lowering that is to blame for the spelling with <e> in *sine*, *nese*, *nesi*, especially because these are function words, which are particularly likely not to receive phrasal stress (see p. 42), and hence might have undergone the same lowering seen in the final syllable despite not being in the final syllable of the word.

There is not enough evidence to draw completely certain conclusions. However, I do not think that we can be sure that the various types of <e> for /i/ used by the writer of P. Mich. VIII 468/CEL 142 and CEL 143 are to be attributed to old-fashioned spelling (which would be of several different types). I would be inclined to explain all instances as due to lowering of /i/ to [e] in relatively unstressed position (in function words and in final syllables).

²² Although this entry may be somewhat untrustworthy, since some confusion seems to have arisen: the first three words, after which the rest of the entry is largely lost, read ‘nesi pro sine positum’.

CHAPTER 4

<o> for /u/

There are a number of processes which led to the possibility of using <o> as an old-fashioned spelling to represent /u/. I will begin by discussing examples which may be attributed to the following sound changes:

- (1) /ɔ/ in final syllables was raised to /u/ before most consonants and consonant clusters in the course of the third century BC, e.g. Old Latin *filios* > *filius* ‘son’;
- (2) /ɔ/ was raised to /u/ in a closed non-initial syllable during the second century BC, e.g. **eontis* > *euntis* ‘going (gen. sg.)’;
- (3) /ɔ/ > /u/ before /l/ followed by any vowel other than /i/ and /e:/ in non-initial syllables (Sen 2015: 15–28), e.g. **famelos* > **famolos* > *famulus* ‘servant’ (cf. *familia* ‘household’).

For various reasons, including the relatively late confusion of /ɔ:/ and /u/ discussed directly below, and the difficulty of removing false positives from searches in the database, trying to establish the rate at which old-fashioned <o> for /u/ appears in the epigraphic spellings of the first four centuries AD is not practical. In his list of changes wrought by time, all of which seem to be seen as deep archaisms, Quintilian includes some examples of type (1):

quid o atque u permutata inuicem? ut “Hecoba” et “nutrix Culchidis” et “Pulixena” scriberentur, ac, ne in Graecis id tantum notetur, “dederont” et “probaueront”.

What about *o* and *u* taking each other’s place? So that we find written *Hecoba* for *Hecuba* and *nutrix Culchidis* for *Colchidis*, and *Pulixena* for *Polyxena*, and, so as not to only give examples from Greek words, *dederont* for *dederunt* and *probaueront* for *probauerunt*. (Quintilian, *Institutio oratoria* 1.4.16)

Apart from after /u/, /w/ and /k^w/, where the raising of /ɔ/ was retarded until the first century BC, which is discussed below (Chapter 8), there are few cases of <o> for <u> arising from

these contexts in the corpora. Even where we do find <o>, a confounding factor in identifying old-fashioned spelling of /u/ of these types is the lowering of /u/ to [o] which eventually led in most Romance varieties to the merger of /u/ and /ɔ:/. According to Adams (2013: 63–70), this can be dated to between the third and fifth centuries AD, and did not take place at all in Africa.¹ This requires him to identify a number of forms which show <o> for /u/ as containing old-fashioned spelling (or having other explanations) in the Claudius Tiberianus letters (Adams 1977: 9–11, 52–3; 2013: 63–4).

He sees *posso* (P. Mich. VIII 469/CEL 144) not as a rendering of *possum*, but a morphological regularisation with the normal first singular present ending which shows up elsewhere; this is quite plausible. Also plausible, given the spelling with final <n>, is the influence of the preverb *con-* on the preposition *cum*, which is spelt *con* in 468/142 (8 times) and 471/146 (twice), but old-fashioned spelling could also be a factor.

The origin of the adverb *minus* ‘less’, is extremely uncertain. It could go back to **min-u-s*, since /u/ is also found in the stem of the related verb *minuō* ‘I lessen’; this may also be the origin of the neuter of the comparative *minor* ‘smaller, lesser’ (Leumann 1977: 543; Sihler 1995: 360). If this is correct, the <o> in the final of *quominos* (470/145) would not be old-fashioned. But alternative explanations would see adverbial *minus* and the neuter of the comparative both coming from **minos* > *minus* (although this would have to be somehow secondary, since the usual comparative suffix is **-ios-*; Meiser 1998: 154; Weiss 2020: 384). If *minus* does come from **minus* rather than **minos*, *quominos* could be a false archaism, by influence from comparative *minus*, since the neuter of comparative adjectives normally did come from **-ios-*.

However, *sopera* (471/146) for *supra* certainly never had **o* in the first syllable. Adams (1977: 10–11) originally saw <o> here as due to the merger of /u/ and /ɔ:/, but subsequently (Adams 2013: 64) suggests that the scribe may have seen <o> as also being old-fashioned, bolstered by the possibility that the lack of syncope is

¹ Adamik (2020) provides more detail on the development of the vowel system in Africa, more or less agreeing with Adams (although note that his data shows that confusion of <u> and <o> is rare but not completely absent in Africa).

also an old-fashioned feature (*supera* is found in Livius Andronicus, in Cicero's *Aratea* and in Lucretius; Adams *loc. cit.* and OLD s.v. *supra*).² It is of course not impossible that the scribe was hypercorrect here, but in the absence of other evidence for this false etymology this explanation is not particularly appealing.

In my view, it is more likely that *sopera*, and perhaps *quominos*, suggests that either the author, Claudius Terentianus, or the scribe, was an early adopter of lowered [o] for /u/ (and note that both cases of <o> are in paradigmatically isolated formations which may have made it difficult for the scribe to identify which vowel was involved).³ It is also possible that one or both were not native speakers of Latin, which may also have led to problems in identifying the vowel for the scribe.

There are quite a number of cases of <o> for /u/ in the curse tablets (see Table 2), but I am doubtful of how many really reflect archaisms. *con* (Kropp I.4.2/2), *con* (twice), *co* (twice, II.1.1/37) for *cum* can be explained in the same way as in the Tiberianus letters, while second declension nominative singular masculine forms in *-o(s)* may be due to influence from other languages: Celtic in the case of *Secundo*, *Secuno*, *Ssecundo* (8.1/1, Pannonia, first half of the second century AD), if it really represents *Secundus*.⁴ This tablet also has *uolontas* for *uoluntās*, but it uses <u> for /o/ in *lucuiat* (apparently for *loquiat* or *loquiant*, an active equivalent of *loquātur* or *loquantur*), as well as a number of spellings which cannot be explained as due to normal features of spoken Latin (<i> for /ε/ in *ageri* for *agere* and *limbna* for *lingua*), so we cannot be sure *uolontas* does not arise from the writer's problems with spelling or abnormal phonology.

The fairly late date of *cor]pos* (I.4.4/13) for *corpus* and *par-etator* (3.3/1) for *parentātur* allow them to be attributed to lowering of /u/; both also contain other substandard spellings.

² In Adams (1977: 11) he suggested it was due to confusion between *super* and *supra*.

³ See fn. 10 regarding some other claimed instances of early [o] for /u/.

⁴ The name appears in a list of enemies headed by a phrase *aduerssaro nostro* 'our adversaries', which is presumably intended to be in the accusative plural, and which is followed by a series of names sometimes in the nominative singular and sometimes in the accusative. In the case of *Paconios*, [*G]erillano* and *Varaios* (10.1/1) from Delos, we probably have to reckon with influence from Greek, although this tablet is anyway dated to the second century BC, when an <o> spelling was not so very old-fashioned.

Old-fashioned Spellings

Table 2 <o> for /u/ in the curse tablets

	Text	Date	Place
con	Kropp 1.4.2/2	100–50 BC	Nomentum, Latium
capilo	Kropp 1.4.2/3	100–50 BC	Nomentum, Latium
nascitor	Kropp 1.4.4/5	Second–third century AD	Rome
nascitor	Kropp	Fourth–fifth century AD	Rome?
corpos	1.4.4/13		
questo	Kropp 2.1.3/2	First century AD	Hispania Tarraconensis
consilio	Kropp 2.2.2/1	50–1 BC	Hispania Baetica
morbo	Kropp 2.2.2/1	50–1 BC	Hispania Baetica
dioso	Kropp 2.2.3/1	First century BC	Hispania Baetica
paretator	Kropp 3.3/1	Fourth century AD	Brandon
capolare	Kropp 3.7/1	No date	Caistor St. Edmund
eorom	Kropp 4.3.1/1	Mid-second century AD	Gallia Aquitania
grano	Kropp 4.4.1/1	First century AD	Gallia Narbonensis
nullom	Kropp 5.1.2/1	Mid-second century AD	Germania Superior
conscios	Kropp 5.1.7/1	First–third century AD	Germania Superior
Secundo	Kropp 8.1/1	First half of the second century AD	Pannonia Superior
Secuno	Kropp 8.1/1	First half of the second century AD	Pannonia Superior
Ssecundo	Kropp 8.1/1	First half of the second century AD	Pannonia Superior
uolontas	Kropp 8.1/1	First half of the second century AD	Pannonia Superior
Paconios	Kropp 10.1/1	Second half of the second century BC	Delos
Paconios	Kropp 10.1/1	Second half of the second century BC	Delos

<o> for /u/

Table 2 (*cont.*)

	Text	Date	Place
[G]erillano	Kropp 10.1/1	Second half of the second century BC	Delos
Varaios	Kropp 10.1/1	Second half of the second century BC	Delos
illoro	Kropp 11.1.1/5	Second–third century AD	Carthage
iloro	Kropp 11.1.1/5	Second–third century AD	Carthage
Cusconio	Kropp 11.1.1/6	Second–third century AD or first century AD	Carthage, Africa
cursoro[m](?)	Kropp 11.1.1/20	Third century AD	Carthage, Africa
manos	Kropp 11.1.1/25	Middle of the fourth century AD	Carthage, Africa
eo(?)]rom	Kropp 11.1.1/32	Second–third century AD (?)	Carthage, Africa
co	Kropp 11.1.1/37	Middle of the third century AD	Carthage, Africa
co	Kropp 11.1.1/37	Middle of the third century AD	Carthage, Africa
con	Kropp 11.1.1/37	Middle of the third century AD	Carthage, Africa
con	Kropp 11.1.1/37	Middle of the third century AD	Carthage, Africa
deo	Kropp 11.2.1/6	Third century AD	Africa
meo	Kropp 11.2.1/6	Third century AD	Africa
Incleto	Kropp 11.2.1/31	Third century AD	Africa

Undated *capolare* and *capeolare* (3.7/1) for *capitulāre* could also be due to lowering (in an inscription whose spelling is anyway highly deviant). And *nascitor* for *nascitur* (twice, 1.4.4/5), dated to the second or third centuries AD, could also be a precocious example of this; so could *conscios* (5.1.7/1) for *consciūs* if it

belongs towards the end of its date range. Both contain other substandard spellings. Having accepted that [o] for /u/ might be attested in the Claudius Tiberianus letters, I would suggest that this may also be a possibility for *eorom* (4.3.1/1) for *eōrum*, and *nullom* (5.1.2/1) for *nūllum*, also from the second century AD. The preponderance of cases in the final syllable might point to lowering occurring there first, in parallel to the situation of /i/ to [e].

Given their datings to the first century BC and first century AD, *capilo* (1.4.2.3) for *capillum*, *questo* (2.1.3/2) for *quaestum*, *cos[i]llo*, *morbo* (2.2.2/1) for *cōnsilium*, *morbus*, *dioso* (2.2.3/1) for *deorsum*, *granom* (4.4.1/1) for *grānum* could be old-fashioned spellings. Some of these texts also contain substandard spellings. None of them is in a context in which a mistake of ablative for nominative or accusative is very easy to envisage.

If Adams is right that the lowering of /u/ to /o/ did not take place in Africa (but see footnotes 1 and 10), old-fashioned spelling becomes a plausible explanation for a few instances there of <o> for /u/ from the second to third centuries AD. *Incleto* for *Inclitum* (11.2.1/31) I attribute to influence from the Greek second declension ending -ov, since the text has other examples of interference from Greek spelling.⁵ 11.1.1/32 has *eo(?)]rom* for *eōrum*, but in addition to substandard spellings has a number of mechanical errors. So does 11.2.1/6, and there is also the possibility that *p]er deo meo* reflects an error in what case goes with *per* rather than an old-fashioned spelling of *deum meum*. The other example of a noun following *per* in this text is *Bonosa* for *Bonōsam*, so the author may have thought that *per* took the ablative. But we do find *illoro*, *iloro* for *illōrum* (11.1.1/5), *Cusconio* for *Cuscōnium* (11.1.1/6), *cursoro [m]* for *cursōrum* (11.1.1/20). There is no reason to imagine that *Cusconio* is an ablative since it forms part of a list of four names in the accusative. Many of these texts also contain substandard spellings.⁶

⁵ Apart from the presence of Greek words and *voces magicae* in the Greek alphabet, these are use of <λ> for <l> in *maledixit*, and <ou> for /u(:) in *partourientem* for *partūrientem*, *Patriciou* for *Patricium*, *tou* for *tū*.

⁶ 11.1.1/5: *ilum* for *illum*, *ilos* for *illōs*, hypercorrect *muttos* and *mutuos* for *mutōs*, *Crispu* for *Crispum*; 11.1.1/6: *abeas* for *habeās*, *Ispertae*, *Isperta[e]* for *Spērātae*, *Opseca*

Overall, it is striking how many cases of <o> for /u/ there are in the curse tablets. I am reluctant to see them all as old-fashioned features, especially since few of the texts show any other such spellings; in practically all of the texts there are several other endings in *-us* or *-um*, and there seems no reason why a single word should be marked out in this way, especially in cases like the three names in sequence *Cosconio Ianuarium et Rufum* (I I. I. I/6). I have more sympathy than Adams does with the idea that we may be seeing early signs of the lowering of /u/ to [o] that is better evidenced in much later texts; one could even suppose that in African Latin /u/ did lower to [o] in final syllables as elsewhere, but since /ɔ:/ did not merge with /u/, [o] simply remained an allophone of /u/. One should also note that the intrinsic difficulties in the writing and reading of (often very damaged) curse tablets do make them more unreliable than other types of epigraphic evidence (Kropp 2008a: 8).⁷ On the other hand, all the examples of <o> for /u/ from the curse tablets do come from original /ɔ:/, unlike with *sopera* and perhaps *quominus* in the Claudius Tiberianus letters, and a few of them are very early compared to the emergence of good evidence for the merger of /ɔ:/ and /u/. So I do not rule out the possibility that some of these <o> spellings are old-fashioned.

There is one Augustan example of <o> for /u/ </ɔ:/ in the letters, in the form of *Dìdom* (CEL 8, 24–21 BC), which appears to represent the name *Didium*. It seems strange that an old-fashioned spelling should be used here but not in the name *[I]ucundum* with which it is conjoined (or indeed in the other accusative singular second declension form in this letter, *decrìminatù*), but no other explanation arises.⁸ Another damaged letter (CEL 166, around AD 150) has

for *Obsecram*; I I. I. I/20: *os* for *hōs*, *ipsoru* for *ipsōrum*; I I. 2. I/6: *oblegate* for *obligāte*, *illa* for *illam*, *isapientiam* for *sapientiam*, *demado* for *dēmāndō*, *cjelum*, *celum* for *caelum*, *terra* for *terram*.

⁷ As well as intentional obfuscation and variation, given the magical nature of these texts, as Katherine McDonald (p.c.) points out to me.

⁸ Cugusi (1973: 661) suggests that the ending *-om* is analogical on words where the <o> was generally preserved in spelling like *paruom* and *seruom*, but this does not seem particularly plausible given how much more common words in *-um* were. And, again, why only in *Didom*?

epistolám, which is reasonably likely to be an old-fashioned spelling (assuming this is not an early example of lowering of /u/).

There are two possible examples in the Bu Njem ostraca, but *kamellarios* (O. BuNjem 76) is very uncertain: it could be a nominative singular for accusative, which is common in the ostraca (Adams 1994: 96–102), but could also be an accusative plural (this is how Adams understands it). The other is *Jistolāq* (114), which may reflect *epistola* for *epistula*; but apart from the fact that the reading is not certain, there is a certain amount of evidence for confusion between /ɔ:/ and /u/ at Bu Njem (see fn. 10).

Another case of <o> for <u> occurs in *cui*, the dative singular of the relative pronoun *quī* and the indefinite pronoun *quis*. An older form is *quoiei* (CIL 1². 11, 583, 585) and it had come to be spelt *quoi* around the start of the first century AD, according to Quintilian:

illud nunc melius, quod “cui” tribus, quas praeposui, litteris enotamus, in quo pueris nobis ad pinguem sane sonum qu et oi utebantur, tantum ut ab illo “qui” distingueretur.

We now do better to spell *cui* with three letters, as I have given it here. When I was a boy, they used *qu* and *oi*, reflecting its fuller sound, just for the purpose of distinguishing it from *qui*. (Quintilian, *Institutio oratoria* 1.7.27)

The passages of Velius Longus (13.7 = GL 8.4.1–3) and Marius Victorinus (4.31–32 = GL 6.13.11–12) quoted on pp. 166–7 suggest that the spelling *quoi*, and its genitive equivalent *quoius*, was also old-fashioned for these writers. We find no examples of *quoi* in the corpora, but the strange spelling *cuoi*, [c]u[o]i (TPSulp. 48) in the parts of a tablet written by the scribe presumably reflects a sort of compromise between *quoi* and *cui* (the non-scribal writer spells the word *cui*). I know of no other examples of this spelling in Latin epigraphy.

Another conceivable instance of an old-fashioned spelling involving <o> are *fornus* (O. BuNjem 7), *for[um]* (49), *fornarius* (8, 25), *for[narius]* (10) for *furnus*, *furnārius*. The sequence /ur/ < *or or *r in the standard forms of these words is unexpected; a dialectal sound change or borrowing from other languages is often supposed (I have argued for the latter: Zair 2017). So these words could represent the original, older form, which is attested in

manuscripts of Varro and by writers on language (Zair 2017: 259). However, influence from *fornāx* ‘furnace, oven’ is also possible (thus Adams 1994: 104);⁹ another possibility is that /u/ was lowered by the following /r/ in syllable coda, which by this time was ‘dark’ in Latin (Sen and Zair 2022). This might be particularly likely if there was some confusion of /ɔ:/ and /u/ at Bu Njem.¹⁰

⁹ Marichal (1992: 47) curiously says that the <o> spelling in *formus* could be under the influence of *fornarius*, but the <u> spelling was probably standard also in *furnārius* (at least the spelling with <u> is the only one found in other epigraphical contexts; TLL s.v. *furnārius* observes the spelling with <o> in some manuscripts of Augustine).

¹⁰ Adams (1994: 104; 2007: 564; 2013: 65) has repeatedly stated that there is little or no evidence of this, with exceptions disregarded as special cases. But he provides no good alternative explanation for *ura* for *hōra* (O. BuNjem 113), while I would see *Urtato* for *Hortātō* in the same ostrakon as the result of lengthening of /ɔ/ to [ɔ:] before /r/ followed by confusion with /u/ rather than as closing by coda /r/, which is unexpected at this stage (see Sen and Zair 2022). Nor does he mention *Iobenalī* (O. BuNjem 148) for *Iuenālī*.

CHAPTER 5

<o> for /u:/

The diphthong /ou/ became /o:/ and then /u:/ by the third century BC (see pp. 39–40). On the use of <o> in place of <u> in *poplicos* > *pūblicus* and words derived from it, see [Chapter 17](#). It is possible that *iodicauerunt* (Kropp 11.1.1/26) in a curse tablet from Carthage, in the second century AD, for *iūdicāuērunt* < **ioudik-* is an old-fashioned spelling representing the mid-point of the change (at any rate, no other explanation springs to mind). Since we have long /u:/ in the first syllable, this spelling cannot be explained by confusion of /o:/ and /u/. At least in legal texts, derivatives of *iūs* were particularly favoured for this ([Decorte 2015](#): 160–2), although use of <o> for /u:/ rather than <ou> was never common, even in the archaic period.

CHAPTER 6

Alternation of <u> and <i>

There are two environments in which spelling with <u> and <i> alternated in Latin orthography, with, on the whole, a movement from <u> to <i>, although in certain phonetic, morphological or lexical contexts the change in spelling either did not take place at all or took place at different rates. These environments are (1) original /u/ in initial syllables between /l/ and a labial; (2) vowels subject to weakening in non-initial open syllables before a labial. Both the question of the history and development of the spelling with <u> and <i>, and what sound exactly was represented by these letters is lengthy and tangled (especially with regard to the medial context; for recent discussion and further bibliography, see Suárez-Martínez 2006 and Weiss 2020: 584).

/u/ and /i/ in Initial Syllables after /l/ and before a Labial

In initial syllables we know on etymological grounds that the words in question had inherited /u/. In practice, there are very few Latin words which fulfil this context, and only two in which the variation is actually attested: basically just *clupeus* ~ *clipeus* ‘shield’ and *lubet* ~ *libet* ‘it is pleasing’ and its derivatives such as *lubēns* ~ *libēns* ‘willing’ (which is part of a dedicatory formula and makes up the majority of attestations of this verb), **lubitīna* ~ *libitīna* ‘means for burial; funeral couch’, *Lubitīna*, *Lubentīna* ~ *Libitīna* ‘goddess of funerals’. No forms with <u> are found in *liber* ‘the inner bark of a tree; book’ < **lub^h-ro-*, whose earliest attestation is *libreis* in CIL I².593 (45 BC, EDR165681), as well as being attested in literary texts from Plautus onwards. Strangely, *lupus* ‘wolf’ does not become ^x*lipus*, as Leumann (1977: 89) points out, although as it is attested in Plautus it was surely borrowed from a Sabellic language (as demonstrated by /p/ < **k^h*) early enough to have been affected.

As we shall see, both spellings are attested from the third century BC onwards in *lub-* and *clupeus*, with <u> predominating initially and slowly being replaced by <i>. Some scholars view this as a sound change from /u/ to /i/ (e.g. Weiss 2020: 153), others as the development of an allophone of /u/ to some sound such as [y], leading to variation in spelling with <u> and <i>, but with <i> eventually becoming standard (e.g. Meiser 1988: 80; making it more or less parallel with the development in non-initial syllables, which we shall discuss later).

In epigraphy other than my corpora, the <i> spelling is attested early in the *lub-* words (see Table 3): *libes* (CIL I².2867) for *libēns* is about the same time as the first instances of *lubēns*, but <u> outnumbers <i> by 13 (or 14, if CIL I².1763 is to be dated early) to 3 in the third and second centuries BC. In the first century BC, however, there are only 4 (or 5 if CIL I².1763 is to be dated later) instances of <u> to 4 of <i>, and subsequently <u>, with 2 instances in the first century AD (or 1 in the first, 1 in the second if CIL 3.2686 is to be dated late), is completely swamped: there are 16 (or 17 if CIL 5.5128 is to be dated early) instances of <i> in the first century AD, and in subsequent centuries the numbers are too massive to be included in the table.¹ These have not been thoroughly checked, and some are mere restorations, but the vast majority do indeed belong to the lexeme *libēns*.² Overall, then, it seems clear that the spelling with <i> was becoming more common in the course of the first century BC, becoming the usual spelling in the first century AD, and subsequently overwhelming the <u> spelling, although the latter is still occasionally found in the first, and perhaps second, century AD.

The spelling of *clupeus* ~ *clipeus* (Table 4) has a rather different profile: the lexeme is not found before the first century BC, when only the <u> spelling appears (2 or possibly 3 examples); in the first century AD there are 6–8 inscriptions which use <u>, but only 1–3 with <i> (and possibly quite late in the century), and still 4–5

¹ In addition to the 5 or 6 examples given involving *libet* and *Libitina*, the EDCS produces 144 results for inscriptions containing *libēns*.

² Searches were carried out on the EDCS, in the ‘original text’ function for ‘luben’; ‘liben’, with the date range set to up to ‘-1’; ‘liben’ with the date range set to ‘1’ to ‘400’; ‘lubet’ (no dated examples), ‘libet’; ‘lubit’; ‘libit’; ‘lubis’ (no dated examples), ‘libid’ (no dated examples) (12/04/2021). As usual, the information given here should be taken as indicative only, since I did not include inscriptions which were not given a date in the database.

Table 3 *lub-* and *lib-* in inscriptions (omitting forms of *libēns* from AD 100)

lub-	Inscription	Date	lib-	Inscription	Date
lubens	AE 2000.283	260–240 BC (EDR177325)	libe(n)s	CIL 1 ² .2867	250–201 BC (EDR079096)
lub(en)s	CIL 1 ² .62	270–230 BC (EDR110696)	lib(en)s	CIL 1 ² .392	End of the third century BC (Peruzzi 1962: 135–6)
lub(en)s	CIL 1 ² .388	Late third to second century BC (Dupraz 2015: 260)	liben[s]	CIL 1 ² .33	250–101 BC (EDR104811) ^a
lubens	AE 1985.378a	Towards the end of the third century BC ^b	libitinamue, libitina<m>ue	CIL 1 ² .593	45 BC (EDR165681)
lubens	AE 1985.378b	Towards the end of the third century BC	libentes	CIL 1 ² .1792	71–30 BC (EDR071934)
lubens	CIL 1 ² .2869b	270–201 BC (EDR079100)	libitin[ario], Libit(inae), libitinae, libit[in]ae	AE 1971.88	Late first century BC ^c
lubens	AE 2016.372	End of the second–start of the first century BC	libentes	CIL 8.26580	Not long before AD 5 or 6 (Thomasson 1996: 25)
lubens	CIL 1 ² .28	225–175 BC (EDR102308)	libens	CIL 9.1456	AD 11 (EDR167653)
lubens	CIL 1 ² .29	230–171 BC (EDR161295)	libitinam	AE 1978.145	AD 19

Table 3 (*cont.*)

lub-	Inscription	Date	lib-	Inscription	Date
lubent[es]	CIL 1 ² .364	200–171 (EDR157321)	libens	AE 1999.689	Early decades of the first century AD
lubens	CIL 1 ² .10	170–145 BC (EDR109039)	libens	CIL 6.68	AD 1–30 (EDR161210)
lube(n)tes	CIL 1 ² .1531	170–131 BC (EDR142283)	libentius	CIL 5.5050	AD 46 (EDR137898)
lub[en]s	AE 2000.290	130–101 BC (EDR155416)	lib[iti]nar[io]	Castagnetti (2012: 19)	AD 1–50 (EDR077677) ^d
lubens	CIL 14.2587	100–51 BC (EDR160891)	libens	CIL 14.2298	AD 20–50 (EDR138163)
Lubitina	CIL 1 ² .1268	100–50 BC (EDR126391)	libens	CIL 9.1702	AD 1–70 (EDR102210)
[l]ubens	CIL 1 ² .1763	150–1 BC (EDR072021)	libens	CIL 6.12652	AD 14–70 (EDR108740)
lubens	CIL 1 ² .1844	100–1 BC (EDR104237)	libenter	CIL 4.6892	AD 1–79 (EDR125510)
Lubent(ina- e)	CIL 1 ² .1411	50–1 BC (EDR071756)	libens	CIL 6.398	AD 86 (EDR121358)
lubens	CIL 2.7.428	Mid-first century AD	[l]iben[s]	AE 1986.426, 1988.823	AD 1–100 (EDH, HD004388)
lubens	CIL 3.2686	AD 1–150 (EDH, HD058450)	libe[ns]	CIL 5.17	AD 1–100 (EDR135137)

libens (twice)	CIL 6.710	AD 51–100 (EDR121389)
libens	AE 1988.86	AD 51–100
libens	CIL 14.2213	AD 100 (EDR146713)
Libitinae	CIL 5.5128	AD 51–125 (EDR092038)
libet	CIL 6.30114	AD 101–200 (EDR130532)
libet	EDR171805	AD 100–200
cuilibet	CIL 5.8305	AD 151–200 (EDR117525)
quibuslibet	CIL 3.12134	AD 305–306

^a Second century BC according to Grandinetti in [Romualdi \(2009: 150\)](#).

^b But 170–100 BC on the basis of the palaeography according to EDR (EDR079779).

^c [Hinard and Dumont \(2003: 29–35, 38, 49–51\)](#), on the basis of the spelling, language and historical context; similarly [Castagnetti \(2012: 37–43\)](#).

^d Not before the Augustan period, and prior to the change by Cumae from a *municipium* to a *colonia* in the second half of the first century, probably under Domitian ([Castagnetti 2012: 46–8](#)).

Table 4 *clupeus and clipeus*

clupeus	Inscription	Date	clipeus	Inscription	Date
clupeum	AE 1952.165	26 BC	clipeum	CIL 9.2855	AD 79–100 (EDR114839)
clup[eum]	CIL 6.40365	27 BC (EDR092852)	clipeis	CIL 2.5.629	End of the first century or start of the second AD
clupeum	CIL 9.5811	25 BC–AD 25 (EDR015394)	clipeum	CIL 10.4761	AD 1–200 (EDR174193)
clupeo	CIL 13.1041	Augustan (CIL), AD 15–40 (EDCS- 10401220)	clipeos	Ihm (1899 no. 245)	AD 101–200 (EDR171383)
clupei	<i>Res Gestae Diui Augusti</i> (Scheid 2007; CIL 3, pp. 769–99)	AD 14	clipeos	Ihm (1899 no. 245) (a copy of the preceding inscription)	AD 101–200 (EDR171384)
clupea	CIL 14.2794	AD 50–51 (EDR154835)	clipeum	AE 1996.424b	AD 113
clupeos	AE 1994.398	AD 41–54	[cl]ipeo	CIL 14.4555	AD 172 (EDR072930)

clupeus	CIL 6.912 and 31200	AD 23 (EDR105655)	clipeum	CIL 9.5177 ^a	AD 172 (EDR135001)
clupeum	CIL 14.2215	AD 1–100 (EDR146609)	clipeor(um)	CIL 9.2654	AD 151–200 (EDR128138)
clupeum	AE 1934.152	AD 71–200 (EDR073231)	clipe[u]m	AE 1948.24	AD 191–192 (EDR073666)
clupei	CIL 11.3214	AD 101–200 (EDR137358)	clipeos	ICVR 3.8132	AD 366–384 (EDB24864)
clupeum	CIL 14.72	AD 105 (EDR143920)			
clupeum	CIL 9.2252	AD 131–170 (EDCS- 12401765)			
clupeo	CIL 14.2410	AD 158 (EDR155630)			

^a CIL in fact gives the reading *clupeum*, but *clipeum* is correctly given by EDR135001 (a photo of the inscription can be found under the entry).

Old-fashioned Spellings

<u> in the second century AD to 7 of <i>, with 1 <i> in the fourth.³ It is perhaps surprising, given the common formulaic usage of *lubens* in dedicatory contexts, that *clupeus* appears to have retained the <u> spelling longer. Perhaps this is connected to the influence of the *Res Gestae* of Augustus.

Unsurprisingly, given the restricted number of lexemes containing the requisite phonological environment, there are very few instances of this type of <u> spelling in the corpora. However, *lubēns* ~ *libēns* is used occasionally in letters at Vindolanda, where <i> outnumbers <u> 5 to 1. The sole use of <u>, in *lubentiſsime* (Tab. Vindol. 260), occurs in a letter whose author Justinus is probably a fellow prefect of Cerialis, and which the editors suggest may be written in his own hand, as it does not change for the final greeting. Towards the end of the first century AD, it seems fair to call this an old-fashioned spelling.

The examples of <i> are *libenter* (291, scribal portion of a letter from Severa), *libenti* (320, a scribe who also writes *omiſſeras*, without old-fashioned <ss>), *libente[r]* (340), *libentiſsime* (629; probably written by a scribe)⁴ and *libent* (640, whose author and recipient are probably civilians, and which also uses the possibly old-fashioned spelling *ube*).

The <u> spelling also occurs in a single instance in the Isola Sacra inscriptions (*lubens*, IS 223, towards the end of the reign of Hadrian or later). There is a good chance that this is the latest attested instance of the <u> spelling. The inscription is partly in hexameters, the spelling is entirely standard, and <k> is used not only in the place name *Karthago* but also in *karina* ‘ship’. Again, it is reasonable to assume that the <u> spelling in this word might be considered old-fashioned.

/u/ and /i/ in Medial Syllables before a Labial

The second context for <u> ~ <i> interchange is short vowels which were originally subject to vowel weakening before a labial. Hence we are not dealing with original /u/ as is the case in

³ Searches were carried out on the EDCS, in the ‘original text’ function for ‘clupe’, ‘clipe’ (12/04/2021).

⁴ The same man, Clodius Super, is also the author of 255. 255 and 629 have different main hands, but the same hand writes the address on the back, which I therefore presume is that of Super.

initial syllables, and hence the subsequent development is not necessarily the same as in initial syllables.

In order to utilise the evidence of the corpora it is necessary to first examine the highly complex evidence both of inscriptions and of the grammatical tradition, which descriptions in the literature such as Meiser (1998: 68), Suárez-Martínez (2006) and Weiss (2020: 72, 128) tend to oversimplify.⁵ Leumann (1977: 87–90) provides a more comprehensive discussion. I will begin with the evidence of inscriptions down to the first century AD. In the first place, it is important to make a distinction which most of those writing about the <u> and <i> spellings do not make clearly enough. There are certain words in which the vowel before the labial was always written with <i> or <u> (as far as we can tell); presumably in these words the vowel had become identified with the phonemes /i/ or /u/ early on.⁶ By comparison, there are some words in which the vowel before the labial shows variation in its spelling. The first instance of <i> before a labial is often attributed to *infimo* (CIL 1².584) in 117 BC (thus Nikitina 2015: 19; Weiss 2020: 72), or *testimo[niumque]* (CIL 1².583) in 123–122 BC (thus Suárez-Martínez 2016: 232). However, these are in fact the earliest examples of <i> in a word in which <i> and <u> variation is found. Probably earlier examples of the <i> spelling actually occur in *opiparum* ‘rich, sumptuous’ in CIL 1².364 (200–171 BC, EDR157321) and *recipit* ‘receives’ in CIL 1².10 (170–145 BC, EDR109039), for which a <u> spelling is never found.

In Table 5 I provide all examples of the use of <u> and <i> in this environment in some long official/legal texts of the

⁵ For example, Meiser says that ‘in general the orthography (and the classification as the phoneme *i* or *u*) is established at the latest in the Classical period’ ([s]pätstens in klassischer Zeit ist im allg. die Orthographie (und auch die jeweilige Einordnung als Phonem *i* oder *u*) festgelegt), which overstates the variation shown in the inscriptional evidence. Weiss states that the vowel eventually merged with /i/, which may be untrue for a number of lexemes.

⁶ In some cases this was probably due to analogy. Thus, *i*-stem (and consonant stem) dative-ablative plurals in *-ibus* always have <i> in the penultimate syllable, including in inscriptions of the fourth and third centuries BC, because in the rest of the *i*-stem paradigm the stem vowel /i/ did not undergo weakening. This appears to be true also of plural verb endings in *-imus*, *-imur*, *-imini*, presumably by analogy with the rest of the paradigm, except for *possumus*, *uolumus* and *quaesumus*.

Table 5 <u> and <i> in some second century BC inscriptions

Inscription	Date	<u>	<i>
CIL I ² .582	130–101 BC (EDR163413)	testumonium	accipito
CIL I ² .583	123–122 BC (EDR173504) ^a	recuperatores proxsumeis × 3 aestumatio × 4 aestumandis × 2 aestumare aestumatam × 2 aestumata × 2 aest]umatae exaestumauerit uincensumo proxum(eis) proxumo proxsumo prox]umos proxsumeis × 2 maxume plurumae proxuma × 2	adimito testimo[niumque
CIL I ² .584	117 BC (EDR010862)	Postumiam × 4 infumum infumo × 2 uicensumam optuma	ac(c)ipiant prohibeto × 2 eidib(us) infimo fruimino aedificium × 6
CIL I ² .585	111 BC (EDR169833)	recuperatoresue r]ecuperatores recuperato[res recuperatorum recuperatoru[m maxume mancup[is proxsumo × 2 proxsumeis × 4 proxumum decumas mancupum	[a]edifi[cium] aedificio aed]ificio aedificii aedific[iei aedificiorum aedificieis uadimonium moi]nicipieis moinicipioue moinicipieis undecimam
CIL I ² .2924	123–103 BC (EDR073760)	maxume	inhiber<e>

^a In fact EDR mistakenly gives the date as 123–112 BC.

late second century BC.⁷ As can be seen, both spellings are found in these texts, but the distribution is not random. Most of the words with an <i> spelling never appear with a <u> spelling in all of Latin epigraphy: compound verbs in *-cipiō*,⁸ *-hibeō*,⁹ *-imō*,⁹ and forms of *aedificium* and *aedificō*,¹⁰ *uadimonium* and *municipium*. Outside these particular texts, the same is true of *pauimentum* (CIL I².694, 150–101 BC, EDR156830), *animo* (CIL I².632, 125–100 BC, EDR104303). It looks as though by the (late) second century certain lexical items had already generalised a spelling with <i>.¹¹

By comparison, <u> spellings are found only in words which either show variation with <i> in the later period or which are subsequently always spelt with <i>,¹² such as *testimonium*, which across all of Roman epigraphy is found with the <u> spelling only in CIL I².582.¹³ The <u> spellings predominate in these words in these inscriptions: with <i> we have only *infimo* beside the far more common superlatives in <u>, the ordinal *undecimam* beside *uicensumam*, *testimo[nium]que* beside *testumonium*, and *eidib(us)*, which, as a *u*-stem, is also found spelt elsewhere with <u>.¹⁴

The same pattern is found in other inscriptions from the third and second centuries: in Table 6 I have collected all instances that I could find of <u> spellings in inscriptions given a date in EDCS, along with examples of <i> spellings of those words (other than

⁷ I omit the *i*- and consonant-stem dative-ablative plurals in *-ibus* in CIL I².584, since, as already noted, these seem to have always maintained <i> by analogy.

⁸ Note also *recipit* ‘receives’ (CIL I².10). ⁹ Note also *exime[re]ue* (CIL I².2676).

¹⁰ Also found in the second century BC inscriptions CIL I².2946, CIL I².675, CIL 10.3777, AE 1984, 00495.

¹¹ Several of these forms have an /i/ in the syllable following, an environment in which, according to Weiss (2020: 128), only the spelling with <i> is ever found. But this is not true of *-hibeō*, for example (where <u> might be expected, on the basis of his other rule that ‘root vowel *u* is also retained even when of secondary origin’, for which the only relevant example given is *contubernium* < **kom-taberniom*).

¹² This is not to claim that there are no fixed <u> spellings at all: the only example from the second century inscriptions I have found is *accumulaui* (CIL I².15; although here the analogy with *cumulus* is responsible), but *occupō*, for instance, although not attested in dated inscriptions until the first century AD, is never spelt with <i>.

¹³ This word is much less common in the epigraphic context than *monumentum*, but a search for ‘testim’ in the ‘original texts’ search and a date range of ‘1’ to ‘400’ finds 35 inscriptions (once examples only in restorations have been removed); removing the date range finds 77 examples. Search carried out 20/04/2021.

¹⁴ Although not very frequently, it must be said. I have found the <u> spelling only at CIL 4.5380 and Marichal (1998 no. 69).

Table 6 *Words with <u> spellings in the third and second centuries BC*

<u>	Inscription	Date	<i>	Inscription	Date
Decumius	CIL 1 ² .1299	130–100 BC (EDR129261)	Maxima	CIL 1 ² .1928	170–100 BC (EDR079759)
Postumius	CIL 1 ² .804	142 BC (EDR121377)	[m]inimus, minimus	CIL 1 ² .2103	150–101 BC (EDR176945)
optumo	CIL 1 ² .2676	106–101 BC (AE 1997.1319)	monimentu[m]	CIL 1 ² .1687	130–100 BC (EDR116154)
De]cumius	CIL 1 ² .673	112–111 BC (EDR005398)			
Postumio	CIL 1 ² .674	110 BC (EDR080358)			
D(e)cumius	CIL 1 ² .1445	230–201 BC (EDR113670)			
Postumia	CIL 1 ² .2197	148–101 BC (EDR118800)			
Postumius	CIL 1 ² .624	148 BC			
decuma, decumam	CIL 1 ² .632	125–100 BC (EDR104303)			
[de]cuma	CIL 1 ² .1531	170–131 BC (EDR142283)			
decuma	CIL 1 ² .1482	150–100 BC (EDR173392)			
parisuma	CIL 1 ² .7	230–190 (EDR032799)			
plouruma	CIL 1 ² .1861	Second century BC, probably second half (Kuznetsov 2013)			
manubies	CIL 1 ² .635	135 (EDR005419)			

sai[pi]sume	CIL 1 ² .364	200–171 BC (EDR157321)
Maxsuma	CIL 1 ² .2469	280–251 BC (EDR112036)
maxsume	CIL 1 ² .1531	170–131 BC (EDR142283)
ploirume, optumo	CIL 1 ² .9	230–151 BC (EDR109038)
Septimius	AE 1997.737	Late third or early second century BC ^a
Optumo	CIL 1 ² .2101	200–150 BC (EDR025082)
Maxsumo		
monumentum	CIL 1 ² .1202	150–125 BC (EDR135684)
facilumed	CIL 1 ² .581	186 BC

^a Dated to the second century AD by Kropp (1.11.1/1), presumably by mistake.

those from CIL 1².582, 583, 584 and 585 and 2924). It seems clear that at this period the <u> spellings are dominant, although we do find a few <i> spellings (perhaps more towards the end of the second century). Nonetheless, all of these words do subsequently show <i> spellings (although the extent to which the <i> spelling is standard varies, as we shall see).

Overall, the picture seems to be a much more complex one than simply a move from early <u> spellings to later <i> spellings.¹⁵ Although <u> spellings outnumber <i> spellings in some words and morphological categories in the second century BC, certain words have already developed a fixed <i> spelling by this period, with no evidence to suggest that they were ever spelt with <u>. Most other words will go on to see <i> supplant <u> as the standard spelling, although at varying rates as we shall see, but some, like *monumentum*, *postumus* and *contubernalis*, will strongly maintain the <u> spelling.

For the later period, Nikitina (2015: 10–48) examines the use of <u> and <i> in words which show variation in a corpus of legal texts and ‘official’ inscriptions from the first centuries BC and AD. In the legal texts, she finds only <u> down to about the mid-first century BC, after which <i> appears: in a few texts only <i> is attested, but many show both <u> and <i>. The lexeme *proximus* seems to be particularly likely to be spelt with <u>, perhaps due to its membership of the formulaic phrase (*in diebus proxumis*). Even in AD 20, the two partial copies of the *SC de Cn. Pisone patri* (Eck et al. 1996) contain between them 24 separate <u> spellings and 2 <i> spellings, while CIL 2.1963, from AD 82–84, has 7 instances of <u> (5 in the lexeme *proximus*), and none of <i>. There are only two ‘official’ inscriptions of the first century BC which contain words with <u> or <i> spellings, but in the other ‘official’ texts of the first century AD, <i> spellings are heavily favoured (73 examples in 25 inscriptions) over <u> spellings (8 examples across 4 inscriptions).

An interesting observation is that in the first century BC, superlatives in *-issimus* are often spelt with <u>. By comparison, in law

¹⁵ As is implied by Adams (2003: 536; 2016: 204–5) and Suárez-Martínez (2006), for example.

texts of the first century AD, except in the *SC de Cn Pisone patre*, all 10 attested superlatives in *-issimus* have the <i> spelling, whereas the irregular forms like *maximus*, *proximus*, *optimus* etc. show variation. Although the switch between <u> and <i> in the *-issimus* superlatives is probably less abrupt than Nikitina perhaps implies,¹⁶ it does seem likely that the <i> spelling became particularly common in this type of superlative around the Augustan period: as we shall see below, in imperial inscriptions <u> is used vanishingly seldom.

Nikitina's study makes it clear that there was a movement from <u> spellings to <i> spellings in some words in high-register inscriptions over the course of the first century BC and first century AD. This movement probably took place more slowly in the more conservative legal texts,¹⁷ and more quickly in certain lexical items (notably superlatives in *-issimus*) than in others.

If we turn to the evidence of the writers on language, the question of the spelling of these words was clearly one of great interest for some time.¹⁸ Quintilian briefly mentions sounds for which no letter is available in the Latin alphabet, including the following comment:

medius est quidam u et i litterae sonus (non enim sic "optimum" dicimus ut "opimum") . . .

¹⁶ Superlatives in *-issimus* only appear in two legal inscriptions of the first century BC; one consistently uses <u> and one <i>. In addition, there are 2 *-issimus* superlatives spelt with <u> and 2 with <i> in the same 'official' text. Nikitina lists 11 further examples from CIL 1², all of which feature <u> (not all of which are necessarily from the first century BC). But one of the examples, CIL 1².1590, actually has *ama[n]tissimae*, which looks like a compromise between an <i> and a <u> spelling, and a search on EDCS finds 8 other inscriptions which it dates to the first century BC with an <i> spelling. I searched for 'issim', with a date range '-100' to '-1'.

¹⁷ Note also Adams' (2016: 205) observation that '[i]n the Lex Irnitana of Flavian date the *i*-spelling predominates (thirty-eight examples), but the *u*-form also occurs seventeen times'. Using the same edition of the text as Adams (González and Crawford 1986) and counting only words which are known to alternate, I get slightly different numbers: *proximus* and *proximē* (17) and *proxsumus* (1), *optimus* (1) and *optumus* (2), *aestimō* and *aestimātiō* (2) and *aestumō* and *aestumātiō* (10), *reciperātor* (16) and *recuperātor* (2). Other superlatives spelt only with <i> are *maximē* (4), *frequentissimus* (1) and *celeberimus* (1), and with <u> *plurumus* (1); the only other words known to alternate are *monumentum* (1) and *pontifex* (2; for the <u> spelling, see, e.g., CIL 1².2199). The grand total is thus 61, of which spellings with <i> are 44, and <u> with 17. There are clear preferences for the <i> spellings for *proximus* and *reciperātor*, but for <u> in *aestumō*.

¹⁸ Apart from the passages given here, the question is also discussed by Terentius Scaurus (*De orthographia* 8.2.1–5 = GL 7.24.13–25.12), but without saying much about the status of <i> and <u> in terms of old-fashionedness.

Old-fashioned Spellings

There is a certain middle sound between the letter *u* and the letter *i* (for we do not say *opt̄imus* as we say *op̄imus*) . . .¹⁹ (Quintilian, *Institutio oratoria* 1.4.8)

This appears to imply that the vowel in this context was not the same as either of the sounds usually represented by <i> or <u>.²⁰ The spelling with <u> was however apparently ‘old-fashioned’ for Quintilian (at least in the words *optimus* and *maximus*):

iam “optimus” “maximus” ut mediam i litteram, quae veteribus u fuerat, acciperent, C. primum Caesaris in scriptione traditur factum.

C. Caesar is said in his writing to have first made *optimus*, *maximus* take *i* as their middle letter, as they now do, which had *u* among the ancients. (Quintilian, *Institutio oratoria* 1.7.21)

Cornutus (as preserved by Cassiodorus) appears also to think that the <u> is old-fashioned, and suggests that the spelling with <i> also more accurately reflects the sound. He gives as examples *lacrima* and *maximus*, as well as ‘other words like these’:

“‘lacrumae’ an ‘lacrimae’, ‘maxumus’ an ‘maximus’, et siqua similia sunt, quomodo scribi debent?” quaesitum est. Terentius Varro tradidit Caesarem per *i* eiusmodi uerba solitum esse enuntiare et scribere: inde propter auctoritatem tanti uiri consuetudinem factam. sed ego in antiquiorum multo libris, quam Gaius Caesar est, per *u* pleraque scripta inuenio, <u> ‘optumus’, ‘intumus’, ‘pulcherrumus’, ‘lubido’, ‘dicundum’, ‘faciundum’, ‘maxume’, ‘monumentum’, ‘contumelia’, ‘minume’. melius tamen est ad enuntiandum et ad scribendum *i* litteram pro *u* ponere, in quod iam consuetudo inclinat.

“How should one write *lacrumae* or *lacrimae*, *maximus* or *maximus*, and other words like these?”, one asks. Terentius Varro claimed that Caesar used to both pronounce and write this type of word with *i*, and this became normal usage, following the authority of such a great man. What is more, I find many of these words written with *u* in books of writers much older than Gaius Caesar, as in *optumus*, *intumus*, *pulcherrumus*, *lubido*, *dicundum*, *faciundum*, *maxume*, *monumentum*, *contumelia*, *minume*.²¹ However, it is better to both pronounce

¹⁹ There are in fact two different manuscript readings of this passage, which has also been much emended; see De Martino (1994: 737–41), Ax (2011: 104), Suárez-Martínez (2016: 227–8).

²⁰ De Martino (1994: 737–51), if I have understood him correctly, argues for another reading, whereby Quintilian is distinguishing between the normal realisation of /i/ as [i] (in *opt̄imus*) and /i:/ as [i:] (in *op̄imus*) here, without making a connection with the variation in spelling between <u> and <i> that he refers to in the following passage.

²¹ The spelling of *dicundum* and *faciundum* with <u> rather than <e> is not relevant to the question of the <u> and <i> spellings otherwise discussed in this passage.

Alternation of <u> and <i>

and write *i* rather than *u*, which is the way common usage is going now. (Cornutus, in Cassiodorus, *De orthographia* 1.49–52 = GL 7.150.10–17)

Velius Longus discusses the vowel in this context in several places. What he says about it provides an important caution against us assuming that the ancient writers on language thought, like us, that the words with <u> and <i> variation formed a single category for which a single rule was necessarily applicable. Instead, it seems likely that they looked at each word, or category of word, individually (an approach which accurately reflects usage, on the basis of the epigraphic evidence). Note that he also includes among his examples *lubidō* and *clupeus* (discussed above, pp. 75–82). The first passage which touches on this issue is a long and complex one:

‘i’ uero littera interdum exilis est, interdum pinguis, . . . ut iam in ambiguitatem cadat, utrum per ‘i’ quaedam debeant dici an per ‘u’, ut est ‘optumus’, ‘maximus’. in quibus adnotandum antiquum sermonem plenioris soni fuisse et, ut ait Cicero, “rusticanum” atque illis fere placuisse per ‘u’ talia scribere et enuntia[ue] re. errauere autem grammatici qui putauerunt superlatiua <per> ‘u’ enuntiarī. ut enim concedamus illis in ‘optimo’, in ‘maximo’, in ‘pulcherrimo’, in ‘iustissimo’, quid facient in his nominibus in quibus aequae manet eadem quaestio superlative sublata, ‘manubiae’ an ‘manibiae’, ‘libido’ an ‘lubido’? nos uero, postquam exilitas sermonis delectare coepit, usque ‘i’ littera castigauimus illam pinguitudinem, non tamen ut plene ‘i’ litteram enuntiauerimus. et concedamus talia nomina per ‘u’ scribere <iis> qui antiquorum uoluntates sequuntur, ne[c] tamen sic enuntient, quomodo scribunt.

The letter <i> is sometimes ‘slender’ and sometimes ‘full’, such that nowadays it is uncertain whether one ought to say certain words with *i* or *u*, as in *optumus* or *maximus*. With regard to these words, it should be noted that the speech of the ancients had a fuller – and indeed rustic, as Cicero puts it – sound, and on the whole they liked to write and say *u*. But those grammarians who have thought that superlatives should be pronounced with *u* are wrong. Because, if we should concede to them with regard to *optimus*, *maximus*, *pulcherrimus*, and *iustissimus*, what will we do in words which are not superlatives, but in which the same question arises, such as *manubiae* or *manibiae*, *libido* or *lubido*? After we began to prize slenderness in speech, we went as far as to correct the fullness by using the letter <i>, but not so far as to give our pronunciation the full force of that letter. So let us permit those who want to follow the habits of the ancients in writing <u> to do so, but not to pronounce it how they write it. (Velius Longus, *De orthographia* 4.2.5 = GL 7.49.16–50.7)

My understanding of this passage is that Velius Longus is saying that the pronunciation of the words he discusses involves a sound which is not the same as the sound represented by <i> in other contexts, and is apparently ‘fuller’, but not as ‘full’ as it used to be, when <u> was a common spelling. Nowadays, the usual spelling is with <i>, but people who prefer to use the old-fashioned spelling <u> may do so. However, they should not extend this to actually pronouncing the sound as [u], because if they did, they would also by the same logic have to say [u] in words like *manibiae* and *libidō*. This final point is rather surprising. Does it suggest that by the early second century AD, the vowel of the first syllable of *libidō* had already developed to /i/, and hence a spelling pronunciation of [u] would sound wrong? Perhaps the same could be true of *manibiae*, if the development of the medial vowel before a labial was very sensitive to phonetic conditioning, such that here the pronunciation had again fallen together with /i/, unlike in the superlatives.

The following passage suggests that variation in both spelling and pronunciation still existed, with *mancupium*, *aucupium* and *manubiae* (again!) containing a sound which some produced in an old-fashioned ‘fuller’ manner and spelt with <u>, while others used a more modern and elegant ‘slender’ pronunciation, and wrote with <i>. Unlike in the previous passage, it is not explicitly stated here that the pronunciation of the relevant sound is different from /u/ and /i/.²²

uarie etiam scriptitatum est ‘mancupium’ ‘aucupium’ ‘manubiae’, siquidem C. Caesar per ‘i’ scripsit, ut apparet ex titulis ipsius, at Augustus [i] per ‘u’, ut testes sunt eius inscriptiones. et qui per ‘i’ scribunt . . . item qui ‘aucupium’ per

²² Garcea (2012: 151) summarises Longus’ claim in these two passages in synchronic sociolinguistic terms: ‘[a]ny movement away from an *exilis* [i] was seen as *pinguis* . . . In this case, “very full” [u] was proscribed as a provincial trait, [i] was considered “more elegant” because “more thin”, and [u] was admitted as a sort of compromise’. I do not know what vowel [u] is meant to represent (in the International Phonetic Alphabet this sign represents a labiodental approximant). It seems that Garcea sees this situation as applying at the time of Caesar, although perhaps still by the time of Longus. I would summarise Longus’ position slightly differently: in the *antiquus sermo* (presumably before Cicero), the sound was (on the whole: *ferē*) [u], written <u>. By Cicero’s time this pronunciation was considered rustic, and instead a ‘more slender’ sound was preferred (Garcea’s [i]). Some people, such as Augustus and the *grammatici*, have preferred or still prefer to use the spelling <u>; this is fine, but nowadays they should not pronounce it as [u]. I do not think that what Longus says conclusively requires that the ‘ancient’ pronunciation of <u> in this context was actually some other rounded vowel rather than [u] itself (although see De Martino 1994: 767–8).

Alternation of <u> and <i>

'u' scribunt . . . sequitur igitur electio, utrumne per antiquum sonum, qui est pinguissimus et 'u' litteram occupabat, uelit quis enuntiare, an per hunc qui iam uidetur elegantior exilius, id est per 'i' litteram, has proferat uoces.

There is variation in how *mancupium*, *aucupium* and *manubiae* are written, since C. Caesar wrote them with *i*, as his inscriptions demonstrate, but Augustus with *u*, as his writings bear witness. And those who use *i* . . . Likewise those who use *u* to write *aucupium* . . . So it follows that it is a matter of choice whether one wants to use the old-fashioned sound, which is very full and is represented by *u*, or to pronounce these words using the more slender sound, which seems more elegant nowadays, that is, with the letter *i*. (Velius Longus, *De orthographia* 8.1.1 = GL 7.67.3–14)

The next four passages give examples of which letter to use in particular words which show variation: *clipeus*, *aurifex*, *contimax* and *alimenta* are better than the spellings with <u>, but *aucupare*, *aucupium* and *aucupis* are better than spellings with <i> (contradicting the previous passage with regard to *aucupium*). It is implied at 13.1.1 that the <u> spelling actually corresponds with a different pronunciation, but it may simply be as /u/.

idem puto et in 'clipeo' per 'i' scripto obseruandum, nec audiendam uanam grammaticorum differentiam, qui alterum a 'clependo', <alterum a 'cluendo'> putant dictum.

I think the same thing [i.e. *i* for *u*] should also be observed in *clipeus* written with *i*, and we should not listen to the grammarians who set up an unnecessary distinction between *clipeus*, which they think comes from *clependus*, and *clupeus* from *cluendus*. (Velius Longus, *De orthographia* 8.1.4 = GL 7.68.11–13)

'aurifex' melius per 'i' sonat, quam per 'u'. at 'aucupare' et 'aucupium' mihi rursus melius uidetur sonare per 'u' quam per 'i'; et idem tamen 'aucipis' malo quam 'aucupis', quia scio sermonem et decori seruire et aurium uoluptate.

aurifex sounds better with *i* than with *u*. But *aucupare* and *aucupium* contrariwise to me seem to sound better with *u* rather than *i*; and likewise I prefer *aucipis* to *aucupis*, because I know that diction is subservient both to grace and to the pleasure of its hearers. (Velius Longus, *De orthographia* 13.1.1 = GL 7.75.12–15)

at in 'contimaci' melius puto 'i' seruari: uenit enim a 'contemnendo', tametsi Nissus et 'contumacem' per 'u' putat posse dici a 'tumore'.

Old-fashioned Spellings

But in *contimax* I think it is better to keep the ‘i’; for it comes from *contemnendus*, even if Nissus also thinks that *contimax* can be said, from *tumor*. (Velius Longus, *De orthographia* 13.2 = GL 7.76.6–8)

‘alimenta’ quoque per ‘i’ elegantius scribemus quam ‘alumenta’ per ‘u’.

We should also write *alimenta* with the more elegant *i* rather than *alumenta* with *u*. (Velius Longus, *De orthographia* 13.6 = GL 7.77.8)

Terentius Scaurus has little to add, except for some other examples of <u> and <i> interchange (in two of which, the dative/ablative plurals of the *u*-stems *artus* and *manus*, analogy with the rest of the paradigm is the cause of the continuing oscillation, as Scaurus goes on to note):

in uocalibus ergo quaeritur ‘maximus’ an ‘maxumus’, id est per ‘u’ an per ‘i’ debeat scribi; item ‘optimus’ et ‘optumus’, et ‘artibus’ et ‘artubus’, et ‘manibus’ et ‘manubus’.

Therefore amongst the vowels people wonder whether *maximus* ought to be spelt like this, with *i*, or as *maxumus*, with *u*; likewise *optimus* and *optumus*, and *artibus* and *artubus*, and *manibus* and *manubus*. (Terentius Scaurus, *De orthographia* 8.2.1 = GL 7. 24.13–15)

The fourth-century grammarians Diomedes and Donatus use almost exactly the same wording, no doubt due to reliance on the same source. They both imply that only <u> is used in *optimus*, but that it does not have the same sound as in other words:

hae etiam mediae dicuntur, quia in quibusdam dictionibus expressum sonum non habent, ut uir optumus.

These [i.e. *i* and *u*] are even called ‘middle’, because in certain words they are used even though they do not represent the sound which is actually pronounced, as in *uir* or *optumus*. (Diomedes, *Ars grammatica*, GL 1.422.17.19)

hae etiam mediae dicuntur, quia in quibusdam dictionibus expressum sonum non habent, i ut uir, u ut optumus.

These [i.e. *i* and *u*] are even called ‘middle’ vowels, because in certain words they are used even though they do not represent the sound which is actually pronounced, *i* as in *uir*, *u* as in *optumus*. (Donatus, *Ars grammatica maior* 1.2, p.604.2–3 = GL 4.367.14–16)

Marius Victorinus, although in the fourth century, suggests that *optimus maximus* is presently written with <u>, but that a number of other words, including *maximus* again, should be written with <i>, not <u>. This may be carelessness, or be due to differences in the sources that Marius Victorinus used. If we want to exculpate him of inconsistency, we might note that the sequence *optimus maximus* is a traditional epithet of Jupiter, in which the <u> spelling may have been maintained for longer than in *maximus* in other contexts.

idem ‘optimus maximus’ scripsit, non ut nos per u litteram.

The same man [Licinius Calvus] wrote *optimus* and *maximus*, not as we do using the letter *u*. (Marius Victorinus, *Ars grammatica* 4.6 = GL 6.9.3–4)

... sicut ‘acerrimus, existimat, extimus, intimus, maximus, minimus, manipretium, sonipes’ per i quam per u.

... in this way [we should write] *acerrimus, existimat, extimus, intimus, maximus, minimus, manipretium, sonipes* with *i* rather than with *u*. (Marius Victorinus, *Ars grammatica* 4.18 = GL 6.10.24–25)

The final passage contains various words in which Victorinus says that others have thought that they contain a sound between *u* and *i*, of which only *proximus* is relevant here. He suggests that in fact this sound is no longer used, and recommends a spelling either with <u> or <i>:

sunt qui inter u quoque et i litteras supputant deesse nobis uocem, sed pinguius quam i, exilius quam u <sonantem>. sed et pace eorum dixerim, non uident y litteram desiderari: sic enim ‘gylam, myserum, Sylla[ba]m, proxymum’, dicebant antiqui. sed nunc consuetudo paucorum hominum ita loquentium euanuit, ideoque uoces istas per u <uel per i> scribite.

There are those who think that we are lacking a letter for the sound which is between *u* and *i*, fuller than *i* but more slender than *u*. But with all due respect to them, I would say that they do not see that it is the letter *y* they want: for the ancients used to say *gyla* (for *gula*), *myser* (for *miser*), *Sylla* (for *Sulla*) and *proxymus* (for *proximus*).²³ But now this convention – which only a few men used in speech – has vanished, so you should write those words with *u* or *i*. (Marius Victorinus 4.72 = GL 6.19.22–20.5)

²³ De Martino (1994: 756–60) discusses the reasons for this claim of Marius Victorinus.

Old-fashioned Spellings

In dealing with these extracts from the writers on language of course the usual problem arises of to what extent the authors are reporting the situation in their own time, and to what extent they are reacting to spellings long out of use but still found in manuscripts and inscriptions, and passed down in grammatical writings. Nonetheless, it seems reasonable to me to deduce that even in the fourth century AD there were some people who used <u> in at least some words. However, Quintilian, Cornutus, Velius Longus, and to some extent Marius Victorinus, all imply that at least in some words this spelling was old-fashioned. On the basis of what Quintilian and Velius Longus say, there may have remained a sound not easily identifiable as /i/ or /u/ in some words into the second century AD (for more on the possible phonetic developments, see pp. 276–9).²⁴

If it is true that this sound continued in at least some words, it makes identifying old-fashioned spelling somewhat difficult. Since we do not know precisely at what point in a given word the sound became identified as /i/, continuations of the <u> spelling in words which are generally written with <i> may reflect an attempt to represent the sound as spoken, particularly if the writer has other substandard spellings, rather than knowledge of an older orthography, and this must be borne in mind when analysing the data.

We can now turn to the inscriptional evidence of the first to fourth centuries AD, and the use of the <u> spellings in the corpora. The lexicalised nature of the spellings with <u> or <i> makes it important that we do not assume that the spelling of all words containing the variation developed in the same way. This is also convenient, since it is difficult to carry out searches in the EDCS for sequences like ‘um’, ‘im’ etc. without including far too many false positives. I have therefore restricted searches to the words and categories which show variation in the corpora: these are largely the lexemes *monumentum*, *contubernium* and *contubernalis*, superlatives, and the ordinals *septimus* and *decimus*, and derivations thereof (including names).

²⁴ In this regard I differ from Suárez-Martínez (2016: 233–4), who considers that there had been a change to /i/ already in the first century BC, with the grammarians’ discussions being purely fictitious.

I shall start with these last two categories. Very few superlatives in *-issimus* are found with <u> spellings in the epigraphy. I have found 39 inscriptions containing a <u> spelling in the first four centuries AD,²⁵ of which 1 is dated to the fourth century, 8 might be as late as the third, 19 as late as the second, and 11 are dated to the first century. This might suggest a general decline over time, although it would be necessary to know the frequency of superlatives in *-issimus* in these centuries to be sure of this (since in principle use of superlatives in general in inscriptions might have decreased over this period). In any century, however, the <u> spelling is clearly rare when compared with use of *-issimus*, which is found in thousands of inscriptions.²⁶ Combined with the evidence of a change in official inscriptions in the first century AD discussed above, it is reasonable to suppose that the standard spelling was <i>, and that the sound before the labial had become identified with /i/ in this morphological category.

In other superlatives in *-imus* and words derived from them, the <u> spelling, while uncommon in all lexemes except *postumus*, is far more frequent than in *-issimus* superlatives (as we can see in [Table 7](#)).²⁷ Compared to the dominance of <u> spellings in the second century BC, it is clear that for most lexemes the <i> spelling becomes the standard in the imperial period, although to varying degrees. This may partly be because the sound before the labial remained different enough from /i/ to inspire <u> spellings for longer than in the *-issimus* superlatives. In *postumus*, conversely, it may at some point have been identified as /u/, but the (few) spellings with <i> suggest that this analysis was not inevitable: some people still heard a sound closer to /i/. A confounding

²⁵ I carried out searches on the strings ‘issumu’, ‘issumi’, ‘issumo’, ‘issuma’ and ‘issume’ in the ‘original texts’ search, with the date range set from ‘1’ to ‘400’ (20/04/2021).

²⁶ Here are the search strings in the ‘original texts’ search in the date range ‘1’ to ‘400’, followed by the numbers of inscriptions found: ‘issimu’ (735), ‘issimi’ (1199), ‘issimo’ (5267), ‘issima’ (4241), ‘issime’ (1089) = 12,531 (20/04/2021). These numbers are unreliable, since I have not checked to remove irrelevant examples of the string or restorations; and some of the inscriptions will have more than one of these strings in them, so that they end up double counted. But the difference in scale is clear.

²⁷ As usual, the figures in [Table 7](#) should be taken as indicative only: in addition to the normal caveats, there are a few long inscriptions which contain multiple examples of <u> spellings in different lexemes, which makes the frequency of these spellings seem higher than it may really have been.

Old-fashioned Spellings

Table 7 <u> and <i> in superlatives in -imus

Form with <i>	Number of inscriptions	Form with <u>	Number of inscriptions	Percentage of inscriptions with <u> spellings
maximus ^a	5600	maxumus ^b	95	2%
optimus ^c	1682	optumus ^d	171	9%
plurimus ^e	61	plurumus ^f	3	5%
postimus ^g	18	postumus ^h	434	96%
proximus ⁱ	103	proxumus ^j	10	9%

^a ‘maximu’ in the ‘original texts’ search, date range ‘1’ to ‘400’: 1502, ‘maximi’ 2021, ‘maximo’ 1452, ‘maxima’ 476, ‘maxime’ 73, ‘maxsimu’ 20, ‘maxsimi’ 26, ‘maxsimo’ 17, ‘maxsima’ 10, ‘maxsime’ 3 (26/04/2021).

^b ‘maxumu’ in the ‘original texts’ search, date range ‘1’ to ‘400’ (20/04/2021): 34, ‘maxumi’ 12, ‘maxumo’ 18, ‘maxsumu’ 6, ‘maxsumi’ 8, ‘maxsumo’ 3, ‘maxsima’ 13, maxsume 1 (20/04/2021).

^c ‘optimu’ in the ‘original texts’ search, date range ‘1’ to ‘400’: 90, ‘optimi’ 129, ‘optimo’ 980, ‘optima’ 399, ‘optime’ 84 (26/04/2021).

^d ‘optum’ in the ‘original texts’ search, date range ‘1’ to ‘400’ (20/04/2021).

^e ‘plurimu’ 8, ‘plurimi’ 9, ‘plurimo’ 11, ‘plurima’ 32, ‘plurime’ 1, date range ‘1’ to ‘400’ (26/04/2021).

^f ‘plurum’ in the ‘original texts’ search, date range ‘1’ to ‘400’ (20/04/2021).

^g ‘postim’ in the ‘original texts’ search, date range ‘1’ to ‘400’ (26/04/2021).

^h ‘postum’ in the ‘original texts’ search, date range ‘1’ to ‘400’ (20/04/2021).

ⁱ ‘proximu’ 34, ‘proximi’ 13, ‘proximo’ 22, ‘proxima’ 26, ‘proxime’ 9, ‘proximi’ o (in fact 1, but in Kropp), ‘proximo’ o, ‘proxima’ 1, ‘proxime’ 0 in the ‘original texts’ search, date range ‘1’ to ‘400’ (26/04/2021). I have removed from the count 2 instances in the TPSulp. tablets.

^j ‘proxum’ 11, ‘proxsum’ 1 in the ‘original texts’ search, date range ‘1’ to ‘400’ (20/04/2021). I have removed from the count 2 instances in the TPSulp. tablets.

factor is that several of these superlatives and their derivatives are very frequent as personal names; the same is true for ordinals: *Septimus*, *Decimus*, *Postumus* etc. It might be assumed that old-fashioned spellings are more likely to be preserved longer in names, but there is no easy way to search only for examples as names.

We also see a difference in the use of <u> and <i> in the ordinals in -imus: *septimus* is found in 1525 inscriptions, while *septumus* in only 83, given a rate of <u> of 5%; by comparison, *decimus*

appears in 221 inscriptions and *decimus* 53, so that <u> is found in 19%.²⁸

On this basis, it is unclear at exactly what point use of <u> spellings in the corpora in these words, other than *postumus*, will have become old-fashioned rather than being a possible spelling for a living sound. Certainly not in the first century BC (e.g. *Maxuma* Kropp 1.7.2/1, *optumos* CEL 7.1.21, *maxsuma* CEL 10). However, the corpora tend to match quite well the distribution we see in the epigraphic record more generally. At Vindolanda, there are no examples of <u> spellings in 54 examples of superlatives in *-issimus* or 12 of superlatives and ordinals in *-imus*, and at Vindonissa 1 in *-issimus* and 1 in *-imus* (a name). At Dura Europos, 50 superlatives and ordinals in *-imus* (and *-imius*) are found, almost all the name *Maximus*. In the Isola Sacra inscriptions, 98 instances of this type are found with <i>, some names but the majority not; there is a single instance of <u> in the name *Postumulene* (IS 364). This consistent use of <i> rather than <u> is clearly not particularly remarkable.

In the curse tablets, there are a few examples of <u> spellings in names, where the spelling was probably maintained for longer: *Septimius* (Kropp 1.11.1/11, second century AD, Sicily), *Postum[ianus]* (3.2/77, third or fourth century AD, Britain), *Maxsumus* (5.1.4/10, first half of the second century AD, Germania Superior); likewise in the tablets of Caecilius Jucundus the names *Postumi* (CIL 4.3340.56, 74, 96) and *Septumi* (92) have <u> (there are no other examples of these names).

In the letters there is more variety, with three non-name instances of <u>. We find *amicissimum* (CEL 2, second half of the first century AD) in a very broken text apparently using a model letter of recommendation as a writing exercise. This is striking, since <u> is found so seldom in *-issimus* superlatives, and particularly so, since the same text apparently also includes an <i> spelling in *pluri[mam]*. The writer is not yet expert, going by the spelling *Caesarre* for *Caesare*. It seems likely that use of <u>

²⁸ ‘septimu’ 50, ‘septimi’ 1423, ‘septimo’ 22, ‘septima’ 30, date range ‘1’ to ‘400’ (26/04/2021); ‘septum’ in the ‘original texts’ search, date range ‘1’ to ‘400’ (20/04/2021); ‘decimu’ 64, ‘decimi’ 124, ‘decimo’ 17, ‘decima’ 16 (26/04/2021); ‘decum’ in the ‘original texts’ search, date range ‘1’ to ‘400’ (20/04/2021).

was old-fashioned at this point, and the vowel had probably already merged with /i/ in *-issimus* by this period. Another damaged letter (CEL 166, around AD 150) has *plúruma[m]* alongside the old-fashioned spelling *epistolám* (assuming this is not an early example of lowering of /u/; see pp. 66–71). The combination of the relative lateness, another old-fashioned spelling, and the fact that *plurimus* is written with <u> so rarely, suggest that this too is an old-fashioned spelling. On the other hand, this is far less clear for *proxumo* in a letter from one soldier to another dated to AD 27 (CEL 13). While this letter does have an old-fashioned spelling in *tibei* for *tibi*, *proximus* does seem to have maintained the <u> spelling for longer than the other superlatives, given the relatively high frequency of the <u> spelling for *proximus* seen at large, and Nikitina's (2015: 26–7) observation that this lexeme was particularly likely to maintain <u> in official inscriptions. So its use here may not be very old-fashioned. The writer's spelling is otherwise standard.²⁹

In the tablets of the Sulpicii, we find <u> spellings in the epithets of Jupiter *Optum<u>m*, *Maxumu*, *Optumum* (TPSulp. 68), the first 2 by Eunus, the last by the scribe, where the <u> spelling is probably supported by tradition. And, again, we also have 2 other examples of <u> in *pr[o]xum[e]* (15) and *prox]ume* (19), both written by scribes. The same lexeme has the <i> spelling in *proximas* (87, 89), the former by a scribe, the latter not. Again, *proximus* show signs of having maintained its <u> spelling longer than some other words. Apart from these, the <i> spelling appears in *duodecimum* (45), *uicęnsimum* (46), the lexeme *mancipium* (85, twice, and 87, 3 times), and the perfect infinitive *mancipasse* (91, 92, 93), all written by scribes.³⁰ There are also 5 instances of the name *Maximus* (25, 50, twice, and 66, twice), of which 4 are written by a scribe.

Moving on to other lexemes, a curse tablet has *alumen[tum]* (Kropp 3.23/1, AD 150–200, Britain), which is found in two other

²⁹ Including using the contemporary spellings of *usuras* and *controversia*.

³⁰ Curiously, *[ma]ncipasse*, included in Camodeca's (1999: 337) index and attributed to tablet 87, not only is not found there, but does not appear in the corpus at all. Adams (2016: 204) states that there are 15 <i> spellings in the TPSulp. corpus but I have only been able to find these 12.

inscriptions of the second century AD (*alumentorum*, AE 1977.179; *alument[aj]r(iae)* CIL 9.3923= EDR175389).³¹ This is therefore probably an old-fashioned spelling, since it compares with 98 inscriptions from the first to fourth centuries AD containing the <i> spelling (not to mention Velius Longus' advice to use <i>),³² although it is just possible that this word maintained a vowel for which <u> could be a plausible representation. Another has *an<n>uuersariu* (Kropp I.4.1/1, c. AD 50, Minturno) for *anniuersarium*. No other examples of the <u> spelling are found, versus *anniuersali* (AE 1992.1771, AD 193–195, *anniuersarium* (CIL 6.31182, AD 101–200, EDR166509), *anniuersaria* (CIL 11, 05265, AD 333–337, EDR136860) and *[ann]iuer[sarium* (*Res Gestae Diui Augusti*; Scheid 2007; CIL 3, pp. 769–99, AD 14).

Lastly, a letter of the third century AD (CEL 220) has *estumat* for *aestumat*. I find no other instances of a <u> spelling, and no instances of the <i> spelling either, dated to the first four centuries AD in the EDCS, other than in the *Lex Irnitana*, which has both, but with <u> predominating (see fn. 17). In my corpora, *aestimatum* is found Dura Europos in a list of men and mounts (P. Dura 97.15, AD 251), and *aestimaturum* in a copy of a letter sent by a procurator (P. Dura 66B/CEL 199.2, AD 221). If the vowel in the second syllable had not yet merged with /i/, *estumat* could be an attempt to represent the sound rather than an old-fashioned spelling, especially since the author has substandard <e> for <ae>.

Apart from these, fairly infrequent, examples, most words which are found with <u> in the corpora are those for which <u> seems to have been maintained as the standard spelling, i.e. *monumentum*, and *contubernalis* and *contubernium*. The evidence of the corpora provides an interesting hint that by the late first century or second century AD, use of <u> in these words was associated with writers whose orthographic education hewed closer to the standard and/or included old-fashioned features.

³¹ Both these inscriptions also contain <i> spellings in *infelicissimus* and *optimo* respectively.

³² I searched for 'aliment' in the 'original texts' search of EDCS, with a date range of '1' to '400' (19/04/2021).

The Isola Sacra inscriptions, being funerary in nature, are the only corpus to include *monumentum* (see Table 8). There are 4 instances spelt with <u> and 10 with <i>, a reversal of the pattern in all of first–fourth century AD epigraphy, in which <u> spellings make up nearly two thirds of the examples, with 420 dated inscriptions, while the <i> spelling is found in 240.³³ There is no evidence that <u> is used in earlier inscriptions than <i>.

It is possible that there is a correlation between use of *monimentum* and substandard spelling. The inscriptions with the <u> spelling use an orthography which is otherwise standard, with the exception of *filis* for *filiūs* in 228; the stonemason has also made several mistakes in the lettering, so an accidental omission of an <i> is also possible. All but 228 also feature Greek names containing either <y> or aspirates which are spelt correctly. However, the text of IS 30 is very damaged. By comparison, of the inscriptions containing *monimentum*, 206 has *Procla* for *Procula*, *preter* for *praeter* and *que* for *quae*; 284 also has *filis* for *filiūs*; 320 has *que* for *quae*, 337 has *mea* for *meam* and *nominae* for *nōmine* (both may be stonemason’s mistakes, however; see pp. 62–3), and *sibe* for *sibi* (on which, see pp. 59–64). 106 and 107 have *Ennuchis* for *Ennychis*, 337 *Afrodisius* for *Aphrodisius* (*Agathangelus* and *Tyche* are spelt correctly in 240; *Polytimus*, *Polytimo* and *Thallus* in 284; and *Zmyrnae* in 320). None of these inscriptions, even those which use the <u> spelling, features any other old-fashioned spellings (e.g. <c> rather than <k> before <a> in *cari [ssimae*, IS 30, *huius* with single <i>, IS 125). While not being conclusive evidence, all this would be consistent with the possibility that *monumentum* was the standard spelling at this period, and that *monimentum* was substandard.³⁴

A search on the EDCS finds 433 inscriptions containing *contubernium* and *contubernālis* in the first four centuries AD, and only 17 with *contibernālis* (there were no examples of *contibernium*).³⁵ The earliest dated example found for *contibernālis* is *contibernali*

³³ I searched for ‘monument’ in the ‘original texts’ search and a date range of ‘1’ to ‘400’ (this actually gave 425 inscriptions, of which 5 contained *monimentum*), and for ‘moniment’ in the ‘original texts’ search and a date range of ‘1’ to ‘400’ (20/04/2021).

³⁴ Although this contradicts Cornutus’ view that the word ought to be written with <i> (pp. 90–91).

³⁵ I searched for ‘contubern’ and ‘contibern’ in the ‘original texts’ search between AD ‘1’ and ‘400’ (19/04/2021).

Table 8 monumentum *and* monimentum *in the Isola Sacra inscriptions*

monument-	Inscription	Date	moniment-	Inscription	Date
mo]numento monumenti	Isola Sacra 30 Isola Sacra 116	Age of Hadrian Second half of the second century AD	monimentum monimento	Isola Sacra 96 Isola Sacra 106	Age of Hadrian Age of Antoninus
monument(i) monumentum	Isola Sacra 125 Isola Sacra 228	c. AD 150 Age of Hadrian	monimento mon`i`m(ento) monim(entum)	Isola Sacra 107 Isola Sacra 206 Isola Sacra 240	Age of Antoninus No date given After AD 98; Trajanic- Hadrianic age
			moni(mentum) monimento monimento monimento m]onimentu[m	Isola Sacra 284 Isola Sacra 320 Isola Sacra 320 Isola Sacra 337 Isola Sacra 362	Age of Hadrian Age of Hadrian Age of Hadrian Age of Hadrian No date given

Table 9 *contubernalis* and *contibernalis* in the *Vindolanda* tablets

contubern-	Tab. Vindol.	contibern-	Tab. Vindol.
contubernalis	181	[c]ontibernales	346
contubernali	310	[con]tibernales	641
contubernaem	311	contiber-	656
contubernalis	343	contibernium	657
[con]tuberṇa[349	contiberṇale	698
		contiberni	708

(AE 1975.226), from between 31 BC and AD 30 (EDR076061), although the earliest examples of *contubernālis* are not necessarily much earlier: *contubernal(i)* (CIL 6.39697, 50–1 BC, EDR072515) and *contubernali* (CIL 5.1801, Augustan period). It seems, therefore, that the spelling of these words with <u> is not old-fashioned in terms of usage: it remained current throughout the imperial period and was apparently never replaced by the <i> spelling in standard orthography. The epigraphic evidence does not even allow us to be certain that the <u> spelling is the older spelling.

For the spelling of this word in the *Vindolanda* tablets see Table 9. The <u> spelling in this word is used by the writer of 181, who also wrote 180 and 344; the author was a civilian, and the writer of these texts also uses <ss> and <xs> (see p. 263) as well as some substandard spellings. 310 is the letter of Chrautius, whose scribe also uses <ss>. 311 is written by a scribe who also uses *apices*. 343 is the letter whose author is Octavius, possibly a civilian, and which combines use of <xs>, <ss> and <k> with a number of substandard spellings. 349 is a fragmentary letter, presumably written by a scribe. It includes an instance of <x>. Note that two of these texts also include superlatives spelt with <i>: *felicissimus* (310), *plurimam*, *inpiēntissime* (311).

The <i> spelling is used by the writer of the letters 346, 656, 657, and perhaps also the fragmentary 708, presumably a scribe. The spelling is entirely standard (n.b. *solearum* twice at 346, not *soliarum*). In 655 the same writer has *misi* rather than *missi*, and in 657 <x> rather than <xs>. The writer of 641, a letter, is presumably

also written a scribe. It contains *misi* and an example of <x>. 698 is too fragmentary to say anything about. The number of instances of <i> is surprising, but less striking when we observe that 4 out of 6 (probably) belong to the same writer. All instances of <i> are likely to belong to scribes, whereas <u> is used both by scribes, and, possibly, civilian writers. The use of <u> may correlate with the other old-fashioned spellings <ss>, <xs>, and <k> – but also substandard spellings.

The <u> spelling of *contubernalis* is found also in the letters of Tiberianus (P. Mich. VIII 467.35/CEL 141), which features some old-fashioned spelling (<uo> for /wu/, <k> before <a>), and some substandard features, although the spelling is overall closer to the standard than some of the letters in this archive.³⁶ This combination leads Halla-aho (2003: 248) to suggest that the writer was ‘a military scribe, trained to write documents for the military bureaucracy’. This letter also provides evidence for the independence of <u>/<i> spellings across lexemes: it includes *plurimam*, *optime*, *optimas*, *libenter*.

The <u> spelling is also found in an early private letter (*contubernálés*, CEL 8, 24–21 BC), which has completely standard spelling (apart possibly from *Nireo* for *Nēreō*, see p. 209 fn. 6), and also includes *ualdissime*. A much later letter has *c]on[t]ubernio* (CEL 220, third century AD), and has *estumat* for *aestimat* (see above). The use of <e> for <ae> in the latter is substandard; we do not have enough evidence to be sure that <u> is old-fashioned.

³⁶ The writer does not always use old-fashioned spellings: he has single <s> rather than double in *misi*, *[m]isi*, nor does he use <xs> or <q> before <u>.

CHAPTER 7

<uo> for /we/ before a Coronal

In the course of the second century BC, /ɔ/ became /ε/ after /w/ and before a coronal, other than a single /r/ (Weiss 2020: 152), for example *uoster* > *uester* ‘your’, *uoto* > *ueto* ‘I forbid’, *aduorsom* > *aduersum* ‘against’. The earliest inscriptional example comes in the *Lex repetundarum* of 123–122 BC (CIL 1².583), where we find a single example of *auersum* beside five cases of the spelling <uo>. I have found 6 instances of the <uo> spelling dated to the first century BC, beside 52 examples of <ue>.¹

This suggests a fairly rapid replacement of the <uo> spelling by the <ue> spelling (although *diuortia* apparently remained the standard spelling for this word), which is supported by the fact that only 13 instances of <uo> are found datable to the first four centuries AD.² Of these, 5 are instances of the divine name *Vortumnus*, in which archaic spelling might be expected to be retained longer than in other items. Two late cases of *uostras* (ICUR 5.14057), *uostrum* (CIL 8.9081) may well reflect the analogical effect of *uōs* and *noster* which led to the **o* of the Romance languages in this word (e.g. Spanish *vuestro*, Italian *vostro*, French *vôtre*). We find *uortice* (AE 2015.1186), *uorsum* (twice, CIL 6.20674) in verse inscriptions of the second century AD, where the effect is probably intended to be archaising; the latter inscription also features the spellings *paussa* for *pausa* ‘pause’, *gnatam* for *nātam* ‘daughter’, *ollim* for *ōlim* ‘once’, and *ollis* for *illīs* ‘them’.

¹ I carried out a ‘wrong spelling’ search on EDCS for ‘vors’, ‘vort’ and ‘vost’ with a date range –100 to –1 (19/11/2019); ‘vot’ had to be omitted because of the many tokens of *uotum*, but a search for ‘v<e=O>’ in a text file containing all inscriptions (as of 18/06/2019) found no examples. I searched for ‘vers’, ‘vert’, ‘vester’ and ‘vestr’, in ‘original texts’ with the same date range (20/07/2021).

² Searches for ‘vors’, ‘vort’, ‘voster’ and ‘vostr’ were carried out in the ‘wrong spelling’ search of EDCS (19/11/2019), with date and text checking carried out by me and Victoria Fendel. I leave aside instances of *diuortia* and the name *Mauortius*.

<uo> for /we/ before a Coronal

The writers on language make it clear that the <o> spelling is outmoded. Quintilian makes the following comment:

quid dicam ‘uortices’ et ‘uorsus’ ceteraque ad eundem modum, quae primus Scipio Africanus in e litteram secundam vertisse dicitur?

What shall I say about ‘uortices’ and ‘uorsus’ and other words spelt in the same way, in which Scipio Africanus [184–129 BC] is said to have been the first to turn the second letter into *e*? (Quintilian, *Institutio oratoria* 1.7.25–26)

While this passage is expressed somewhat cryptically, I take it to mean that he considers the <uo> spelling to be absurdly old-fashioned, and it comes as part of a list of such spellings. Cornutus and Marius Victorinus also address the topic:

‘uostra’ olim ita per *o*, hodie per *e*, ut ‘aduorsa’ ‘aduorsa’, ‘peruorsa’ ‘peruorsa’, ‘uotare’ ‘uetare’, ‘uortex’ ‘uertex’, ‘conuollere’ ‘conuellere’, ‘amploctere’ ‘amplectere’.

uostra used to be written as here with *o* but now we write *e*; the same is true of *aduorsa* beside *aduorsa*, *peruorsa* beside *peruorsa*, *uotare* beside *uetare*, *uortex* beside *uertex*, *conuollere* beside *conuellere*, *amploctere* beside *amplectere*.³ (Cornutus, in Cassiodorus, *De orthographia*, 1.37 = GL 7.149.16–18)

‘uoster, uortit’ et similia per *E*, non per *O*, scribere debemus.

We ought to write *uoster*, *uortit* and the like with *e*, not with *o*. (Marius Victorinus, *Ars grammatica* 4.18 = GL 6.10.22)

Accordingly, none of the corpora preserves the <uo> apart from the curse tablets. This phonological context appears only in a very few lexical items so there are not that many tokens of it in most corpora (I count 7 instances in the tablets of the Sulpicii, for instance, and 6 in P. Dura, although 5 of these are in the same text), but the curses as a genre happen to contain many instances of *uerto* ‘I turn’ and lexical items derived from it, so there are particularly large numbers of examples. Only 3 of these (across 2 tablets) appear to show the spelling with <uo>, as opposed to 93 with <ue>. Two belong to the same tablet (Kropp 1.4.2/1, Latium), *aruosarius* for *aduersarius*, and *aruosaria* for *aruersaria*. Since the tablet is dated to the first half of the first century BC, this usage is not relevant for spelling

³ Obviously the last two examples are not examples of the specific spelling being discussed here.

Old-fashioned Spellings

under the empire. The spelling is probably already old-fashioned, but not overly so, as both /wo/ > /we/ and *ar-* for *ad-* before a labial fricative are characteristic of the second century BC. The remaining instance is *uostrum* for *uestrum* (I.I.I.I/1, Arretium, second century AD). Although this text does also include another old-fashioned spelling in the form of *uoltis* for *uultis*,⁴ *uostrum* could again instead be an instance of analogy from *uōs* and *noster*.

⁴ Unless EDR (EDR121894) is right to give a wider dating of AD 251–450 on the basis of the archaeology. If this is correct, *uoltis* could reflect the late confusion of /u/ and /ɔ:/.

<uo> and <uu> for /wu/ and /uu/, and <quo> and <quu> for /k^wu/

A number of sound changes raised original /ɔ/ to /u/ in Latin in the course of the third and second centuries BC (in addition to those given on p. 65, this raising also took place before the sequence -/C-, for example **solkos* > *sulcus* ‘furrow’, in the second century). However, the raising was delayed in all cases after /u/, the labial glide /w/ and the labiovelar stop /k^w/ until the first century BC.¹ I have found no certain examples of a spelling <uu> in these sequences prior to the first century. It is often stated or implied in modern scholarship both that original /wɔ/, /k^wɔ/ and /uɔ/ became /wu/, /k^wu/ and /uu/ at the same time, and that the use of <uo> fell out of use extremely quickly.² However, neither of these statements appears to hold true.

As to the former, the inscriptional evidence, including that after the first century BC and some of the corpora (as we shall see),

¹ For some speculation that the vowel in the sequence /wu/ remained phonetically somewhat different from /u/ in other contexts, see Nishimura (2011: 200–1). It is sometimes claimed or implied that the longer writing of <uo> in these contexts was due to an aversion to the sequence <uu> in writing (e.g. Smith 1983: 916; Zair 2017: 278). But this is clearly not correct, since sequences of /uw/ in words like *iuuenis* and *Cluiuis* are always written <uu>.

² For example, ‘spelling *vo*, *uo* for *vu*, *uu* (both written *VV* in inscriptions) up to the beginning of the imperial period’ (Schreibung *vo uo* für *vu uu* (beide inschr. *VV*) bis zum Beginn der Kaiserzeit, Leumann 1977: 49); ‘these changes do not appear in writing until the end of the republic. Until then inscriptions still show such forms as *uolgus*, *auonculus*, *seruos*, *perspicuos*, *equos*, instead of *uulgus*, etc.’ (Allen 1978: 18–19); ‘the old forms <-VOS> and <-VOM> survived until late republican times’ (Itzès 2015: 333 fn. 13); Meiser (1998: 84). However, several writers do note that the older spelling survived for longer: ‘up to the middle of the second century AD’ (Marek 1977: 55 fn. 90); ‘often found much later, especially in *uolt* and *uolnus*’ (Sihler 1995: 66); ‘it persists inscriptionally until much later than Quintilian’ (de Melo 2019: 14); Sommer and Pfister (1977: 60) mention spellings *auonculus*, *uolgus*, *uomica* in the eighth century AD; Carnoy (1906: 33) gives inscriptional examples from Spain from the second century AD. Prinz (1932: 50–4) collects the evidence from CIL 2 to 14 and breaks it down by type and date, with examples of <uo> for /uu/ being found until c. AD 150, and for <wu> down to AD 300.

Old-fashioned Spellings

suggests that /uɔ/ became /uu/ earlier than /wɔ/ and /k^wɔ/ became /wu/ and /k^wu/.³

As can be seen in Table 10, 5 inscriptions, all likely to be from the first half of the first century BC,⁴ show 6 examples of the spelling <uo> for original /uɔ/, alongside 2 inscriptions showing three examples of /uɔ/ being spelt <uo>. Conversely, there are 4 instances of original /wɔ/ and /k^wɔ/ being spelt <uo>, and only 1 instance of <uu> which might be dated to between about 100 and 50 BC.⁵ This suggests that /uɔ/ became /uu/ towards the start of the first century BC, whereas /wɔ/ and /k^wɔ/ became /wu/ and /k^wu/ towards the middle of that century. Of course, the numbers are small, but this does fit in with the later spelling conventions, as will be seen.⁶

In the rest of the first century BC and till the end of the Augustan period, <uo> remains the majority way of spelling both /uu/ and /wu/ and /k^wu/. Leaving aside the aqueduct inscriptions from Venafrum, the *Fasti Consulares* and *Triumphales*, and the *Res Gestae* of Augustus, which would distort the figures and will be discussed below, in inscriptions dated between 49 BC–AD 14 I have found the following figures:

- 5 (16%) instances (from 5 inscriptions) of /wu/ and /k^wu/ are spelt <uu>
- 27 (84%) instances (from 27 inscriptions) of /wu/ and /k^wu/ are spelt <uo>

³ An alternative possibility to explain the chronological difference in the spelling of /wu/ and /k^wu/ vs /uu/ has been suggested to me by James Clackson (p.c.). He observes that a key element in the teaching of Latin spelling involved the learning of syllables. In the sequence /uu/ the second vowel formed a syllable of its own, while in /wu/ and /k^wu/ the /u/ was the second member of a syllable. Thus, learners, on encountering /wu/ or /k^wu/, were likely to maintain the spelling of these sequences which they had learnt as a syllable spelt <uo>, while /u/ on its own, as in the second vowel of /uu/, would have been learnt as <u>. Hence the faster and more thorough adoption of <uu> for /uu/ than for /wu/ and /k^wu/ which we see. This is certainly possible, but learning by syllables was an early stage of literacy, at least for those who received a high level of education, and it seems unlikely that this habit should have applied in official/elite inscriptions.

⁴ The date attributed to it by EDR (EDR157325) is surely too wide; a first-century date is much more likely than a second-century one.

⁵ It must be noted that all the instances of <uu> are in the word *duumuir*; David Butterfield has suggested to me (p.c.) that its spelling may have been influenced by the spelling of *triumuir*. This is of course possible, but the proposed diachronic development, as we will see, fits in with both the grammatical tradition and the continued spelling tradition.

⁶ For some further evidence for this proposition on the basis of manuscript spellings in Catullus, see the Appendix.

Table 10 <uo> and <uu> 100–50 BC

<uo> = /uu/	Inscription	Date	Place	<uu> = /uu/	Inscription	Date	Place
suom suom	CIL 1 ² .590	c. 80 BC (Crawford 1996: 302)	Tarentum	duumu(iri)	EDR157325	200–71 BC (EDR, palaeog- raphy)	Sezze
perpetuom	CIL 1 ² .1632	80–65 BC (ILLRP 645; Étienne 1965: 214–15; Engfer 2017 no. 96)	Pompeii	duum.uir	CIL 1 ² .992	100–50 BC (Solin 2003: 97; Gregori and Mattei 1999 no. 1)	Antium
				duum.u[iri]	CIL 1 ² .3091	80–50 BC (Harvey 1975: 49; Granino Cerere 2005 no. 699)	Praeneste

<uo> and <uu> for /wu/ and /uu/, and <quo> and <quu> for /k^wu/

- 8 (32%) instances (from 8 inscriptions) of /uu/ are spelt <uu>
- 17 (68%) instances (from 13 inscriptions) of /uu/ are spelt <uo>.

There are very few inscriptions which contain both /wu/ or /k^wu/ and /uu/, but just as we will see in the corpora there is none which contains both /wu/ or /k^wu/ spelt <uu> and /uu/ spelt <uo>. All three other possibilities are attested: the *Laudatio Turiae* (CIL 6.41062), from the last decade or so BC, uses <uo> for both /wu/ (*uolneribus*) and /uu/ (*tuom*). An inscription on a marble tablet from Herculaneum (CIL 10.1453), shows <uo> for /wu/ (*seruom*) but <uu> for /uu/ (*perpetuum*), and it is the same almost consistently in an Augustan edict from Venafrum regarding an aqueduct; across the three copies of the inscription plus a number of cippi marking the route (CIL 10.4842 and 4843; Capini 1999 no. 1a, 1b, 1c, 2a, b, c, d, f, g, i, l, 17–11 BC), there is 1 instance of *riuos* and 10 of *riuom*, alongside 1 instance of *[u]acuom*, 1 of *uacuum*, and 6 of *uacuus*. In the *Res Gestae* of Augustus (Scheid 2007; CIL 3, pp. 769–99), <uu> is used in both contexts: *suuum*, *annuum*, *m[agistratu]um*, *riuuum*, *uiuus*.

That there was some confusion about when to use <uo> and when to use <uu> in this period is suggested by the *Fasti Consulares* (CIL 1² pp. 16–29, FC) and *Triumphales* (Degrassi 1947 no. 1h, FT), erected by Augustus. These in general show a mixture of more old-fashioned and more up-to-date spellings, presumably partly due to their composer working from a range of earlier sources, and partly due to the tendency for names to retain older spellings anyway.

For /wu/ and /uu/ we consequently find an interesting mixture of spellings. In both *Fasti* we have <uu> used for /uu/ in *mortuus* (twice, FC) and *triduum* (FT), and <uo> used to represent /wu/ in the personal names *Vulso* (4 times, FC, once FT), *Ca]huus* (FC) and *Coruus* (3 times, FT), and in the name of the non-Roman people *Vulcientib(us)* (FT). There is also <uo> for /wu/ in the names of non-Roman peoples: *Volisceis* (twice, FT), *Volsonibus* (FT), where the <uo> spelling would remain standard, and the abbreviation *uol(nere)* (FC). But in addition to these we also find the personal name usually written *Scaeuola* as *Scaeuula* (FC), *[Sc]aevula* (FT), and the names of the peoples generally known as the *Volsinienses* as *Vulsiniensibus*, *V]ulsiniensibus* (FT). Although these spellings do indeed reflect the

expected development of the sequence /wɔ/ to /wu/ before dark /l/ before a back vowel or a consonant, the older spelling *Scaeuola* appears to have been generally retained, with no other instances of *Scaeuula* attested, while there are 23 epigraphic instances of the spelling *Volsinii* and *Volsinienses* as late as the third century AD. The only other instance with <uu> in this word is *Vulsinius* (4 times) in a copy of rescript of Constantine (CIL 11.5265, AD 333–337), with many non-standard features.

I would attribute these spellings to an (inconsistent) tendency to modernise the spelling of the sequence of /wu/ to <uu> in the *Fasti*, even in those lexemes where the old-fashioned spelling would in the end be continued as the standard spelling. Whether this was an idiosyncrasy of the writer of the inscriptions or whether it reflects a more wide-ranging movement towards the use of <uu> for /wu/ amongst whatever body was responsible for the composition of the *Fasti* cannot be known, although it does fit in with the preference for <uu> also demonstrated by the *Res Gestae*.

On the basis of this epigraphic evidence, therefore, there is already significant support for the conclusion that /uɔ/ had become /uu/ around the start of the first century BC, while /wɔ/ and /k^wɔ/ only became /wu/ and /k^wu/ around the mid-point of the century. For both contexts, the spellings with <uo> remained more common to the end of the Augustan period, although /uu/ was more frequently written <uu> than /wu/ and /k^wu/ were. In the Augustan period, there are signs of <uu> becoming the standard spelling in official inscriptions for both contexts.

The idea that /uɔ/ became /uu/, and adopted the spelling <uu> earlier, and more thoroughly, than /wɔ/ and /k^wɔ/ is supported by the evidence of both the writers on language and of my corpora. Starting with the former, a well-known passage of Quintilian states that <uo> for /wu/ was still used by his teachers towards the middle of the first century AD, who presumably also passed on this spelling at that time, although he subsequently prefers to use <uu>. The examples he gives for the <uo> spelling are of /wu/ (*seruos* and *uolgus*). This is not a coincidence: as we have seen, the epigraphic evidence suggests that his teachers might well have already been using <uu> to represent /uu/, and this in fact provides

<uo> and <uu> for /wu/ and /uu/, and <quo> and <quu> for /k^wu/

the key to understanding the passages in which he talks about use of <uo>. The two relevant passages are extremely complex:

atque etiam in ipsis uocalibus grammatici est uidere, an aliquas pro consonantibus usus acceperit, quia “iam” sicut “tam” scribitur et “uos” ut “cos”.⁷ at, quae ut uocales iunguntur, aut unam longam faciunt, ut ueteres scripserunt, qui geminatione earum uelut apice utebantur, aut duas, nisi quis putat etiam ex tribus uocalibus syllabam fieri, si non aliquae officio consonantium fungantur. quaeret hoc etiam, quo modo duabus demum uocalibus in se ipsas coeundi natura sit, cum consonantium nulla nisi alteram frangat. atqui littera i sibi insidit (“conicit” enim est ab illo “iacit”) et u, quo modo nunc scribitur “uulgu” et “seruus”.

And even with regard to the vowels themselves it is up to the teacher of grammar to see whether he will accept that in certain contexts *i* and *u* are used as consonants, because *iam* is written just like *tam*, and *uos* like *cos* [i.e. with an initial consonant]. But when vowels are joined together, they either make one long vowel, as in the writings of the ancients, who used this gemination like an *apex*, or a diphthong,⁸ unless one thinks that a syllable can consist of three vowels in a row, without one of them taking on the function of a consonant. Then, indeed, he will also examine how it can be in the nature of two identical vowels to be combined [in a single syllable], when none of the consonants can do so except when they ‘break’ another [i.e. in *muta cum liquida* sequence, which can occupy the onset of a syllable].⁹ But nonetheless, the letter *i* [as a vowel] can occupy the same place as itself [as a consonant] (since *conicit* is from *iacit*), as can *u*, as we now write *uulgu* and *seruus*. (Quintilian, *Institutio oratoria* 1.4.10–11)

And:

nostri praeceptores “seruum” “ceruum”que u et o litteris scripserunt, quia subiecta sibi uocalis in unum sonum coalescere et confundi nequiret; nunc u gemina scribuntur ea ratione, quam reddidi: neutro sane modo uox, quam sentimus, efficitur, nec inutiliter Claudius Aeolicam illam ad hos usus litteram adiecerat.

My teachers wrote *seruus* (“slave”) and *ceruus* (“stag”) with the letters *u* and *o*, because they did not think that a vowel could coalesce and be combined with itself into a single sound. Now we write double *u*, for the reason I have given above [i.e. in section 1.4.10–11]: clearly by neither method is the sound which we hear represented, and Claudius’ addition of the Aeolic letter for this usage was not without value. (Quintilian, *Institutio oratoria* 1.7.26)

⁷ The transmitted text has *quos* rather than *cos*, and the examples given are often emended in various ways.

⁸ On *duae uocales* with the sense ‘diphthong’, see Ax (2011: 109).

⁹ See Ax (2011: 110).

The exact meaning of these passages is somewhat complicated, and is discussed by Colson (1924) and Ax (2011) in their commentaries, as well as, for the first passage, Coleman (1963: 1–10). The first passage states that when a vowel is added to another vowel within a syllable this either represents a long vowel (in old writers), or a diphthong (but not a triphthong: three vowels can only go together in the same syllable if one is consonantal <i> or <u>). In addition, <i> and <u> can occupy both vocalic and consonantal positions, as shown by the interchange between /j/ and /i/ in *iacit* and *conicit* respectively,¹⁰ and by /wu/ in *uulgus* and *seruus*. If these letters are considered always to be vowels, one then has to explain why they can (nowadays) appear consecutively in the same syllable, when two identical consonants cannot do this (or indeed any two consonants, except in *muta cum liquida* sequences).

In the second passage, Ax explains *unus sonus* as the onset and nucleus of a syllable ('eine neue eigene silbische Toneinheit'). He concludes that, since it was acceptable to use <u> to write /w/ plus a vowel other than /u/, Quintilian's teachers, not being prepared to countenance <uu> for /wu/, fell back on <uo>, which was acceptable. However, in the absence of other information, this leaves us in the dark as to why <uu> for /wu/ was not to their liking.

Colson takes *unus sonus* to refer to a diphthong, and says of the second passage:

I think it is clear that the meaning is 'as they held, two identical vowels could not form a diphthong,' cf. 4, 11. The reasoning is (a) two vowels in a syllable must form *unus sonus*, but (b) two identical vowels cannot do this, therefore (c) one of these must be altered.

¹⁰ James Clackson (p.c.) points out to me that <i> could be doing service as both /j/ and /i/ in *conicit* if this really represents /konjikit/, as is suggested by the Classical scansion of preverbs in (most) compounds of *iaciō* as heavy. Nishimura (2011: 194–200) argues that *conicit* represents /konikit/, as the result of a constraint against /ji/ and that the heavy scansion is due to syllabification following the morpheme boundary (so /kon.ikit/ rather than /konjikit/). However, the position, identified below, that two consecutive vowel letters must be in different syllables would also apply to /konjikit/, so it is possible that *conicit* did include a sequence /ji/ (at least at one stage), and the spelling as *conicit* is a means of avoiding a spelling *coniicit*, which would violate the rule against having two of the same vowel letter representing sounds within the same syllable.

<uo> and <uu> for /wu/ and /uu/, and <quo> and <quu> for /k^wu/

But if it is true that the rule is that two vowel letters in a syllable must form a (rising) diphthong, the sequence <uo> for /wu/ and /wɔ/ ought to have been just as forbidden as <uu>, since these also did not form a diphthong (and the same would be true of <ua>, <ue>, <ui>).

The missing piece to the puzzle is the fact that, once gemination had ceased to be used to represent vowel length, doubled vowel letters generally could only represent two vowels in two consecutive syllables, as in words like *cooperatio* and *anteo*;¹¹ <uu> of course also represents /uu/. These sequences of vowels in separate syllables unquestionably represent two sounds. I take it, therefore, that *unus sonus* refers to a sequence of sounds within the same syllable, as in <uu> for /wu/. So, Quintilian's teachers accepted the use of <uu> to represent /uu/, since this was a sequence of two sounds across two syllables, as in all other sequences of two vowels, but not <uu> to represent /wu/, since this would be considered *unus sonus*.¹² And in fact, this analysis will be supported when we turn shortly to other writers from shortly before and after Quintilian, who make it explicit that the problem with <uu> is that it ought to represent two vowels in two syllables.

Combining and expanding on Quintilian's two passages, his argument is as follows: it is necessary to consider whether *i* and *u* are to count as vowels or consonants. At least some of the time, *i* and *u* should be considered consonants, as in *iam* and *uōs*, where they occupy the syllable onset. It is true that when vowel letters are combined in a single syllable they represent either a long vowel (in the olden days) or a (rising) diphthong (e.g. *ae*, *au* etc.), but an ostensible combination of three vowels (e.g. *seruae*) in fact can only be analysed as containing a consonantal *i* or *u*. The analysis as vowels is also problematic if we assume that two of them can be combined in a single syllable, when two identical consonants have to be split across a syllable boundary (and indeed

¹¹ Although, in practice, these vowels were probably produced as a single long vowel in speech.

¹² Of course, if I am right that /wɔ/ became /uu/ earlier than /wɔ/ became /wu/, there would have been a period of time in which /wɔ/ remained written as <uo> because that is how it was still pronounced; the shift of this to /wu/ would have been a challenge to the rule (if not the very reason for its development, as the answer to the question of why established spelling tradition used <uo> for /wu/).

Old-fashioned Spellings

two non-identical consonants, except in *muta cum liquida* sequences); in addition (and more relevantly), as Quintilian's teachers maintained, two identical vowels have to be split across two syllables too (as in words like *cooptō*, *praeēō*, *ingenuus*). However, now it is recognised that *i* and *u* can sometimes function as consonants, allowing the spelling *seruus* (although consonantal *u* does somehow sound different from *u* as a vowel, so it would be sensible to use the digamma for consonantal *u*).

This analysis is supported when we turn to other writers who talk about the <uo> spelling: Cornutus, Velius Longus and Terentius Scaurus all refer to the old belief that two consecutive identical vowel letters could only represent vowels in separate syllables. This point is made very clearly by Cornutus:

alia sunt quae per duo *u* scribuntur, quibus numerus quoque syllabarum crescit. similis enim uocalis uocali adiuncta non solum non cohaeret, sed etiam syllabam auget, ut 'uacuuus', 'ingenuus', 'occiduuus', 'exiguus'. eadem diuisio uocalium in uerbis quoque est, <ut> 'metuunt', 'statuunt', 'tribuunt', 'acuunt'. ergo hic quoque *c* littera non *q* apponenda est.

There are other words which are written with double *u*, whose number of syllables increases. Because a vowel attached to another same vowel not only does not form a single syllable, it even increases the number of syllables, as in *uacuuus*, *ingenuus*, *occiduuus*, *exiguus*. The same division of vowels also takes place in verbs, as in *metuunt*, *statuunt*, *tribuunt*, and *acuunt*. Therefore here too one should use the letter *c* not *q* [i.e. because in *acuunt* we have /kuu/, not /k^wu/]. (Cornutus, in Cassiodorus, *De orthographia* 1.45–48 = GL 7.150.5–9)

We can see that Cornutus, a decade and a half older than Quintilian, does indeed follow the rule that Quintilian ascribes to his teachers that <uu> must reflect two vowels in different syllables. Direct evidence that Cornutus used <uo> for /wu/ may come from the following passage; however, the manuscripts are all corrupt here, so that the reading is not certain, and due to its brevity the passage is also difficult to understand:¹³

¹³ GL (7.150.22) differs from this text in having 'extinguunt per duo uu' and 'extinguo est enim, et ab hoc extinguunt' (although I think that Stoppacci's 2010 text is more plausible on the basis of what is found in the manuscripts, which have *extinguunt per uo* δ P S, *extinguunt per uo* A, *extinguunt per u* et o F, and, for the last word of the second phrase, *extinguunt* A F, *extinguunt* B P S, *extinguomur* E).

<uo> and <uu> for /wu/ and /uu/, and <qu> and <quu> for /k^wu/

‘extinguont’ per *u* et *o*: qualem rationem supra redidi de *q* littera, quam dixi oportere in omni declinatione duas uocales habere, talis hic quoque intelligenda est; ‘extinguo’ est enim et ab hoc ‘extinguont’, licet enuntiari non possit.

Extinguont is written with *u* and *o*: this is to be understood here for the same reason which I gave above, when I discussed the letter *q*. There I said that whenever it appears it ought to be followed by two vowels. Since it is *extinguō*, from that we get *extinguont*, even if that cannot be pronounced.¹⁴ (Cornutus, in Cassiodorus, *De orthographia* 1.56–57 = GL 7.150.22–151.2)

Velius Longus also explains the rule concerning <uu> more clearly than Quintilian:

transeamus nunc ad ‘u’ litteram. a[c] plerisque super<i>orum ‘primitiuus’ et ‘adoptiuus’ et ‘nominatiuus’ per ‘u’ et ‘o’ scripta sunt, scilicet quia sciebant uocales inter se ita confundi non posse, ut unam syllabam [non] faciant, apparetque eos hoc genus nominum aliter scripsisse, aliter enuntiasse. nam cum per ‘o’ scriberent, per ‘u’ tamen enuntiabant.

Now we turn to the letter *u*. By many of our predecessors *primitiuus* and *adoptiuus* and *nominatiuus* were written with *uo*, evidently because they held that a vowel could not be combined with itself to form a single syllable, and it appears that they wrote and pronounced this type of word differently. That is, while they wrote *o*, they said *u*. (Velius Longus, *De orthographia* 5.5.1 = GL 7.58.4–8)

Like Quintilian, Velius Longus, writing probably slightly later, sees the use of <uo> for /wu/ as old-fashioned. In addition to the reference to *superiores* in the passage above, he subsequently makes the comment

illam scriptionem, qua ‘nominatiuus’ ‘u’ et ‘o’ littera notabatur, relinquemus antiquis.

¹⁴ Cornutus has discussed the use of <q> at 1.23–4 (see p. 138) and at 1.48 (above). His position is that <qu> should be used only to represent /k^w/ before another vowel (i.e. <q> ought to be followed by two vowels), while /ku/, when followed by either another vowel or a consonant, should be represented by <cu>. In *extinguō*, we have /g^w/ represented by <gu>, equivalent to /k^w/ represented by <qu>; since <uu> always reflects /uu/, the third plural must be *extinguont*, with <guo> representing <g^wu>. This use of <uo> is required, even though it does not reflect pronunciation because spelling the form as *extinguunt* would imply that this was pronounced /ekstinguunt/ rather than /eksting^wunt/. I do not understand *Boys-Stones’* (2018: 149 fn. 18) explanation of the passage (based on Keil’s text).

Old-fashioned Spellings

That spelling, whereby *nominatiuus* used to be written with *uo*, we shall leave to the ancients. (Velius Longus, *De orthographia* 7.2 = GL 7.67.1–2)

Terentius Scaurus mentions the rule more briefly, and again makes it clear that the <uo> spelling for /wu/ is old-fashioned:

proportione ut cum dicimus ‘equum’ et ‘seruum’ et similia debere scribi, quanquam antiqui per ‘uo’ scripserunt, quoniam scierunt uocalem non posse geminari, credebantque et hanc litteram geminatam utroque loco in sua potestate perseuerare, ignorantes eam praepositam uocali consonantis uice fungi et poni pro ea littera quae sit ‘F’.

[The third way of identifying correct spelling] is by analogy, as when we say that *equus* and *seruus* and similar words ought to be written like this, although the old writers wrote them with *uo*. This is because they knew that a vowel ought not to be written twice [in the same syllable], and they believed that the same applied to *u*, having vocalic force in both places, not being aware that it functioned as a consonant when put before a vowel and that it was used in the same way as the Greeks used ϕ”. (Terentius Scaurus, *De orthographia* 3.4.1 = GL 7.12.11–16)

Interestingly, Pseudo-Probos, probably largely repeating Sacerdos’ late third century AD *Artes grammaticae*, treats <uo> simply as an alternative spelling, with no suggestion that is old-fashioned or unusual:

uos uel uus secundae sunt declinationis, i faciunt genetiuo, hic ceruus uel ceruus huius cerui, neruos uel neruus huius nerui, et siqua talia.

Nouns ending in *-uos* or *-uus* belong to the second declension. They make their genitive in *-i*, as in *hic ceruus* or *ceruus*, *huius cerui*, *neruos* or *neruus*, *huius nerui*, and others of this sort. (Ps-Probos, *De catholicis*, GL 4.19.13–15)

Marius Victorinus also does not make an explicit statement about whether the <uo> spelling is old-fashioned, although he does go on, after the following passage, to recommend the use of <uu>, to his pupils, with spelling matching pronunciation:

sed scribam uoces, quas alii numero singulari et plurali indifferenter per u et o scripserunt, ut ‘auos, coruos, nouos’ et cetera.

But I shall write about words which other people have written the same way in the singular and plural, such as *auos*, *coruos*, *nouos* etc. (Marius Victorinus, *Ars grammatica* 4.42 = GL 6.14.23–24)

<uo> and <uu> for /wu/ and /uu/, and <qu> and <quu> for /k^wu/

Donatus does not mention the <uo> spellings, but gives *seruus* and *uulgu*s as examples of consonantal plus vocalic <u> (Donatus, *Ars maior* 2, p. 604.5–6 = GL 4.367.18–19).

Looking at the inscriptional evidence after the Augustan period, it seems likely that Quintilian, Velius Longus and Terentius Scaurus' objections to <uo> may actually be a response to its survival relatively late, even in official and elite inscriptions, throughout the first century AD and into the second. As we have seen, the *Res Gestae* already uses <uu> for both /uu/ and /wu/ and /k^wu/, but <uo> could still be used for both on the gravestone of a high-status woman towards the end of the first century BC, and <uo> for /wu/ in particular is found in a number of inscriptions which could be considered to represent the elite standard.¹⁵

In legal texts:

- *aequom* (CIL 2.3.927) in a *Senatus consultum* from Spain, AD 19–20
- *aequom* (CIL 2.5.900) in a *Senatus consultum* from Spain in several copies from AD 20
- *clauom* (twice, CIL 2.5.181; second half of the first century AD) in a *lex* from Lusitania
- *uacuom*, *diuom* (CIL 2.1964), *diuom* (6 times), *seruom*, *suom* (CIL 2.1963), *diuom* (12 times) beside *seruum duumuir*, *duuuir*, *suum* (CIL 2.4.1201) in several versions of a *Lex Flavia municipalis* from Spain, with parts dating back to legislation of Augustus
- *riuom* (3 times), alongside *riuum*, *riuus* (twice) in the *Lex riui hiberiensis* from Hispania Citerior, during the reign of Hadrian (Beltrán Lloris 2006)
- *diuos* and *-iuom* (CIL 6.40542) on a legal text on a marble tablet, Rome, during the reign of Antoninus Pius.

Other inscriptions of an official or public character:

- *equom*, *Juom* beside *suum*, *magistratuom* (AE 1949.215) in a tablet recording the honours paid to Germanicus Caesar, from Etruria, AD 20
- *au]onc[ulus]*, *diuom* (CIL 13.1668; Malloch 2020) beside *diuus*, *patruus*, *arduom*. A tablet recording a speech of Claudius, Lugdunum, AD 48 or shortly afterwards
- *riuom* (CIL 6.1246) in an inscription commemorating Titus' rebuilding of the Aqua Marcia, Rome, AD 79

¹⁵ In fact, Prinz (1932: 53) claims that <uo> occurs 'in the second and third centuries almost always in high-register inscriptions' (saeculo secundo et tertio paene semper in titulis sermonis urbani).

Old-fashioned Spellings

- *aequom* (AE 1962.288). A bronze tablet recording a rescript of Titus, from Spain, AD 79 or shortly afterwards
- *diuos* (AE 1988.564) in a marble fragment of an imperial *Fasti* from Etruria, in the reign of Trajan or later
- *aequom* (CIL 3.355). A bronze tablet recording a rescript of Trajan, AD 125–128, from Asia.

In general, <uo> was by no means uncommon. It was perhaps particularly frequent in *uiuos* for *uiuus* ‘alive’ on tombstones, where it appears in the formula *uiuus fecit* ‘(s)he made it while still alive’. A search on the EDCS finds 209 inscriptions dated between AD 1 and 400 which contain *uiuos*, and 372 containing *uiuus*. So <uo> represents /wu/ in 36% of these inscriptions.¹⁶ Of course, some instances of *uiuos* may be accusative plurals rather than nominative singulars, but given the vast frequency of the *uiuus fecit* formula, this will make up a very small part of the total. A search with much smaller numbers allows for checking the inscriptions, and confirms this proportion of <uo> to <uu>: there are 55 inscriptions containing (*con*)*seruos* in the nominative singular and 118 of (*con*)*seruus* = 31% dated between AD 1 and 400.¹⁷

It also survived for a long time, although its use for /uu/ is rare in later inscriptions. Not including instances of *quom* for *cum* (on which see pp. 165–8), I find 68 inscriptions dated between AD 150 and 400 which contain <uo>, of which only 3 have <uo> for /uu/ (CIL 5.4016, AE 1989.388, CIL 3.158); the rest are all /wu/ or /k^wu/.¹⁸ These are found in inscriptions from a range of genres (funerary, honorary, dedication, building, a contract on a wax

¹⁶ Searches carried out were for ‘uiuos and not uiuus’ in the ‘wrong spelling’ search, and for ‘uiuus’ in the ‘no solutions’ search, which avoided the abbreviation *u(iuus)*, but included instances of *uiuos*. This search produced 581 inscriptions; the final total of 372 was produced by subtracting 209 (number of inscriptions with *uiuos*) from this total (10/12/2020). A search for *uiuunt* (10/12/2020) actually produces a majority of *uiuont* (35 inscriptions to 8), although here the data is slanted chronologically (almost all examples with <uo> are to be dated to the first century BC or AD) and geographically (for some reason many of them come from Narbo in Gaul). But note *uiuont* (AE 2007.301; Ostia, AD 190–210; EDR105931).

¹⁷ Searches carried out were for *seruos* in the ‘wrong spelling’ search (55 inscriptions after removing instances of *seruos* accusative plural), and for *seruus* in the ‘no solutions’ search, which avoided abbreviations, but included instances of *seruos*. The total for *seruus* was 181; I subtracted 55 cases of *seruos*, and 8 cases where the word was damaged so that it was not possible to identify the vowel following <u> (10/12/2020).

¹⁸ Prinz (1932: 51) found no examples of <uo> for /uu/ after AD 150.

<uo> and <uu> for /wu/ and /uu/, and <quo> and <quu> for /k^wu/

tablet, a statue base etc.) from all over the empire. To give an extremely rough idea of the frequency of <uo> at this period I searched for <uu> on the EDCS, which found 979 inscriptions containing this sequence from between these dates, giving a frequency of 7%.¹⁹ A couple of inscriptions from this period suggest that the convention of using <uo> for /wu/ and <uu> for /uu/ may have been maintained: CIL 10.1880 has [P]rimitiuos and [p]erpetuus, CIL 3.5295 (= 3.11709) has uolnus and suum.

The corpora confirm the tendency among some writers to use <uo> to represent /wu/, and <uu> to represent /uu/ (and never the other way round) and hence the implication that /uo/ to /uu/ took place earlier.²⁰ This is most clear in the Vindolanda tablets, where the distinction is consistent: /wu/ is always spelt <uo> and /uu/ always spelt <uu> (see Table 11).²¹ Most of the instances of <uo> appear in letters to and from the prefect Cerialis; it correlates with instances of etymological <ss> for /s/ in 225, a draft letter from Cerialis, probably written in his own hand, and in 256, a letter to Cerialis. Most of the latter was written by a scribe, whose spelling is otherwise standard, and it comes from a certain Flavius Genialis

¹⁹ I must emphasise just how rough this frequency is: I searched for ‘uu and not iuu’ in the ‘no solutions’ search (10/12/2020), which avoids abbreviated forms, but includes <uo> for <uu> (hence I derive the frequency of <uo> by dividing 68 by 979 rather than by 1,049); although ruling out *iuu* removed the majority of examples which contained <uu> representing /uw/ in forms like *iuuentus*, the output of the search still includes other cases of /uw/ like the names *Pacuius*, *Cluius* etc. This means that the number 979 will be too high. On the other hand, there are a large number of inscriptions in the database which are undated, which the search will not have included; an unknown number of these would turn out to be dated between AD 150 and 400 under further investigation. By comparison, I gathered the 68 inscriptions with <uo> through a search for all instances of ‘uo’ (19/03/2019), which I subsequently dated manually. So there are unlikely to be more than 68 with <uo>, but there are likely to be more with <uu> than I have found.

²⁰ The principle is the same as that proposed by Ittzés (2015: 333–6), who has examined third and second century BC inscriptions which show old and new spellings for original word-final /s/ > /us/ and /sm/ > /um/. He observes that while many of them have <us> and <om>, only two have the opposite distribution <um> and <os>. He concludes that this suggests that /s/ became /u/ in final syllables later before /m/ than before /s/, and that this is reflected in the widespread usage of <us>, which had had longer to establish itself as part of the spelling tradition than <um>. However, unlike in the case being discussed by Ittzés, there is also some inscriptional evidence from the first century BC which seems to directly demonstrate a diachronic distinction.

²¹ As expected, /uw/ is also spelt <uu> in *Luguualio* (Tab. Vindol. 250), *Cluijo* (281), and *adiuu* (160), for which the editors suggest *adiuu[andum]* or *ad iuu[encos]*. It is difficult to think of a plausible word which would involve <uu> for /wu/ here.

Old-fashioned Spellings

Table 11 <uo> and <uu> spellings at Vindolanda

/wu/	Tablet (Tab. Vindol.)	/uu/	Tablet (Tab. Vindol.)
uolnerati ‘wounded’	154	Ingenuus	187
saluom ‘in good health’	225	tuu[‘your’	270
siluolas ‘thickets’	256	t]uom ‘your’	291
nouom ‘new’	261	tuom ‘your’	292
uolt ‘wants’	720	Ingenuus	631
		Ingenuus	735

of unknown status, but who is probably not the prefect Flavius Genialis. In 261, another letter to Cerialis, presumably from someone of similar rank, it appears in the formula *annum nouom faustum felicem* ‘a fortunate and happy New Year’. In 720 too little remains to say anything about the contents.

Although this distribution might imply that use of <uo> is associated with high-status individuals, it also appears in 154, which is an interim strength report, unlikely to have entered the official archives of the unit. Although it does not contain a large amount of text, its spelling is standard except for the contraction of original /ii:/ sequences in *is* (six times beside *eis* twice) and *Coris* ‘at Coria’. Of the tablets using <uu> for /uu/, 187 is an account, whose spelling is, as far as one can tell, standard. 270 is a letter to Cerialis, likewise. 291 and 292 are letters from Severa to Lepidina; the main hands of each are described by the editors as ‘elegant’ and ‘rather elegant’ respectively, and use standard spelling. 631 is a letter to Cerialis from an Ingenuus, who addresses Cerialis as *domine* ‘my lord’; very little remains, although an *apex* is used in the greeting formula, which may imply that it was written by a scribe (see pp. 226–32). 735 is fragmentary, but also includes the word *dixsūt*. It looks as though use of <uo> is associated with use of etymological <ss> and of <xs>, and both <uo> and <uu> with standard spelling; most of our examples come from texts associated with high-status individuals,

<uo> and <uu> for /wu/ and /uu/, and <quo> and <quu> for /k^wu/

but their appearance in a strength report and an account suggest that this is a coincidence, and the absence of <uu> for /wu/ or <uo> for /uu/ suggests that <uo> is the normal way of spelling /wu/ and <uu> /uu/ at Vindolanda.

The same distinction is found in one of the Claudius Tiberianus letters (P. Mich. VIII 467/CEL 141), where <uo> is used for /wu/ in *saluom*, *nojuom*, *fugitiuom* and <uu> is used for /uu/ in *tuum* (twice). A confused version of the rule also seems to appear in *bolt* (469/144) for *uult* ‘wants’ (<o> after /w/ according to the rule, but /w/ spelt with), while <uu> is also used by the same writer in *tuum* (468/142), but there is no example of /wu/ or /k^wu/. All of these letters feature substandard spelling to varying degrees (Halla-aho 2003: 247–50), but they also feature (other) old-fashioned spellings (<k> before /a/ in 467/141; <q> before /u/ inconsistently in 468/142; <q> before /u/ inconsistently, <ei> for /i:/ once in 469/144). Also from a military context, but significantly later, the Bu Njem ostraca show one example of *seruu* (O. BuNjem 71.5) for *seruus* or *seruum* and one example of *tuum* (I 14.5)

In the tablets of Caecilius Jucundus all 5 instances of /wu/ are spelt with <uo> (see Table 12);²² all in the word *seruos* and by five different writers, one a scribe. All 8 instances except 1 of /uu/ are spelt with <uu>; 2 instances are written by a scribe, and the remaining 6 are by Privatus, slave of the colony of Pompeii, who uses <uo> once in *duumuiris*, which he otherwise 4 times spells *duumuiris*.

In the tablets of the Sulpicii, /wu/ is commonly spelt <uu>: there are 5 instances (TPSulp. 26, 46, 51, 56, twice) in the word *seruus*, and 1 in *seruum* (TPSulp. 51), all written by scribes, between AD 37 and 52. There is 1 example with <uo>, also written by a scribe, at the early end of the date range of the tablets: *fugit[i]uom* (TPSulp. 43, AD 38). There are 4 examples of /uu/ in the lexeme *duumuir* (TPSulp. 23, scribe; 25, twice, scribe; 110, non-scribe). The tablets from Herculaneum have a single example of *[ser]uus* (TH² A10).

In the curse tablets, there are only two instances of <uo> for /wu/, but *Primitiuos* (11.1.1/18, second–third century AD,

²² *Volci* and *Volcius* (CIL 4.4.3340.25) are probably a special case, since names often preserved old spellings (and perhaps pronunciation).

Table 12 <u> and <uu> in the *Caecilius Jucundus* tablets

<u>	Tablet	Date	Writer	<uu>	Tablet	Date	Writer
seruo[s]	CIL 4.3340.6	AD 54	Salvius the slave	duumuiris	CIL 4.3340.142	AD 58	Privatus, slave of the colonia
seruos	CIL 4.3340.20	AD 56	Vestalis, slave of Popidia	duumuiris	CIL 4.3340.145	AD 58	Privatus, slave of the colonia
seruo[s]	CIL 4.3340.138	AD 53	Secundus, slave of the colonia	duumuiris	CIL 4.3340.145	AD 58	Scribe
seruos	CIL 4.3340.142	AD 58	Privatus, slave of the colonia	duumuiris	CIL 4.3340.146	AD 58	Scribe
duo- muiris	CIL 4.3340.144	AD 60	Privatus, slave of the colonia	duumuiris	CIL 4.3340.147	AD 59	Privatus, slave of the colonia
seruos	CIL 4.3340.146	AD 58	Scribe	duumuiris	CIL 4.3340.150	AD 58	Privatus, slave of the colonia
				merca[t]uus	CIL 4.3340.151	AD 62	Privatus, slave of the colonia

<uo> and <uu> for /wu/ and /uu/, and <quo> and <quu> for /k^wu/

Carthage) is not a certain example, because the writer of the curse also writes *Romanous* for *Rōmānus*, suggesting some confusion as to the vowel in the final syllables of these names (and perhaps Greek influence). The remaining form *uoltis* (I.I.I/I, second century AD, Arretium) also features another old-fashioned spelling, *uostrum* for *uestrum* (unless this is analogical on *uōs* and *noster*, see p. 106), and shows substandard spelling in *interemates* for *interimātis* and *interficiates* for *interficiātis*, as well as *nimfas* for *nymphās* ‘nymphs’. There are 34 instances of <uu> (from the first century BC to third or fourth century AD, from Rome, Hispania, Britannia and Africa).

There are 6 instances of <uo> for /uu/ beside 18 of <uu> (from the first or second century AD to the fourth century AD; two in Germania, one in Italy and the rest in Britannia), but 4 of the examples of <uo> for /uu/ are dated to the first century BC, when the change was only just taking place (I.4.4/3, I.7.2/I). The remaining text has 2 examples of *suom* (I.4.4/I, first–second centuries AD). It also contains old-fashioned <ei> for [i:] in *eimferis* for *inferīs*. All we can really deduce from the evidence of the curse tablets is that use of <uo> was uncommon in texts of this type, but could be found as late as the second century AD in texts which showed other old-fashioned spellings and, in one case, substandard orthography.

In the corpus of letters, <uo> for /wu/ and <uu> for /uu/ is found in CEL 10 (the letter of Suneros, Augustan period), which contains *uolt* and *deuom* beside *tuum*. This distinction can hardly be considered old-fashioned at this time; the spelling as a whole might be considered conservative, as well as including substandard features (see pp. 10–11). Another letter from the last quarter of the first century BC contains *sa]luom* (CEL 9). By comparison, CEL 167, a papyrus of c. AD 150 from Egypt, contains *djuus* and *annuum* (as well as *Juum*, which could represent /wu/, /k^wu/, or /uu/), and CEL 242, an official letter on papyrus from Egypt of AD 505, has *octauum* and *Iduum*. In addition, *uult* (CEL 75) is found in a letter of Rustius Barbarus, *tuum* (CEL I.I.18) perhaps third or fourth century AD, *suum* (CEL 226) in a papyrus from Egypt, AD 341, and *ambiguum* (CEL 240), a papyrus from Ravenna of AD 445–446. This confirms that at least in the Augustan period there

Old-fashioned Spellings

were writers who used <uo> for /wu/, and, in one case, distinguished it from <uu> for /uu/. However, it seems that from the first century AD, <uu> was used also for /wu/.

In the London tablets, there is only a single example of /k^wu/, spelt *Jequus* (WT 41). In the Isola Sacra inscriptions, there is only a single example of /uu/, spelt *suum* (Isola Sacra 285). There is also only 1 instance from Dura Europos (*e]quum*, P. Dura 66PP/CEL 191.42, AD 216).

Double Letters to Write Long Vowels

In the second half of the second century BC, the Romans adopted the practice of writing long vowels with double letters from the Oscan alphabet (Oliver 1966: 151–5; Vine 1993: 267–86; Wallace 2011: 18; Weiss 2020: 32). However, it did not remain a standard part of Latin orthography past the end of the Republic. According to Oliver, Wallace and Weiss, the double spelling of long vowels can be found as late as the early fourth century AD. Oliver points out *uii* (CIL 3.4121) = *uī* ‘by force’ from AD 312–323,¹ *exercituus* (CIL 6.230) for *exercitūs* ‘of the army’, from AD 222–235, and *aara* (Lemerle 1937 no. 12) for *ārās*,² fourth century according to Oliver, third century according to Lemerle.

It is difficult to find really plausible examples for the first to fourth centuries AD, partly because the possibility of false positives when searching the EDCS is very high, and partly because it is hard to be sure that a particular instance is not a mistake in the writing. Searches for <aa>, <ee>, <oo> and <uu> provide a small number of at all plausible examples:³ *Spees* (CIL 4.5127, prior to AD 79), *[I]uunia* (CIL 4.8029, prior to AD 79), *lacuus* (CIL

¹ Although Wallace expresses doubt about this example; it is true that the following word, *ignis* also begins with <i>, so dittography resulting in a sequence III rather than II, is possible (there is no division between these words in the inscription). Leumann (1977: 13) identifies an example in ‘later’ (später) [i.e. than the Republic] *Ursioon(is)* (CIL 3.12009).

² Oliver also wrongly attributes *aaram* to this inscription; in fact *aram* is read.

³ In EDCS I searched for ‘aa’ and ‘oo’ in the ‘wrong spelling’ search, with the date range set to 01–400 (in the case of ‘o’ I also used ‘and not’ ‘coop’), and then manually checked the results (20/01/2021). Since searching for the strings ‘ee’, ‘uu’ and ‘ii’ on the EDCS produces far too many results (mostly false positives) to check, in LLDB I searched for ‘i: > II’, ‘e: > EE’, ‘u: > VV’, with a date range of 1–400, counting ‘a hit even if the date is of a narrower interval than the interval given (even only a year)’ and ‘a hit even if the date is of a wider interval than the interval given (in either directions or in both)’ on 24/08/2021. I also searched for ‘i: > II’, which produced 90 results. However, many of these are actually cases of <ii> for /ji/, and some of the others could be instances of old-fashioned <e> with the shape II for /i:/. Since dittography is particularly likely across a line boundary, I disregarded examples where the sequence crossed a line.

Old-fashioned Spellings

12.2606, 2607, first century AD), *domuus* (CIL 9.4794; first century AD, Dessau 1892–1916, 7332), *Iuulius* (AE 1976.700, AD 201), *porticiuus* (ILA 531, AD 298), *Ianuariaas* (CIL 11.4033, AD 345, but note a mistake in *palcis* for *pacis*), *Erclaaniius* (ICUR 10.26742 = EDB18026, AD 301–349), *uoot(a)* (AE 1977.540), *feceerunt* (AE 1972.709), *dieebus* (CIL 14.1212), *duouiratuus* (CIL 3.9768).

The writers on language who mention this feature at all consider it old-fashioned. Quintilian mentions it in passing:

at, quae ut uocales iunguntur, aut unam longam faciunt, ut ueteres scripserunt, qui geminatione earum uelut apice utebantur . . .

When letters which are vowels are joined together, they either make one long vowel, as the ancients wrote, who used this gemination as though it were an apex . . . (Quintilian, *Institutio oratoria* 1.4.10)

usque ad Accium et ultra porrectas syllabas geminis, ut dixi, uocalibus scripserunt.

Down to the time of Accius and beyond they [i.e. ‘the ancients’] wrote long syllables with double vowels, as I have mentioned. (Quintilian, *Institutio oratoria* 1.7.14)

Unsurprisingly, therefore, use of double letters to write long vowels in the corpora is extremely rare, if not non-existent. The curse tablets provide two possible examples: *uoos* for *uōs* ‘you’ (Kropp 11.1.1/26) from Carthage, dated to the second century AD, and *ceernis* (Kropp 6.1/1) for *cernis*, from Noricum, mid-second century AD. In neither case can a mere dittography be ruled out. In the case of 6.1/1, additional letters are also written in *siuem* for *sīue* (due to anticipation of the following word *Iouem?*), *oporno/tet* for *oportet* and *quom/modi* for *quōmodo* (dittography across a line divide). It seems unlikely that *ceernis* is an intentional use of double letters. In 11.1.1/26 *uos* is written thus several more times, and no other long vowel is written with double vowels. We also find in this tablet the old-fashioned spelling *iodicauerunt* for *iūdicāuērunt* (see p. 74). The spelling on this tablet is substandard, but mostly reflects the spoken language. However, there is an unmotivated geminate spelling in *coggens* for *cōgēns* ‘forcing’, and a scrambled spelling in

Double Letters to Write Long Vowels

Atsurio for *Asturiō*. I do not think we can be sure that *uoos* reflects an old-fashioned spelling rather than an accidental dittography.

In addition, we find an instance of *quur* (Tab. Vindol. 652) for *cūr* at Vindolanda between AD 104 and 120. However, while a possible analysis here is that <q> represents /k/ before /u/ and that <uu> represents /u:/, it is more likely that this is a quasi-etymological spelling whereby /qu/ represents **k^w* (cf. the spellings *quom* and *quum* for *cum*; pp. 165–8). In the Vindonissa tablets, we have the dative *Secundi{i}na<e>* (T. Vindon. 41). Again, dittography seems more likely than intentional double writing of the vowel.

CHAPTER 10

<c> for /g/

The writers on language were aware that <c> had previously been used for /g/ (e.g. Terentianus Maurus 210–211, 894–901 = GL 6.331.210–211, .351.894–.352.891). Instances of <c> for <g> are occasionally found in my corpora, but it is hard to take them seriously as examples of old-fashioned spelling.¹ In the curse tablets there are scores, if not hundreds, of instances of <g> in the corpus as a whole, and in most cases the few apparent cases of <c> are probably to be put down to the difficulty of distinguishing <c> from <g>, either in the writing or reading of small letters on a thin piece of soft metal which is generally then subject to folding and unfolding, abrasion, water and other types of damage etc. – cf. Väänänen's (1966: 53) comment that instances of <c> for <g> at Pompeii are 'simple writing errors' ('simples erreurs d'écriture'). For similar reasons, the few instances of <c> for <g> in the graffiti from the Palatine are not to be taken seriously.

Most of the curse tablets have only one or two apparent examples of <c> for <g>. Kropp 1.4.3/2 has *colico* for *colligō* beside two other cases of <g>, 1.10.2/1 has *[r]oco* for *rogō* beside *rogo* twice. 3.2/25 has no other instances of <g> beside *sacellum* for *sagellum*, but is fairly short. 3.14/1 has *defico* for *defigō* and also a number of mechanical errors: *intermxixi/ta* for *intermixta*, *fata* for *facta* (if this is not due to assimilation), *sci* for *sīc*, *possitt* for *possit*, *amere* for *amārae*. 11.1.1/3, along with two examples of *Callicraphae* for *Calligraphae*, has seven other examples of <g>.

In the first to fourth century AD, only 1.4.1/1 (Minturnae, c. AD 50) gives the impression that <c> for <g> could be intentional.²

¹ Naturally I exclude instances of the standard abbreviations *C.* for *Gaius* and *Cn.* for *Gnaeus*.

² A couple of earlier tablets, from Nomentum in Latium, dated 100–50 BC, also have several examples of <c> for <g>: *licua* for *lingua*, *uesticia* for *uestigia*, *unci* for *unguēs* (Kropp 1.4.2/2), *dicitos* (twice) for *digitōs*, *uncis* (twice) for *unguēs*, *defico* for *defigō*

Table 13 <c> for <g> in the Isola Sacra inscriptions

Clauce	Isola Sacra 204	No date
Clauceni	Isola Sacra 205	No date
Clauce	Isola Sacra 205	No date
sarco f̄acu	Isola Sacra 237	No date
cocnatu	Isola Sacra 321	Perhaps second century AD

it is used for all instances of /g/, in *acat* for *agat*, *ficura* for *figūram*, *dicitos* and *ticios* for *digitōs*, and *cenua* for *genua*. However, it also has *hbetes* for *habētis*, *tadro* for *tradō*, *uitu* for *uultum*, *fulmones* for *pulmōnes*, *dabescete* for *tabēscetem*, and *ticios* for *digitōs*. In particular, the use of <f> for <p>, <d> for <t>, and <t> for <d> suggests that the writer, as well as being prone to errors such as omitting or transposing letters, had particular problems in identifying stops correctly. Something weird is going on, but use of <c> for <g> cannot be attributed certainly to the type of education the writer received, rather than linguistic problems (or, conceivably, a form of ‘magical’ writing).

Visible in a small number of the Isola Sacra inscriptions is a curious tendency for /g/ to be represented by <c> when there is another <c> in the word (see Table 13). Whatever the explanation for this, it seems unlikely that it has anything to do with old-fashioned spelling.

Apart from in these corpora, the only other example of <c> for <g> is *qJquadrincento* (CEL 157, AD 167, Egypt) for *quadringenti*, where the editor is probably correct to suspect influence from *centum* ‘one hundred’ (the letter contains another 5 examples of <g>).

(1.4.2/3). In 1.4.2/2 the only instance of <g> is *dfigere* (which is however read as *deicere* by EDR071811), and there is no <g> in 1.4.2/3. However, 1.4.2/2 also twice has *ilatus* for *flātus*, as well as *exae* for *extae*, and *oclus* for *oculōs*, so <c> for <g> (albeit three times) as a mistake is not entirely out of the question. 1.4.2/3 has no particular evidence for errors other than spellings which reflect developments in the spoken language (other than *capilo* for *capillum*, since *o* for *u* is unexpected at this date).

<ii> for /jj/

Single **i* between vowels was lost very early in Latin (possibly at the Proto-Italic stage). Consequently, the sound represented by consonantal <i> between vowels was actually geminate /jj/ from various sources (Weiss 2020: 67–8). I have not been able to find any epigraphical examples of <ii> prior to the first century BC, and Weiss' (2020: 68 fn. 64) statement that '[g]eminate spelling . . . is frequently encountered on inscriptions' seems exaggerated. A search for 'cuius', one of his two examples, on the whole of the EDCS, finds 13 examples, as opposed to 793 for 'cuius'. The other is *maiorem* (CIL 2.1964.3.10): a search for 'maior' finds 12 examples, including derived names, beside 948 for 'maior'.¹

The same infrequency applies specifically to the dated inscriptions from the first to fourth centuries AD. I searched for selected forms either mentioned by the grammarians or which appear in the corpora: there are 7 instances of *Maiia* to 336 of *Maia* (encompassing the month, divine name, and personal names), 2 of *huiius* to 192 of *huius*, 6 of *Pompeiius* and *Pompeianus* to 914 of *Pompeius* and *Pompeianus*.²

The writers on language often discuss use of <ii>; from Velius Longus, and especially Terentianus Maurus, there are some hints that it might still be in use in the second century AD, but implying that the single spelling is standard. Others do not give the impression that it is much in use in their own time:

sciat etiam Ciceroni placuisse “aiio” “Maiiam”que geminata i scribere . . .

¹ 'Original texts' searches (27/04/2021).

² 'Original texts' searches, with a date range set to '1 to 400'. Strings searched for were: 'maia', 'maia'; 'huiius', 'huius', 'pompeiiu' (3), 'pompeio' (0), 'pompeia' (3), 'pompeiu' (309), 'pompeio' (179), 'pompeia' (426). I avoided 'pompe(ii)' due to confusion with the city. Too many false positives appeared, primarily names, for a search for 'eiius' and 'eius' to be useful (27/04/2021).

<ii> for /jj/

He should know that even Cicero thought it good to write *aiio* and *Maiia* with geminated *i* . . .³ (Quintilian, *Institutio oratoria* 1.4.11)

et in plerisque Cicero uidetur auditu emensus scriptionem, qui et ‘Aiiace<m>’ et ‘Maiiam’ per duo ‘i[i]’ scribenda existimauit . . . unde illud <quod> pressius et plenius sonet per duo ‘i’ scribi oportere existimat, sic et ‘Troii <i> am’ et siqua talia sunt. inde crescit ista geminatio et incipit per tria ‘i’ scribi ‘coiicit’, ut prima syllaba sit ‘coi’, sequentes duae ‘ii’ ‘cit’ . . . at qui ‘Troiam’ et ‘Maiam’ per unum ‘i’ scribunt, negant onerandam pluribus litteris scriptionem, cum sonus ipse sufficiat.

And in many instances Cicero seems to have corrected spelling to match sound; he thought that *Aiax* and *Maia* should be written *Aiaax* and *Maiia*, with two *is* . . . Hence he thinks that this more sustained and fuller sound ought to be written with two *is*, as in *Troiia*, and words of this sort. From this idea arises the gemination, and *coiicit* begins to be spelt with three ‘i’s, as though consisting of a first syllable ‘coi’, followed by the double ‘ii’ and then ‘cit’ . . . But those who write *Troia* and *Maia* with a single ‘i’ say that writing ought not to be weighed down by too many letters, the sound itself being sufficient. (Velius Longus, *De orthographia* 5.1 = GL 7.54.16–55.4)

‘i’ geminum scribere nos iubent magistri . . .

Teachers order us to write *i* double . . . (Terentianus Maurus, *De litteris* 175 = GL 6.330.175)

uel gemella si locanda est, ut uidetur pluribus . . .

Or if a double spelling is to be used here, as many think . . . (Terentianus Maurus, *De litteris* 623 = GL 6.343.623)

sic enim scribi per geminam litteram metri ratione desiderat, si quidem potestatem tuetur duplicis consonantis.

It (i.e. *i*) ought to be written with the letter doubled for metrical reasons, if one had an eye on its ability to act as a double consonant. (Diomedes, *Ars grammatica*, GL 1.428.10–19)

sibi autem ipsa subiungitur in his, ut ‘aiio, Troiia, G<r>aiius, Aiaax’.

It [i.e. *i*] is joined to itself in these words, as in *aiio*, *Troiia*, *Graiius*, *Aiaax*. (Marius Victorinus, *Ars grammatica* 4.102 = GL 6.24.21–22)

aut in *i* litteram solam loco consonantis positam, quam nonnulli geminant, ut *aiio* te *Aeacida*, *Romanus uincere posse* . . .

³ The fifth–sixth century AD grammarian Priscian claims that Caesar also prescribed the double <ii> spelling (*Institutiones grammaticae*, GL 2.14.13).

Old-fashioned Spellings

But with regard to the letter *i* placed in a consonantal position, which some people double, as in *aiō te Aeacida, Romanus uincere posse . . .* (Donatus, *Ars grammatica maior* 1.3, p. 606.4–6 = GL 4.368.27–369.2)

Use of <ii> to represent intervocalic /jj/ is very uncommon in the corpora; for example in the Caecilius Jucundus tablets, in which the genre and location of the texts mean that *eius*, *Pompeius*, *Pompeianus*, and the month *Maia* appear frequently, there are 31 instances of <i> and none of <ii>, and in the Isola Sacra inscriptions, 29 instances of <i> in the words *cuius*, *eius*, *huius*, and in the names *Cocceius*, *Manteiane*, *Maiorice*, *Septeius* and *Tonneius*, but none of <ii>. Generally, therefore, I did not count instances of <i>. Where <ii> is used, this may be one of the times when an old-fashioned spelling corresponds to a spelling produced by a writer with lower education, since words like *eius* really did contain a double /jj/, which might be spelt <ii> simply by a writer who closely produced what they pronounced.

The Vindolanda tablets have a single example of <ii> in *Cocejiō* (Tab. Vindol. 645). Either old-fashioned or substandard spelling is possible: the writer uses old-fashioned <ss> in *fussá*, but also has substandard features in *Vindolande* for *Vindolandae* ‘at Vindolanda’ and *resscribere* for *rescribere* ‘to write back’. He writes the name *Maior* without <ii>. There are 4 instances in the curse tablets, across 3 different texts. *Pompeius* appears in the undated Kropp 1.3.1/1 from Maruvium, *eius* in Kropp 3.11/1, fourth century AD, from Britain, and *huius* and *eius* in Kropp 11.2.1/36 from Africa, perhaps the third century AD.

The brief text of Kropp 1.3.1/1 shows no other substandard or old-fashioned features. In the case of Kropp 3.11/1 a substandard spelling seems most likely: there are a number of others in the text, most notably, since they suggest particular attention to representing glides, *puer* for *puer* [puwer] and *puella* for *puella* [puwella]: this is not part of the old-fashioned spelling tradition. There are also straightforward mistakes such as omitted and transposed letters. So I do not think that *eius* here should be taken as an old-fashioned spelling. The same could be true for 11.2.1/36, although the writer here produces several spellings which presumably do not reflect his or her speech (initial <h> in *hac*, *hora*, *hoc* despite hypercorrect *haera*; final <m> in *omn]ium*, *omnium* twice,

<ii> for /jj/

caelum, terram, Veram, de]tinentem, sempiternum, amorem, neminem, alium, quem, consummatum despite *immobile* for *immōbilem*; double <ll> in *nulli* despite *coliga* for *colligā*), so the likelihood of its being old-fashioned is higher; no other old-fashioned spellings are found, however.

<k> before /a(:)/ and <q> before /u(:)/

The Latin alphabet inherited from its Etruscan model a superfluity of signs to represent the phoneme /k/: <c>, <k> and <q>. It also inherited, to some extent, the convention in early Etruscan inscriptions whereby <k> was used in front of <a>, <q> before <u>, and <c> before <e> and <i>, although consistent usage of this pattern is found rarely even in the oldest Latin inscriptions (Hartmann 2005: 424–5; Wallace 2011: 11; Sarullo 2021). Over time, <c> was preferred for /k/ in all positions, while the digraph <qu> was used to represent the phoneme /k^w/. Nonetheless, both <k> before <a> and <q> before <u> (with the value /k/) lived on as optional spellings into the imperial period.

Since the writers on language often mentioned <k> and <q> together, I compile here their comments for both usages (organised in rough chronological order). Especially as regards the use of <k> there is considerable variation between the authors, and the discussion continued past the fourth century AD. Consequently, I have included some writers from later than the fourth century, without carrying out a complete survey. I will refer back to these in the separate discussions of <k> and <q> below.

q littera tunc recte ponitur, cum illi statim u littera et alia quaelibet una pluresque uocales coniunctae fuerint, ita ut una syllaba fiat: cetera per c scribuntur.

The letter *q*, then, is rightly used when a *u* follows it directly and then one or more vowels are joined to it, such as to make a single syllable: other contexts require use of *c*. (Cornutus in Cassiodorus, *De orthographia*, 1.23–4 = GL 7.149.1–3)

alia sunt quae per duo *u* scribuntur, quibus numerus quoque syllabarum crescit. similis enim uocalis uocali adiuncta non solum non cohaeret, sed etiam syllabam auget, ut ‘uacuuus’, ‘ingenuus’, ‘occiduuus’, ‘exiguus’. eadem diuisio uocalium in uerbis quoque est, <ut> ‘metuunt’, ‘statuunt’, ‘tribuunt’, ‘acuunt’. ergo hic quoque *c* littera non *q* apponenda est.

<k> before /a(:)/ and <q> before /u(:)/

There are other words which are written with double *u*, whose number of syllables increases. Because a vowel attached to another same vowel not only does not form a single syllable, it even increases the number of syllables, as in *uacuuus*, *ingenuus*, *occiduuus*, *exiguus*. The same division of vowels also takes place in verbs, as in *metuuunt*, *statuuunt*, *tribuunt*, and *acuunt*. Therefore here too one should use the letter *c* not *q*. (Cornutus, in Cassiodorus, *De orthographia* 1.45–8 = GL 7.150.5–9)

an rursus aliae redundant, praeter illam adspirationis, quae si necessaria est, etiam contrariam sibi poscit, et k, quae et ipsa quorundam nominum nota est, et q, cuius similis effectu specieque, nisi quod paulum a nostris obliquatur, coppa apud Graecos nunc tantum in numero manet, et nostrarum ultima, qua tam carere potuimus quam psi non quaerimus?

Or again, do we not wonder whether some letters are redundant; aside from the letter of aspiration [i.e. *h*] – if this is necessary, there ought also to be one expressing lack of aspiration – also *k*, which by itself is an abbreviation of certain nouns, and *q*, which is similar in effect and appearance – apart from the fact that we have twisted it somewhat – to the Greek *qoppa*, which is only used as a number, and the last of our letters [i.e. *x*], which we could do without just as well as *psi*. (Quintilian, *Institutio oratoria* 1.4.9)

nam k quidem in nullis uerbis utendum puto nisi, quae significat etiam, ut sola ponatur. hoc eo non omisi, quod quidam eam, quotiens a sequatur, necessariam credunt, cum sit c littera, quae ad omnis uocalis uim suam perferat.

I think that *k* ought not be used in any words, except those for which it can also stand as an abbreviation on its own. I do not exempt from this rule use of *k* whenever *a* follows, which some people think is necessary, because the letter *c* can express its own sound regardless of what vowel follows. (Quintilian *Institutio oratoria* 1.7.10)

hinc supersunt ex mutis ‘k’ [et c] et ‘q’, de quibus quaeritur an scribentibus sint necessariae. et qui ‘k’ expellunt, notam dicunt esse magis quam litteram, qua significamus ‘kalumniam’, ‘kaput’, ‘kalendas’: hac eadem nomen ‘Kaeso’ notatur. . . . at qui illam esse litteram defendunt, necessariam putant iis nominibus quae cum ‘a’ sonante ha[n]c littera[m] inchoant. unde etiam religiosi quidam epistulis subscribunt ‘karissime’ per ‘k’ et ‘a’.

Of the stops, *k* and *q* remain, about which people wonder whether they are necessary for writers. Those who remove *k* say that is more a sort of symbol than a letter, which we use to represent *kalumnia*, *kaput*, *kalendae*: it is also used for the name *Kaeso* . . . But those who defend *k* being a letter think it necessary in words which begin with this letter pronounced along with *a*. As result, certain punctilious writers even write *karissime* in the greetings in their letters with *k* and *a*. (Velius Longus, *De orthographia* 4.5.1–2 = GL 7.53.5–14)

Old-fashioned Spellings

'locutionem' quoque Antonius Rufus per 'q' dicit esse scribendam, quod sit ab eo esse 'loqui'; item 'periculum' et 'ferculum'. quae nomina contenta esse 'c' littera existimo . . .

Antonius Rufus says that *locutio* ought to be written with 'q', because it comes from *loqui*; likewise *periculum* and *ferculum*. I think the words are content to be written with 'c' . . . (Velius Longus, *De orthographia* 13.10 = GL 7.79.13–15)

'k' quidam superuacua esse litteram iudicauerunt, quoniam uice illius fungi satis 'c' posset, sed retenta est, ut quidam putant, quoniam notas quasdam significant, ut *Kaesonem* et *kaput* et *kalumniam* et *kalendas*. hac tamen antiqui in conexione syllabarum ibi tantum utebantur ubi 'a' littera subiugenda erat, quoniam multis uocalibus instantibus quotiens id uerbum scribendum erat, in quo retinere hae litterae nomen suum possent, singulae pro syllaba scribebantur, tanquam satis eam ipso nomine explerent . . . ita et quotiens 'canus' et 'carus' scribendum erat, quia singulis litteris primae syllabae notabantur, 'k' prima ponebatur, quae suo nomine 'a' continebat, quia si 'c' posuissent 'cenus' et 'cerus' futurum erat, non 'canus' et 'carus'.

Certain people judge *k* to be redundant, since *c* can discharge its duty well enough, but it is retained, others think, since it acts as a symbol for certain words, such as *Kaeso* and *kaput* and *kalumnia* and *kalendae*. When forming syllables, however, the ancients only used it when the letter *a* was added to it, since whenever a word containing many vowels had to be written, in which these letters could, as it were, represent their own name, these letters on their own were used to express an entire syllable, as though they fulfilled its sound enough by their name . . . Thus, too, whenever *canus* and *carus* were to be written, because they wrote the first syllable with a single letter, they used to put *k* at the beginning, which contained *a* in its name, because if they had put *c* there the words would have been *cenus* and *cerus* rather than *canus* and *carus*. (Terentius Scaurus, *de Orthographia* 4.9.1–5 = GL 7.14.12–15.7)

'k' perspicuum est littera quod uacare possit, et 'q' similis. namque eadem uis in utraque est, quia qui locus est primitus unde exoritur 'c', quascumque deinceps libeat iugare uoces, mutare necesse est sonitum quidem supremum, refert nihil, 'k' prior an 'q' siet an 'c'.

Clearly *k* is a letter which could be considered useless, and likewise *q*. They both have the same value, because, regardless of whatever vowel follows them, the place where they begin their pronunciation is also where *c* is made; it is only this following vowel which makes them sound different, and it makes no difference whether one writes *k*, *q* or *c* before it.¹ (Terentianus Maurus, *De litteris* 204–209 = GL 6.331.204–209)

'k', similiter otiosa ceteris sermonibus, tunc in usu est, cum 'kalendas' adnotamus <aut> 'kaput', saepe 'Kaesones' notabant hac uetusti littera.

¹ On this difficult passage, see the notes *ad loc.* in Cignolo (2002). I take this passage to imply that Maurus knew of the convention whereby <k> was followed by <a> and <q> by <u>.

<k> before /a(:)/ and <q> before /u(:)/

K, which is likewise unnecessary in other words, is, however, used when we write *kalendae* or *kaput*; old writers spelt *Kaesones* with this letter. (Terentianus Maurus 797–9 = GL 6.349.797–9)

ex his superuacuae quibusdam uidentur k et q; qui nesciunt, quotiens a sequitur, k litteram praeponendam esse, non c; quotiens u sequitur, per q, non per c scribendum.

Of these [stops] some people think that *k* and *q* are redundant; they do not know that whenever *a* follows, *k* ought to be put before it, not *c*, and whenever *u* follows, *q* should be written, not *c*. (Donatus, *Ars maior* 1.2, p. 604.16–605.2 = GL 4.368.7–9)

k autem dicitur monophonos, quia nulli uocali iungitur nisi soli A breui, et hoc ita ut ab ea pars orationis incipiat; aliter autem non recte scribitur.

But *k* is called *monophonos*, because it cannot be used before any vowel other than short *a*, and even then only at the start of a word; otherwise it is wrong to use it. (Marius Victorinus, *Ars grammatica* 3.23 = GL 6.7.7–9)

attamen ‘locutus, secutus’ per c, quamuis quidam praecipiant ad originem debere referri, quia est ‘locutus’ a loquendo, ‘secutus’ a sequendo, <et ideo> per Q potius quam per c haec scribenda. nam ‘concussus’ quamuis a ‘quatio’ habeat originem et ‘cocus’ a coquendo et ‘cotidie’ a quotu die et ‘incola’ ab inquilino, attamen per c quam per Q scribuntur.

But *locutus* and *secutus* ought to be spelt with *c*, even though some people teach that they should be spelt with *q* rather than with *c*, with an eye to their origin, because *locutus* comes from *loqui*, and *secutus* from *sequi*. This is because, although *concussus* comes from *quatio*, and *cocus* from *coquere* and *cotidie* from *quotus dies* and *incola* from *inquilinus*, nonetheless these words are all written with *c* rather than *q*. (Marius Victorinus, *Ars grammatica* 4.36 = GL 6.13.18–23)

praeponitur autem k quotiens a sequitur, ut kalendae Karthago.

But *k* is used whenever *a* follows, as in *kalendae* or *Karthago*. (Charisius, *Ars grammatica* 1, p. 5, 26–7 = GL 4.8.17–18)

k littera notae tantum causa ponitur, cum kalendas solas aut Kaesonem aut kaput aut kalumniam aut Karthaginem scribimus.

The letter *k* is only used as an abbreviation, when it only represents *kalendae* or *Kaeso* or *kaput* or *kalumnia* or *Karthago*. (Charisius, *Ars grammatica* 1, p. 7, 17–19 = GL 4.10.12–14)²

² The inconsistency in what Charisius says here is presumably due to the combination of different sources. On Charisius’ method in creating his *Ars*, see Zetzel (2018: 187–90).

Old-fashioned Spellings

superuacuae uidentur k et q, quod c littera harum locum possit implere; sed inuenimus in Kalendis et in quibusdam similibus nominibus, quod k necessario scribitur.

k and *q* seem to be superfluous, because the letter *c* can be used in their place. But we find, in *kalendae* and certain similar words, that it is necessary to write *k*. (Diomedes, *Ars grammatica*, GL 1.423.11–13)

k littera notae tantum causa ponitur, cum calumniam aut clades aut Caesonem quaqua aut caput significat. *k* consonans muta superuacua, qua utimur, quando a correpta sequitur, ut *Kalendae kaput kalumniae*.

The letter *k* is only used as a symbol when it represents *calumnia*, or *clades*, or *Caeso* (always), or *caput*. *K* the plosive consonant is completely redundant, which we use when a short *a* follows, as in *kalendae*, *kaput*, *kalumnia*. (Diomedes, *Ars grammatica* 2, GL 1.424.27–30)

k littera consonans muta notae tantum causa ponitur, cum aut *kalendas* sola significat, aut *Kaesonem*, aut *kaput* aut *kalumniam* aut *Karthaginem*.

The letter *k* is a plosive consonant which is only used as an abbreviation, when on its own it represents *kalendae* or *Kaeso* or *kaput* or *kalumnia* or *Karthago*. (Dositheus, *Ars grammatica* 10 = GL 7.385.8–10)

nunc et in his mutis superuacuae quibusdam k et q litterae positae esse uidentur, quod dicant c litteram earundem locum posse complere, ut puta Carthago pro Karthago. nunc hoc uitium etsi ferendum puto, attamen pro quam quis est qui sustineat cuam? et ideo non recte hae litterae quibusdam superuacuae constitutae esse uidentur.

Now, among these stops *k* and *q* are included, although to some they seem to be superfluous, because they say that the letter *c* could take their place: think of *Carthago* for *Karthago*. Now, I think that this fault – even if it is one – should be put up with, because who could bear *cuam* instead of *quam*? So these letters seem to me to have been wrongly characterised as superfluous by those people. (Ps-Probus, *Instituta artium*, GL 4.50.10–15)

k non scribitur nisi ante a litteram puram in principio nominum vel cuiuslibet partis orationis, cum sequentis syllabae consonans principium sit, sicut docui in libro primo.

K is not used except before *a* on its own, at the start of nouns or any part of speech, when the following syllable starts with a consonant, as I have taught in my first book. (Ps-Probus, *De catholicis*, GL 4.10.23–25)

<k> before /a(:)/ and <q> before /u(:)/

k littera non scribitur, nisi a littera in principiis nominum uel uerborum consequentis syllabae et consonans principium sit, sicut in institutis artium, hoc est in libro primo, monstraui, Kamenae kaleo.

The letter *k* is not used, unless with the letter *a* at the start of nouns or verbs, and a consonant begins the following syllable, just as I demonstrated in the *Instituta artium*, my first book: *Kamenae, kaleo*. (Ps-Probos, *De catholicis*, GL 4.39.1–4)

k uero et q aliter nos utimur, aliter usi sunt maiores nostri. namque illi, quotienscumque a sequebatur, k praeponerant in omni parte orationis, ut kaput et similia; nos uero *non* usurpamus k litteram nisi in Kalendarum nomine scribendo. itemque illi q praeponerant, quotiens u sequebatur, ut qum; nos uero non possumus q praeponere, nisi et u sequatur et post ipsam alia uocalis, ut quoniam.

We use *k* and *q* differently from our ancestors. They, whenever *a* followed, put *k* before it in every part of speech, as in *kaput* and similar words; but we do not employ the letter *k* except when we write *kalendae*. Likewise, they used to put *q* before a following *u*, as in *qum*; but we cannot use *q* except when *u* follows and is itself followed by another vowel, as in *quoniam*. (Servius, *Commentarius in Artem Donati*, GL 4 422.35–423.4)

k et *q*: apud ueteres haec erat orthographia, ut, quotiens a sequeretur, k esset praeposita, ut kaput Kalendae; quotiens u, q. sed usus noster mutauit praecceptum, et earum uicem c littera implet.

K and *q*: the ancients used to include this in their spelling practice, so that whenever *a* followed, *k* was placed before it, as in *kaput*, *kalendae*, and whenever *u* followed, *q* was used. But our usage changed the rule, and the letter *c* took their place. (Cledonius, *Ars grammatica*, GL 5.28.7–9)

quae ex his superuacuae uidentur? k et q. quare superuacuae? quia c littera harum locum possit explere. uerum has quoque necessarias orthographiae ratio efficit. nam quotiens a sequitur, per k scribendum est, ut kanna, kalendae, kaput; quotiens u, per q, ut quoniam Quirites; quotiens reliquae uocales, per c, ut certus, ciuis, commodus.

Which of these [stops] seem redundant? *K* and *q*. Why redundant? Because the letter *c* can take their place. But orthographic logic makes these also necessary. Because whenever *a* follows, the stop should be written with *k*, as in *kanna*, *kalendae*, *kaput*; whenever *u* follows, it should be written with *q*, as in *quoniam*, *Quirites*; whenever the remaining vowels, with *c*, as in *certus*, *ciuis*, *commodus*. (Maximus Victorinus, *Ars grammatica*, GL 6.195.19–23–196.1)

Old-fashioned Spellings

<k> before /a(:)/

Modern scholars usually say that in the imperial period, *K.* was the standard abbreviation for the praenomen *Caeso* (*C.* being used for *Gaius*), and the usual spelling of *kalendae* was with a <k>.³ It is often noted that *Carthago*, *Carthaginiensis* was frequently spelt with a <k>,⁴ which could also act as an abbreviation for this and for other words. Other words are occasionally mentioned in which <k> is used before /a/.⁵

The writers on language have an unusually broad and complex range of views about use of <k> (for the relevant passages, see pp. 138–43). Until the fourth century it seems likely that its use, at least in some contexts, was not uniformly seen as old-fashioned. Quintilian, the only one who says that he believes <k> should not be used (except in words for which it can stand alone as an abbreviation), accepts that others maintain that it should be used whenever <a> follows, as does Velius Longus (who, however, suggests its use is pedantic). Most of the writers say it should be used, either whenever followed by <a> (Donatus, Charisius, Maximus Victorinus), short /a/ (Diomedes),⁶ short /a/ at the start of a word (Marius Victorinus) or short <a> at the start of a word when the following syllable begins with a single consonant (Ps-Probus). Terentianus Maurus only gives the examples of *kalendae* and *kaput*, along with *Kaesōnēs* in older writers. Even in those authors who do not restrict its use to the beginning of a word, this may be implicit, since all the examples are in fact at the start of a word.

Terentius Scaurus is the only writer prior to the fifth century not to mention use of <k> in full words: he states that some deny it altogether, and that there are others who approve it only as an

³ The OLD (1088) considers *kalendae* and its derivative *kalendarium* ‘account book’ the only words in which the <k> spelling is the standard; it mentions that <k> ‘as an abbreviation stands for *Kaeso*, *kalendae*, *calumnia*, *caput*, *carus*, etc.’.

⁴ 44 inscriptions vs 49 with <c>, in the first–fourth century AD.

⁵ ‘K . . . was still retained as abbreviation for the proper name *Kaeso*, and in a few words before the vowel *a*, e.g. *Kalendae*, a common spelling on inscriptions . . . , *interkalaris*, *kaput*, *kalumnia*’ (Lindsay 1894: 6); ‘[t]here are sporadic incidences of K before A even into the imperial period’ (Weiss 2020: 29 fn. 30).

⁶ Elsewhere, less precisely, ‘in *kalendae* and in certain similar nouns’ (in *Kalendis et in quibusdam similibus nominibus*).

<k> before /a(:)/ and <q> before /u(:)/

abbreviation. Servius and Cledonius say that, while earlier writers used it whenever an <a> followed, now (in the fifth century) it is used only in *kalendae*. Use of <k> as an abbreviation is identified as representing *Caesō*, *caput* and *calumnia* (Charisius, Diomedes, Dositheus, Velius Longus, Terentius Scaurus), *kalendae* (Charisius, Dositheus, Velius Longus, Terentius Scaurus), *Carthāgō* (Charisius and Dositheus), and *clādēs* (Diomedes).

How does the information in the writers on language fit with the epigraphic record? First it is worth mentioning that <k> is also used to represent /k/ in proper nouns in two contexts which are not relevant to the present discussion; in both cases use of <k> is not restricted to position before /a(:)/. The first group is Greek names, or Roman names which, however, appear in a highly ‘Greek’ context, such as bilingual inscriptions or inscriptions which contain other Greek names, for example:

- Britanniae / Sanctae / p(osuit) Nikomedes / Augg(ustorum) nn(ostrorum) / libertus (CIL 7.232, York)
- Quintio Kṛassi / Frugi sumptuarius / Κοιντιων Κρασσου / Φρουγι σουμπτου/αριος (CIL 3.12285, Athens)
- D(is) M(anibus) / L(ucio) Plautio Heli/o filio qui ui/xit annis duob/us mensibus / X diebus XII Iso/krates et Markel/la filio pientissi/mo fecerunt (CIL 6.24272, Rome).

The second group is non-Roman and non-Greek names, in which use of <k> may represent some sound different from the Latin /k/ written with <c>, or is felt to be appropriate to mark out ‘foreign’ names, for example:

- Bodukus f(ecit) (AE 2002.885, Edgbaston)
- D(is) M(anibus) / Galulircli / et omnes / an<t>ecessi / Duetil Tiblik / Eppimus Soris / omn(i)bus co(m)p(ot)oribus / bene (CIL 13.645, Bordeaux).

Outside these proper nouns, use of <k> overwhelmingly occurs before /a(:)/,⁷ and as a single letter stands as an abbreviation of a number of words (sometimes before other vowels). A large

⁷ Greek influence probably lies behind *koiugi* (Diehl 1925–31, no. 3366) in a bilingual inscription, in which, moreover, both the preceding and following words also begin with <k>: *Kallimachus koiugi karissimae*. The EDCS gives *fek(it)* in CIL 8.9927, AE 1982.988 (= EDCS-25601107; Mauretania Caesariensis), as does the EDH (HD000879), but it is unclear on what basis; both CIL and AE have *fe(c)it*.

number of personal names that contain /ka(:)/ are found spelt with <k>,⁸ as well as the place name *Carthāgō*. Otherwise, the use of <k> appears to be lexically determined, with frequency varying significantly across lexemes, as can be seen in Table 14. The table contains all examples of words in which the <k> spellings appear at a rate greater than 1% in inscriptions dated from the first to fourth centuries AD which I found in the EDCS (except for *kalendae*, where <k> is standard, and words only found abbreviated as *k.*). I have not removed proper names where these seem originally to have been the same lexeme.⁹

⁸ Note that in the Gallus papyrus, from c. 50 to 20 BC (Anderson et al. 1979), the name *Kato* is spelt with <k>, but <c> is used in *Caesar* and *ç[ar]mina*.

⁹ These figures are indicative only. Unfortunately, at the time when most searches were carried out the EDCS seemed to be particularly confused by whether spellings with <k> were ‘wrong’ or not, with the result that <k> spellings were sometimes to be found in the full search under a spelling with <c>, sometimes not; sometimes only in the full search, sometimes only in the ‘wrong spelling’ search, and sometimes both. In the latter case, all the inscriptions with <k> may appear within both the full search and the ‘wrong spelling’ search, or the ‘wrong spelling’ search may include some of those also in the full search, but also contain some not in that search. I have tried to use and compare all possible searches to get the most accurate count of forms with <k>, but some will probably have been missed. The strings I used in my searches are given below; unless specified, searches carried out on the full database gave the best results. Where a string is followed by an asterisk, the results were too many for me to check, so the numbers will tend to be too high, since they include restorations of lost parts of inscriptions and possibly other words which include that string. The date range was set as (AD) ‘1’–‘400’. ‘kariss’*, ‘cariss’*, ‘arka’, ‘arcan’; ‘karitas’ (0 inscriptions), ‘karitat’ (2 inscriptions), ‘caritas’ (4 inscriptions), ‘caritat’ (18 inscriptions); ‘kastr’ (41 inscriptions; ‘wrong spelling’, 8 which are not included in the full search), ‘castr’*; ‘kastren’ (15 inscriptions; ‘wrong spelling’ 1 which was not in full search), ‘castren’ (90 inscriptions, and 1 containing ‘kastren’ not included in full search or ‘wrong spelling’ search); ‘castrum’ (2 inscriptions), ‘castro’ ‘and not’ ‘castrorum’ (1 inscription) ‘castra’ (41 inscriptions, and 3 containing ‘kastra’ not included in full search or ‘wrong spelling’ search), ‘kastrorum’ (17, ‘wrong spelling’ 3 inscriptions not included in full search), ‘castrorum’* (368, and 8 containing ‘kastrorum’ not included in full search or ‘wrong spelling’ search), ‘kastris’ (9), ‘castris’ (73, and 3 containing ‘kastris’ not included in full search); ‘kastell’, ‘castell’*; ‘kandidat’ (41 inscriptions; ‘wrong spelling’, 2 which are not included in the full search); ‘kandidat’* (181 inscriptions including 41 ‘kandidat’); ‘arkari’ (‘wrong spelling’ 3 inscriptions), ‘arcari’ (27 inscriptions, of which 13 were *arkarius* not included in the ‘wrong spelling’ search); ‘kanab’, ‘canab’; ‘vikari’, ‘vicari’* (‘and not’ ‘vicaria’); ‘dedik’, ‘dedic’; ‘evocat’* (211 inscriptions, of which 51 were *evokatus*. ‘evokat’ in ‘wrong spelling’ only produced 8 of these inscriptions, and none in the full search); ‘kaput’ (12 inscriptions), ‘kapitis’ (1 inscription), ‘kapite’ (7 inscriptions), ‘kapita’ (‘and not’ ‘kapitalis’, 1 inscription), ‘caput’ (33 inscriptions), ‘capitis’ (2 inscriptions), ‘capite’ (‘and not’ ‘capitell’, 31 inscriptions), ‘capita’ (‘and not’ ‘capital’, 15 inscriptions), ‘capitum’ (1 inscription), ‘capitibus’ (1 inscription); ‘capital’ (36 inscriptions, of which 10 were *kapitalis*. ‘kapital’ in ‘wrong spelling’ only produced 6 of these inscriptions, and none in the full search); ‘kasa’ (full search), ‘casa’ (full search); ‘kalator’ (18), ‘calator’ (12); ‘karcer’ (‘wrong spelling’, 1), ‘carcer’ (17, and 4 inscriptions containing ‘karcer’).

The most frequent word with <k> is *kalator*, which makes up 60% of all instances of this lexeme in inscriptions dated to the first–fourth centuries AD in the EDCS. By far the greatest number of tokens of a word spelt with <k> are found for *carissimus* ‘dearest’, and it also has a high frequency relative to spellings with <c>: a search for *karissimus* on the EDCS finds 1258 inscriptions containing this spelling beside 1916 with *carissimus* in the first to fourth century AD, a frequency of 40%. The adjective from which it is derived, *carus* ‘dear’, is also common (though far less so than *carissimus*), especially as a name, and shows a somewhat lower frequency of <k> spellings, at 27%.¹⁰ However, the derived noun *karitas* is found only in 2 inscriptions, with *caritas* and *Caritas* in 22 in the same period (8%), while the extremely numerous *causa* is, as far as I can tell, never spelt *kausa* after the start of the first century AD,¹¹ for many words, there are no spellings with <k> at all.

The relatively high numbers and frequency of <k> in these lexemes compare with the more haphazard occasional uses of <k> in other words. The forms *dedicauit*, *dedicauerunt*, *dedicatus* appear in 1246 inscriptions compared to 6 for *dedikauit*, *dedikauerunt*, *dedikatus* (0.5%); there are single examples of *kalumnia*,¹² *kapsarius*,¹³ *kasus*,¹⁴ *kanalicularius* ‘a clerk in the Roman army’¹⁵ and *katolika* (ILCV 1259, probably under the influence of Greek orthography).

These searches were carried out between 26/01/2021 and 02/02/2021. In addition, I carried out the following searches on 24/03/2022, using the (much improved) ‘search in original texts’ function, with a date range of (AD) ‘1’–‘400’: ‘karus’ (36 inscriptions), ‘karum’ (0 inscriptions), ‘kari’ (15 inscriptions), ‘karo’ (31 inscriptions), ‘karos’ (1 inscription), ‘karorum’ (0 inscriptions), ‘karis’ (0 inscriptions), ‘carus’ (76 inscriptions), ‘carum’ (11 inscriptions), ‘cari’ (20 inscriptions), ‘caro’* (114 inscriptions), ‘caros’ (0 inscriptions), ‘carorum’ (0 inscriptions), ‘caris’ (5 inscriptions).

¹⁰ It should be noted that /ka:ros/ was also a Celtic word (Delamarre 2003: 106–7), so that the spelling of the name *Karus* may also reflect use of <k> in a ‘foreign’ word, since quite a number of instances come from Celtic-speaking areas or belong to people whose names look like they contain other Celtic elements.

¹¹ And rarely even then: I find only *k(au)sa* (CIL 1².592; 42–41 BC (*recte* for AD; EDR130948), *kaus(a)* (CIL 10.960; 10–3 BC, EDR149425), *kafussa* (CIL 10.1469; 20 BC–AD 20, EDR147145).

¹² *kalumniam* (AE 2001.1757), but alongside only one example of *ca/[lum]niae* (?) (Beltrán Lloris 2006).

¹³ *kabsa(rii)* (Wagner 1956–7 no. 125.10.a), if correctly expanded.

¹⁴ *kasibus* (CIL 6.1245, Rome, AD 212–213).

¹⁵ *kanal(iculario)* (CIL 6.1110); there are 5 cases of *canalicularius* across all inscriptions (full search, ‘canalic’).

Old-fashioned Spellings

Table 14 *Inscriptional spellings with <k> and <c>*

<k> spelling	Number of inscriptions (first–fourth centuries AD)	<c> spelling	Number of inscriptions (first–fourth centuries AD)	Rate of <k> spellings (nearest integer)
kalator	18	calator	12	60%
arkarius	16	arcarius	14	53%
karissimus	1258	carissimus	1916	40%
arkanus	4	arcanus, arcanum	7	36% ^a
kapitalis	10	capitalis	26	28%
karus	83	carus	226	27%
euokatus	51	euocatus	160	24%
kanaba, kanabensis	5	canaba, canabensis, canabarius	17	23%
kandidatus	43	candidatus	140	23%
karcer, ^b karcerarius	5	carcer, carcerarius	17	23%
kaput	21	caput	83	20%
kasa	2	casa	8	20%
kastellum, kastellanus	15	castellum, castellanus	66	19%
kastrensis	17	castrensis	90	19%
arka ^c	22	arca	158	12%
kastra	43	castra	484	9%
karitas	2	caritas	22	8%
uikarius	6	uicarius	152	4%

^a There appears to be a distinction in usage between *arkanus*, which appears only as a cult title of Jupiter and in the title *Augustalis arkanus*, while *arcanus* appears as a cognomen, an adjective or as the substantive *arcanum*.

^b Including one instance of *kark(eris)* (AE 1983.48).

^c The following strings produced some results (29/01/2021): ‘*arcae*’ (‘wrong spelling’, 9 inscriptions), ‘*arkarum*’ (‘wrong spelling’, 1 inscription), ‘*arcam*’ (68 inscriptions, and 1 containing ‘*arkam*’ not produced in the ‘wrong spelling’ search), ‘*arcae*’ (45 inscriptions, and 9 containing ‘*arcae*’ not produced in the ‘wrong spelling’ search), ‘*arcarum*’ (0 inscriptions, and 1 containing ‘*arkarum*’ not produced in the ‘wrong spelling’ search). I also searched for ‘*arca*’ (45) and ‘*arka*’ (1, after removing the example in IS 319) in ‘search original texts’ on 28/09/2022.

As an abbreviation, <k> can stand for *cardo* ‘baseline (in surveying)’, which never appears written in full and is found 11 times in inscriptions dated to the first to fourth century AD, and in fact 49 times across all inscriptions regardless of period.¹⁶ It also often stands for *castra* and *castrensis*, for *caput*, and for *casa* in 3 inscriptions (2 of which are undated in the EDCS). Twice in the same inscription we find *b. k.* for *bona caduca* (Ihm 1899: 141). The abbreviation *k. c.* for *cognita causa* appears in two inscriptions from Ostia (CIL 14.4499, 5000), and *k. k.* once (AE 2003.703c = 2016.468) for *citra cardinem*.¹⁷ These cases where it stands as an abbreviation of a word where /k/ is followed by a vowel other than /a(:)/ are surprising, but perhaps connected to the fact that in each case they form a syntagm of two consecutive words beginning with /k/. There is a single instance of *kos* for *consulibus* (CIL 6.2120). In CIL 5.1025, the abbreviation *k(oniugi)* is directly followed by *karissime*.

The use of <k> in inscriptions to some extent matches what the writers on language say, but shows somewhat different applications. As many state, it is uniformly found before /a(:)/ (except in abbreviations), but Diomedes, Marius Victorinus and Ps-Probus’ further restriction to short /a/ is not followed, since we find <k> before /a:/ in *arcānus*, *arcārius*, *cārissimus*, *cāritās*, *cārus*, *euocātus*, *uicārius*. The range of words written with <k> is greater than those given as examples by the writers, but they do not say that their examples are exhaustive (although the repetition of the same examples through the tradition might imply this); there are also examples of <k> in non-initial position, again unlike the examples, and against the explicit advice of Marius Victorinus and Ps-Probus. Likewise, <k> can stand as an abbreviation for *caput*, but also a wider range of words than implied by the writers, who do not mention <k> for *castra* and *cardo* despite their

¹⁶ ‘kardo’ (‘wrong spelling’, 16 inscriptions of which one is a presumably unrelated name; ‘1–400’, 3 inscriptions), ‘kardin’ (‘wrong spelling’ 34 inscriptions; ‘1–400’, 8 inscriptions), ‘cardo’ (0 inscriptions), ‘cardin’ (0 inscriptions) (27/01/2021).

¹⁷ In the collections of abbreviations in GL 4.282–346, *k.* (often in combination with other signs or letters) is found to stand for *kalendae*, *carus* and *carissimus*, *caput*, *casus*, *caducus*, *caritas*, *calumnia*, *cardo*, *Carthago*, *Caelius*, and *castra*. These lists were compiled after the period which this book considers, but using material which may stretch back earlier (Zetzel 2018: 249–51).

appearance in relatively large numbers (perhaps because the language of the army and of surveying fell outside the literary focus of the writers).

Since I have carried out searches for individual lexemes it is not possible to see to what extent spellings with <k> in the inscriptions reflect an orthographic practice of writing every word containing the sequence /ka(:)/ with <k>, rather than only writing particular words with <k>. However, the very fact that frequency of spelling with <k> is so variable across lexemes implies that many of those using <k> some of the time did not do so in every context, as some of the grammarians imply is (or should be) the case. In particular, the high frequency of <k> in the word *cārissimus* (very heavily concentrated in funerary inscriptions) suggests that it was not solely the ‘*religiosi*’ who were using it in this lexeme, as Velius Longus states (nor was it restricted to letters).

We can now move on to the evidence of the sub-elite corpora, beginning with the instances of <k> at Vindolanda (Table 15).¹⁸ The lexeme *karissimus*, *karissime* clearly predominates, mostly appearing in the closing greeting of letters, occasionally in the opening greeting (Tab. Vindol. 670, 893 add.), and once in the main text (331). The closing formula is often written in a second hand, presumably that of the author: these are 242 (probably the prefect Cerialis), 247, 285, 623 (Aelius Brocchus, an equestrian officer), 291, 292, 293 (Severa, wife of Aelius Brocchus), 611 (Haterius Nepos, an equestrian, probably a prefect), 613 (unknown), 869 (a Secundus), 875 (unknown). So, many of these instances of <k> are in parts of texts that are not written by scribes. There is no evidence as to whether the instances of *karissimus*, *-e* in closing greetings reflect scribal orthography or not in some letters. 341 and 531 preserve only the closing greeting; on 355 the editors comment ‘it is not clear whether the hand changes for the last two lines’. In 632 and 661 the same hand writes the final greeting and the rest of the letter. There are only two other instances of /ka(:)/ written by the same hands in these

¹⁸ There are also two instances of <k> where it is not possible to tell what word is written: Tab. Vindol. 825, Tab. Vindol. 839. I also omit *k[ari]ssime* (622, handwriting of Brocchus), since the editors are not sure the first letter is <k> rather than <c>. I have not included instances of *kalendae* here or in the other corpora.

<k> before /a(:)/ and <q> before /u(:)/

letters; 632 also includes the word *caballi*, while 670 has *Cataractoni*. In 613 the other hand writes *capitis*, and in 875 *Candiđi*, *Ça[*, *Carant[*.

In the main, the hands which use <k> in this lexeme otherwise use standard spelling (as far as we can tell, since often there is little

Table 15 <k> spellings in the Vindolanda tablets

Word containing <k>	Tablet (Tab. Vindol.)	Document type
kařiŝŝime	242	Letter (from Cerialis?)
karissime	247	Letter to Cerialis
Karuŝ	250	Letter to Cerialis
Karuŝ	251	Letter to Cerialis
karissime	285	Letter (to Cerialis?)
kařiŝŝime	288	Letter, perhaps to Cerialis
karissima	291	Letter to Lepidina
kařiŝŝima	292	Letter to Lepidina
kařiŝŝima	293	Letter from Severa (to Lepidina?)
karissim	331	Draft letter
karisime	341	Letter
karrum	343	Letter from Octavius
kaŝarro	343	Letter from Octavius
ka[ri]ŝŝime	355	Letter
kařiŝime	531	Letter
karra	583	Account
kanum	597	Account
kařiŝŝime	611	Letter
karissime	613	Letter
karisŝi[me]	623	Letter
kařiŝŝime	632	Letter
kařiŝŝ[i]ma	661	Letter
kaŝ[i]ŝŝime	696	Letter
karissimo	670 ^a	Letter
karissime	869	Letter from Secundus
kařiŝŝime	875	Letter
uikario	879	Letter
karisŝimø	893 add	Letter to Verecundus

^a 670 is probably from the late second century AD, significantly later than the other tablets.

other text), as we might expect since several are of equestrian rank. In 292 Severa writes *ma* for *mea* (which could be a reduced form of the possessive pronoun or dittography after *anima*; Adams 1995: 120). In 341 and 531 the geminate seems to be simplified in *karisime* for *karissime*, but there is not enough remaining text in either case to tell if this is a feature of these writers. In 661, we perhaps find a substandard spelling if *muđetur* is for *mundētur*, although the editors are uncertain of the reading.¹⁹

The remaining four letters have <k> in other contexts: in 250 and 251, *Karus* is the cognomen of the author, probably also a prefect; the letters are in different hands, and there is no reason to think either is his. There is no other instance of /ka(:)/. The spelling of 250 is standard except for *đebetorem* for *debitōrem* ‘debtor’; given the general infrequency of *i* and *e* confusion at Vindolanda, Adams (1995: 91) suggests the influence of *debet*, which seems possible.²⁰ 343 is the letter sent to Vindolanda from Octavius, who may have been a civilian, and whose spelling has both substandard and old-fashioned features. Apart from *karrum* and *karro* (and *K(alendas)*), /ka(:)/ is otherwise spelt <ca> in *Candido*, *explicabo*, *spīcas*, *circa*, *erubescam*, and *Cataractonio*. 879 has *uikario* in a highly broken context: the spelling is otherwise standard, but there is little text, and no other instances of /ka(:)/. In the accounts 583 and 597 there are no other instances of /ka(:)/ (except for *K(alendis)* in the former). 597 shows a substandard spelling in the form of *lamñis* for *laminīs* ‘sheets’ and *peştlus* and *peştl[us]* for *pessulus* ‘bolt’ (Adams 2003: 539–41).

The pattern of <k> use at Vindolanda appears pretty much as we might expect on the basis of the inscriptional evidence. Although strictly speaking we usually do not have evidence that writers who spell *cārus*, *cārissimus* with a <k> do not use <k> consistently before /a(:)/, the match with the inscriptional evidence (and that of Velius Longus) suggests that this spelling is probably specific to this lexeme (there are only 2 examples spelt with <c>, at 255 and

¹⁹ Whether the in the second syllable of *dupundī* for *dupondī* was substandard is unclear. It is clearly secondary, since the /o/ is etymological, but both spellings seem to be common in manuscripts, and there is little epigraphical evidence (TLL, s.v. *dupondius*).

²⁰ Although the analogy would surely be on the verb root *debē-* plus suffix *-tor* rather than a false analysis as *debet* plus *-or*, as Adams imagines.

<k> before /a(:)/ and <q> before /u(:)/

306). We also find *uicārius* attested with <k> in the inscriptions (although not very frequently); there are no other examples at Vindolanda. The 3 instances across 2 tablets of *karrum* ‘wagon’ compare to 4 across 3 tablets of *carrum* (488, 642, 649), 4 across 3 tablets of *carrulum* (315, 316, 643), 1 of *carrārius* (309) and 1 of *çarr*[(721)]. There are no other instances of *canis*. Apart from in *cārus*, *cārissimus*, then, <k> is rare in the tablets: I count 139 instances of <ca>, of which 90 are word-initial, across a great range of lexemes, including *castra* (3 instances, tablets 300, 668) and *castrēnsis* (337), *castellus* (178), *caput* (613), *casula* (643), and personal names such as *Candidus*, *Cassius* and *Caecilius*.

As we will see in the case of <xs>, use of <k> does not provide as much evidence for a specific old-fashioned orthographic tradition among the scribes of Vindolanda as might be thought at first sight. In *cārus*, *cārissimus*, use of <k> is clearly standard in the greeting formulas of letters among writers of equestrian rank, including Severa, whose education was presumably not carried out in the army, as it is among scribes, if the letters all in one hand were written by them. Octavius, whose letter is apparently in his own hand, who is particularly fond of old-fashioned features, and who may or may not have received an army education, uses 2 out of 5 of the remaining instances of <k>. It is also conceivable that the use of <k> particularly in *carrum* may reflect this word’s Celtic origins, since <k> was in general associated with foreign words: the writers at Vindolanda were clearly in contact with Celtic speakers, so may have recognised it as a borrowing.²¹

The other, much smaller, military corpora, show a different picture. There are 20 instances of <ca> at Vindonissa, including 2 examples of *carus* (both T. Vindon. 45) and *castra* (4, 40), and none of <ka>. At Bu Njem, there are 24 of <ca>, including once *castrī[s]* (O. BuNjem 29), of which 5 are the lexemes *camellus* ‘camel’, *camellārius* ‘camel driver’ (3, 5, 10, 42, 78); all 6 examples of <k> are *kamellus* (8, 9) and *kamellarius* (7, 8, 76, 77). The preponderance of <k> in these words is probably because of their Greek origin. At Dura Europos, again, <k> is almost entirely lacking. Against 69 instances of <ca>, we find once

²¹ I owe this observation to Katherine McDonald (p.c.).

Kastello (P. Dura 94, c. AD 240) as part of a place name (otherwise spelt with <c> several times) in a summary of dispositions of soldiers and once *Jkas(tra?)* (P. Dura 66SS/CEL 191.45, AD 216) in a letter. Both of these are lexemes which we saw occasionally receive the <k> spelling in the epigraphy more generally. Several letters in a military or official context from Egypt also use <k> in spelling *kastra* (CEL 207, AD 200–250), *kastresia*, *kastrense* (CEL 205, AD 220) or as an abbreviation for *castrī* (CEL 231, AD 395; 232, AD 396; 233, AD 401).²² This may be a military convention which developed after the time of the Vindolanda tablets. In addition there is 1 instance of *kapitum* (CEL 234, 399).

The letters also match those of Vindolanda in showing use of <k> in *cārissimus*, which is used by writers of low and high educational level. 3 of the 4 instances of *karissimus* come from initial or final greetings formulas as at Vindolanda. 2 occur in the letters of Rustius Barbarus (*k[a]riṣṣime* CEL 74, *karisimo* CEL 77), which is interesting since he otherwise appears not to know any old-fashioned spellings and his orthography is highly substandard (pp. 35–6). The remaining 2 examples, both also from Egypt, are *karissime* (CEL 140, AD 103, copy of an official letter from the *praefectus Aegypti*), and *karissimūm* (CEL 177, AD 150–200, a military letter of commendation).

In the Claudius Tiberianus archive, only the scribe of one letter (P. Mich. VIII 467/CEL 141) uses <ka>, and does so inconsistently, with no particular rationale emerging: all 4 examples are word-initial, but the same is true of 1 out of 3 of the instances of <ca>; 2 instances consist of *karus* (in the main text) and *karissimus* (in the initial greeting formula), as we might expect, and <k> in *Kalab[el]* might be particularly likely in a foreign place name, but

²² CEL 207 is a letter from a military inferior to a superior, with standard spelling. The other texts are (copies of) official letters emanating from the imperial or military bureaucracy, so presumably reflect the spelling of scribes at this level, or the spelling of the copyists. They are not all without substandard spellings: *[O]xorico* for *Oxyrynchiton*, *kastresia* for *castrēnsia* (205), *prepositis* for *praepositiūs*, *horiorum* for *horreōrum*, *debotis* for *deuōtiūs*, *quatuor* for *quattuor*, *preuere* for *praebēre*, *statiḃis* for *statiūūs* (233). In letters 231, 232 and 233, <k> appears only as an abbreviation in the phrase *praefectus k(astrī)*; the writers use <ca> in *catafractariorum* (231), *Arcadii* (231), *castrī* (232), *significarunt* (232), *catafr(actarius)* (232), *catafrac(tarii)* (233).

<k> before /a(:)/ and <q> before /u(:)/

kasus is not commonly spelt with <k> in the inscriptions. This writer is characterised by another old-fashioned spelling in the form of <uo> for /wu/, and substandard spellings (see p. 263).

Table 16 shows the cases of <k> in the Isola Sacra inscriptions, with <k> once again predominantly used with the lexeme *cārissimus*, although less frequently than at Vindolanda (where we find 22 cases with <k> and only 2 with <c>) or in the epigraphy in general (where 40% of tokens of *cārissimus* have <k>). There are 5 instances of <k> in this word against 15 of <c>. Unlike at Vindolanda, the cognomen *Cārus* appears with <c>: *Carae* (IS 296). Otherwise, <k> appears in personal names (*Kallotyceni*, *Kania*),²³ the former of these Greek; but these are very much the minority: there are several dozen other names beginning with <ca>. Note in particular *Callistianus* (IS 85), *Callityche* (IS 133), *Callisto* twice, *Callistion* (IS 241), *Callistf* (IS 282) and *Canniae* (IS 237). The single instance of <k> within the word is

Table 16 <k> in the Isola Sacra inscriptions

Kallotyceni	Isola Sacra 27	End of the third century AD; or perhaps end of the second
Kania	Isola Sacra 34	Second century AD; or third century AD
karissim(is)	Isola Sacra 69	Age of Trajan or Hadrian
karissimāe	Isola Sacra 79	Perhaps end of the second century AD; age of Trajan–Hadrian
karissimo	Isola Sacra 115	Age of Hadrian
kariss[i]mo	Isola Sacra 167	Age of Trajan–Hadrian; manumitted AD 96 at the latest
karissimae	Isola Sacra 174	Age of Hadrian
Karthago	Isola Sacra 223	Hadrianic–Antonine age; use of the agnomen suggests late Hadrianic or later
karina	Isola Sacra 223	Hadrianic–Antonine age; use of the agnomen suggests late Hadrianic or later
arka	Isola Sacra 319	End of the third century AD

²³ Although there are no other /ka(:)/ sequences in the text, so strictly speaking we cannot know that the composers of the texts only used <k> in personal names.

arka (IS 319), which has a <k> not infrequently in the epigraphy more generally. IS 223 has the only instance of a <k> spelling of *carīna* in all of Latin epigraphy (albeit compared to only three examples of *carina*), alongside the place name *Karthago* (but <c> is used in *Caelestino*). The use of <k> may be connected to the fact that the inscription includes a hexametric composition (and also includes the old-fashioned spelling *lubens*); its spelling is otherwise completely standard.

There is an interesting distinction between the use of <k> in *cārissimus* and in other words. As already mentioned, the context of 223 is poetic, while 27, 34 and 319 all show signs of substandard orthography: 27 has *Terentae* for *Terentiae*, *filis* for *filīus*, *qit* for *quid*, *aeo* for *eō* and *sibe* for *sibi*, as well as *sarcofago* rather than *sarcophagō*; 34 has *mesibus* for *mēnsibus*; and 319 has hypercorrect *Lucipher* for *Lūcifer*. Meanwhile, all the inscriptions with <k> in *cārissimus* have standard spelling. This pattern is not dissimilar from the situation at Vindolanda, where <k> is used in *cārissimus* by standard spellers, while in other words it is used by Octavius and the writer of Tab. Vindol. 597, whose spelling is substandard. This may imply that use of <k> before <a> is subject to some rather fine distinctions: in the word *karissimus* it is an acceptable and commonly used variant in standard orthography, but in other words it may have a poetic ring or be characteristic of substandard spellers.

The tablets from Pompeii and Herculaneum show complete avoidance of <k> before /a(:)/, except for in *kalendae*, and its derivative *kalendariō* (TH² A13) ‘estate’. In TH² there are some 55 instances of <ca>, including 3 instances of *Carum* (2 in TH² 85, 1 in TH² 85 bis) as a personal name. In the Jucundus tablets there are approaching 200 instances of <ca>, almost all in personal names, and no instances of <k> (there are no instances of *cārus* or *Cārus*). In the tablets of the Sulpicii there are also large numbers of <ca>, including a handful of *Cārus*, while the only case of <k> is in *K[innamo]* (TPSulp. 62), where the use of <k> is presumably triggered by the Greek name.

In the curse tablets, use of <k> before /a(:)/ is practically non-existent, compared to several hundred instances of <ca>. The only instance is *Karkidoni* (Kropp I I. I. 1/37), from Carthage, which is presumably a foreign name; Greek letters are also used at the start

<k> before /a(:)/ and <q> before /u(:)/

of the tablet. There are a handful of cases of <k> before another letter: Greek influence must also be responsible for the spellings *koue* for *quem* and *komendo* (11.2.1/32), also from Africa, and perhaps also for *Klaudia* (1.5.4/2, Pompeii), given that this woman's cognomen is *Elena*; the divine name *Niske* (3.11/1) from fourth century AD Britain is presumably a case of <k> being used for a foreign name, although no similar explanation arises for *Markellinum* (3.2/45, Aquae Sulis, second or third century AD).

The graffiti from the Paedagogium contain 4 instances of <k>, 2 in the Greek word *Nikainsis* (297), *Nikaensis* (332), and 2 in *Kartha(giniensis)* (322), *Kart(haginiensis)* (323); all perhaps from the reign of Septimius Severus. There are 10 other examples of <ca>. In the London tablets there are 16 instances of <ca>, including *Caro* as a personal name (WT 36) and *castello* (WT 39), and none of <ka>.

Use of <k> in the corpora depends very much on lexeme and genre. The word *carissimus*, which occurs frequently in fairly formulaic contexts in letters, is overwhelmingly spelt with <k>, in the letters at Vindolanda and elsewhere, in texts which show standard and substandard spelling, and which are written both by scribes and non-scribes, including those of relatively high and low social rank. The same lexeme is also spelt frequently with <k> in the Isola Sacra funeral inscriptions.

At Vindolanda, it is possible that *carrum* 'wagon' may also have become associated with a spelling <k>, although this may have been a peculiarity of individual writers rather than part of the scribal tradition in the army; as also perhaps in the very occasional other instances of use of <k>. The use of <k> in the word *castra*, and in particular as an abbreviation, seems to have been a feature of official/military spelling in Egypt and Dura Europos in the third–fifth centuries AD.

There is very little evidence for a general rule that <k> should be used before all instances of /a(:)/, although perhaps the writer of one of the letters of Claudius Tiberianus had learnt such a rule (4 out of 5 instances of word-initial /ka(:)/ are spelt with <k>). Interestingly, although there is a small number of personal names being spelt with <k>, it is not clear that it is their status as personal names that triggers the <k>: in the two instances of *Karus*

at Vindolanda, the cognomen is also a lexeme which anyway tends to be spelt with <k>, and in the examples in the Isola Sacra inscriptions there are no other instances of /ka(:)/. Outside the lexeme *carus*, use of <k> may have a remarkable twofold correlation: on the one hand with substandard spelling, and on the other hand with other old-fashioned spellings.

<q> before /u(:)/

Wallace (2011: 27 fn. 29) notes that <q> before /u(:)/ ‘is found with some frequency in late Republican Latin, particularly in the word for “money” [i.e. *pecūnia*], and that it is ‘also found sporadically in Imperial Latin texts’. On the whole, a more comprehensive investigation supports Wallace’s statements. Searches on the EDCS show that *pequnia* is found in 39 dated inscriptions up to the end of the first century BC, *pecunia* in 45, giving a frequency of 46%,²⁴ which is higher than most other lexical items containing this sequence:²⁵ *Merqurius*, *Mirqurius* is found in 4 inscriptions, *Mercurius*, *Mircurius*, *Mercurialis* in 18, giving a frequency of 18%; *sequndum*, *Sequndus* is found in 4 inscriptions, *secundus*, *secundum*, *Secundius* in 52, giving a frequency of 7%; *cura* and forms of *curare* are found in 71 inscriptions, where *qura* only appears once (1%), although the low number of instances of <q> is probably due to the existence of the alternative spelling *coera-*.

The numbers of inscriptions with <q> decline significantly in the period of the first to fourth centuries AD, but the relative preponderance of *pequnia* continues:²⁶ it is found in 20

²⁴ I searched for the following strings in the EDCS, with the date range set as up to ‘-1’ (18/01/2021): ‘pequnia’, ‘pecunia’ (84); ‘merqur’ and ‘mirqur’, ‘mercur’ and ‘mircur’; ‘seqund’, ‘secund’ (56); ‘qura’, ‘cura’. In each case first comes the string(s) used in the ‘wrong spelling’ search and second the in the ‘no solutions’ search; the two are separated by a comma. In addition, since the ‘no solutions’ search produced results that were included in the ‘wrong spelling’ search, I give the total number of inscriptions produced by the ‘no solutions’ search following the ‘no solutions’ string, except in the case where numbers were small enough for me to manually check the output. The ‘no solutions’ output will tend to be too high, since it includes restorations of lost parts of inscriptions, except where I checked the output.

²⁵ An even higher rate is achieved by *plaquit* beside *placuit* (2 inscriptions each, 18/01/2021), but the low number of tokens makes the comparison unreliable.

²⁶ I searched for the following strings in the EDCS, with the date range set as ‘1’–‘400’ (18/01/2021): ‘pequnia’, ‘pecunia’ (670); ‘qurav’, ‘curav’ (756); ‘sequ’, ‘secur’ (245);

<k> before /a(:)/ and <q> before /u(:)/

inscriptions dated from the first to the fourth centuries AD, while *pecunia* is in 650, to give a frequency of 3%. A search for *curauit*, *curauerunt* between the first and fourth centuries AD gave 750 inscriptions, while there were 6 with *quravit*, *quraverunt*, a frequency of 0.8%. Only 2 examples of *securitas* are found (both from fourth century AD inscriptions), while *securus*, *securitas*, *Securius* are found in 243 inscriptions, also a frequency of 0.8%. 2 inscriptions contain *Merqurius*, and 773 have *Mercurius*, a frequency of 0.3%.²⁷ There were 3 inscriptions containing *Sequndus*, *Sequndinus* (all names), and 3241 containing *secundus* (including as a name), *Secundius*, *Secundulus*, *Secundinus*, *secundum*, giving a rate of 0.09%. Not all words containing /ku/ have variants with <qu>. For example, there were 61 instances of *secum* between the first and fourth centuries, and none of *sequum*.

This data suggests that *pecūnia* is one of the most frequent words which appears spelt with <q>.²⁸ This is true both in the earlier period up to the end of the first century BC and in the period of the first to fourth century AD, even though the rate at which <q> was used for /k/ declined significantly in the first to fourth centuries AD compared to the earlier period.²⁹ In both periods, the rate at which <q> was used varies between lexemes.

The decline in the use of <q> before /u(:)/ that we see in inscriptions is reflected in the relative lack of attention to this

'merqur', 'mercur' (775); 'seqund', 'secund' (3244); 'sequum', 'secum' (61). In the last case I also used the 'and not' function with 'secund' to remove spellings of *secundus* etc. as *secumdu* etc. In each case first comes the string(s) used in the 'wrong spelling' search and second the string used in the 'no solutions' search; the two are separated by a comma. In addition, since the 'no solutions' search produced results that were included in the 'wrong spelling' search, I give the total number of inscriptions produced by the 'no solutions' search following the 'no solutions' string. The 'no solutions' output will tend to be too high, since it includes restorations of lost parts of inscriptions. The searches are slightly different from those for the period up to end of the first century BC due to the much greater number of inscriptions in the first to fourth centuries AD. On the one hand, more lexemes were available in which there was <q>/<c> variation (hence the inclusion of 'sequ', 'secur'). On the other, the number of 'false positives' caused by different words containing the string 'cura' was much greater (and could not be easily checked). Consequently, I searched only for the perfect of *curāre* instead of *cura*.

²⁷ There were no instances of *Mirqurius* or *Mircurius* in the first to fourth centuries AD.

²⁸ I would hazard a guess that this at least partly reflects the fact that this word is particularly common in legal texts, which tend to use conservative orthography.

²⁹ Although the number of lexemes in which it is attested may actually be greater due to the much greater number of inscriptions.

spelling provided by the writers on language (see pp. 138–43 for the relevant passages). Although it is often noted that <q> is only used before <u>, the examples given generally make it clear that the writer is thinking of the use of <qu> for /k^w/, rather than /ku(:)/ (e.g. Maximus Victorinus, *Ars grammatica*, GL 6.195.19–23–196.1; the same may be true of Donatus, *Ars grammatica maior* 1.2, p. 604.16–605.2). Already in the mid-first century AD, Cornutus' rule (at Cassiodorus, *De orthographia* 1.23–24) makes it clear that <q> is only to be used when it is followed by <u> and one or more vowels, i.e. when it represents /k^w/, and this is implied also by another passage (*De orthographia* 1.45–48); the same rule is stated by Curtius Valerianus (in Cassiodorus, *De orthographia* 3.1). Velius Longus (*De orthographia* 13.10), Marius Victorinus (*Ars grammatica* 4.36), and perhaps Terentianus Maurus (*De litteris* 204–209) are aware of <q> before /u/, and all deprecate it,³⁰ suggesting that it may have had some continued currency, but was presumably a minority usage. Servius (*Commentarius in Artem Donati*, GL 4 422.35–423.4) describes it as an old custom, no longer in use.

The use of <q> for /k/ before /u/ is found occasionally in the corpora, but is neither frequent nor widespread. There are no examples in the TPSulp. (dozens of cases, including 18 of *pecunia*) or TH² tablets (31 instances, including 4 of *pecunia*), nor in the graffiti from the Paedagogium (20 instances of <cu>), the Bu Njem ostraca (35 instances of <cu>), the tablets from Vindonissa (14 instances of <cu>), or the Isola Sacra inscriptions (71 instances of <cu>). Among dozens of instances of <cu> from Dura Europos, the only exception is in the name *Iaquubus* (P. Dura 100.xxvii.12, 101.i.f.3, 101.xxix.14, Dura 101.xxxv.15), where it presumably reflects an attempt to represent non-Latin phonology.

In the Jucundus tablets, the scribe of the earliest tablet twice writes *pequnia* (CIL 4.3340.1, AD 15); this text does not contain any other cases of /ku/. All subsequent scribes use <cu> in this lexeme (38 instances); in total there are more than 200 instances of <cu> used by both scribes and other writers. There is only one

³⁰ With an exception being made for *qum* for *cum* with a temporal sense, in the case of Marius Victorinus (4.31–32); see p. 167.

<k> before /a(:)/ and <q> before /u(:)/

other certain instance of <qu>: *Iuqundo* (45, undated but presumably in the 50s or 60s AD); there are no other cases of /ku/ in this part of the text, which was written by P. Alfenus Varus, the first centurion of the praetorian cohorts, and subsequently praetorian prefect under Vitellius. His spelling is substandard (problems with geminates: *Augussti* for *Augusti*, *acepisse* for *accepisse*, *Pollionnis* for *Pollionis*, *acctum* for *actum*; missing final /m/: *noue* for *nouem*; misplaced aspirate: *Nucherina* for *Nucerina*).³¹ Both Privatus, the slave of the colony of Pompeii, and the scribe on his tablets use <q> several times in *pasqua* for *pascua* ‘pastureland’ (145, 146, 147), beside 1 instance of *pascua[m]* (146). However, this spelling could reflect the reduction of /ku/ to /kw/ before a vowel, and this seems particularly likely since there are another 15 instances of <cu> in tablets 145–147, used by both Privatus and the scribe.

There are two doubtful examples in the Vindolanda tablets beside more than a hundred instances of <cu>: *quur* (Tab. Vindol. 652) for *cūr* ‘why’ could be analysed as having <q> for /k/ and <uu> for /u:/, but since the use of double letters for long vowels is not otherwise found at Vindolanda, and seems to be very uncommon by the end of the first century AD (see pp. 129–31), it is more likely that this is an etymological spelling with <qu> for /k/ < *k^w before a back vowel (see pp. 165–8). In *quequmque* (Tab. Vindol. 643) for *quaecumque* ‘whatever’ it seems not improbable that <q> before <u> is triggered by the <qu> in the preceding and following syllables (<c> is used elsewhere in this letter in *arculam*, *securem*).

Compared to the absence of <qu> for /ku/ at Vindolanda, it is striking that it was clearly part of the orthography of several of the (presumably) military scribes writing the Claudius Tiberianus letters (Table 17), although it appears to be used consistently only in P. Mich. VIII 471/CEL 146 (and perhaps 470/145); all of these letters except 472/147 show substandard spelling.

³¹ Adams (1999: 126), rather curiously, refers to ‘the general correctness of the spelling and syntax’. While it is true that, as he observes, the text is formulaic and could have been copied from a template, the substandard spellings occur even in the formulaic parts.

Old-fashioned Spellings

Table 17 <q> and <c> before <u> in the Claudius Tiberianus letters

<q> before <u>	Text	<c> before <u>	Text
sequrum	P. Mich. VIII 468/ CEL 142	cum	P. Mich. VIII 467/ CEL 141
qumqupibit	469/144	cum	467/141
sequndu	469/144	secundum	467/141
sequrus	470/145	cum	467/141
aequm ^a	471/146	cum	467/141
tequm	471/146	culcitam	468/142
qurauit	471/146	cū[lcit]as	469/144
pauqum	471/146	cumcupiſç[e]r[e]	469/144
mequm	472/147	acum[in]e	472/147

^a Presumably *aequm* for *aequum* represents spoken [aɛkum], with reduction of /k^v/ to [k] before a back vowel; although here the standard spelling may have influenced the use of <q>.

In the other texts from CEL, there are two instances of <q> before <u>: *jqus*, presumably for *-cus* (CEL 7),³² dated to a little before 25 BC, and *qum* for *cum* (CEL 10, the letter of Suneros, Augustan period); both also contain 2 instances of <cu>. CEL 7 contains some substandard features (*nuc* for *nunc* ‘now’, *çiçquam* for *quicquam*), as well as <u> for <i> in *optumos* for *optimōs* ‘best’ (although this is probably not old-fashioned at this time), while CEL 10 has spelling which is conservative to old-fashioned, as well as substandard features (see pp. 10–11). Otherwise only <cu> is found, in large numbers, in CEL.

The curse tablets also occasionally use <q>, across the first to third (or fourth or fifth) centuries AD (Table 18). Again, the middle <q> in *quicumque* (Kropp 11.2.1/3) may have been instigated by the <q> in the preceding and following syllables. In Kropp 2.1.3/3, *pequnia* and *pequniam* for *pecūnia* with <q> are found beside *qicumqui* for *quicumque*. The spelling is substandard: *Cr[y]se* for *Chrysē*, *uius* for *huius*, *onori* for *honōri*, *senus* for *sinus*, *o[c]elus* for *ocellus*; substandard spelling occurs also in

³² Although the editor also suggests a mistake for *quos*, as also in *quaqum* for *quaquam* elsewhere in this letter.

<k> before /a(:)/ and <q> before /u(:)/

Table 18 <q> before <u> in the curse tablets

<q> before <i>	Tablet	Date	Place
qumbere (?)	Kropp 1.4.4/14	End of the second century AD	Rome
procurator	Kropp 2.1.1/2	First century AD	Hispania Tarracensis
procurator	Kropp 2.1.1/3	First century AD	Hispania Tarracensis
pequnia	Kropp 2.1.3/3	First–second century AD	Hispania Tarracensis
pequniam	Kropp 2.1.3/3	First–second century AD	Hispania Tarracensis
ququma (or Ququma)	Kropp 4.1.3/9	Fourth–fifth century AD; or second half of the third century AD	Trier
loquto	Kropp 11.1.1/15	Second–third century AD	Carthage, Africa

Kropp 4.1.3/9 (*uinculares* for *uinculāris*) and in Kropp 11.1.1/15 (*demo[n–* for *daemōn*, *oc* for *hōc*, [*a*]c for *hāc*, *ora* for *hōra*). This small number of instances of <q> compares with more than 200 of <c> before <u> across the corpus

On the whole, those corpora which are more homogeneous, and produced in an environment which might favour uniformity of orthography, avoid <q> for /k/, in particular the scribes of the various Pompeian tablets, and texts from the army bases at Vindolanda, Vindonissa, Bu Njem, and Dura Europos as well as the Paedagogium. The single instance in the earliest Caecilius Jucundus tablet, and the Augustan dating of CEL 7 and 10, hint at a move away from its use in the first century AD (which we would expect on the basis of the inscriptional evidence). However, its use by P. Alfenus Varus in the Jucundus tablets, its appearance in a small number of the curse tablets, and in particular the quite remarkable cluster of instances in the Claudius Tiberianus letters, suggest that use of <q> maintained a somewhat underground

existence in certain educational traditions. Given the assumption that the Claudius Tiberianus letters were written by military scribes, the use of <q> in some of them is particularly surprising. But, as already noted, these texts are remarkably heterogeneous in other features of their spelling, which might support the idea that their scribes had been educated in a less consistent fashion than in the other army corpora; I am not sure whether this means we should rethink the assumption that this education took place in the army.

There is not really enough evidence to discuss the lexical distribution of <q>; out of 20 tokens including <q>, 3 are *pequnia*, which may reflect the preponderance of this lexeme in the inscriptional evidence identified at the start of this section. However, we do not know how the scribe of CIL 4.3340.1 would have written other examples of /ku/ so cannot be sure that *pecūnia* had any special orthographic status for him; in Kropp 2.1.3/3 *qicumqui* does compare with *pequnia*.

<qu> for /k/ before Back Vowels

Original $*k^w$ was lost before back vowels in Latin, as in $*sek^wondos > secundus$ ‘following, next’, $*k^wolō > colō$ ‘I cultivate’, in the second half of the third century BC (Meiser 1998: 92; Weiss 2020: 165).¹ The spelling with <qu> was maintained (or reintroduced) in some words (e.g. *equus* ‘horse’, *aequus* ‘equal’, on the basis of parts of the paradigm where /k^w/ occurred before a non-back vowel; *quottidiē* ‘every day’, which is attested later than *cottidiē*,² Ernout and Meillet 1985: 146), notably in *quom* for *cum* ‘when, since’ < $*k^wom$ (and by extension, also for *cum* ‘with’ < $*kom$). The spelling *quom* is found frequently in epigraphic texts of the first century BC and earlier, and there are still occasional examples in the first century AD and later.³ An ‘original texts’ search on EDCS for ‘cum’ (date range ‘1’ to ‘400’, 29/09/2022) finds 4,489 inscriptions containing *cum*. Such a small number of instances suggests that the spelling was old-fashioned by the first century AD, and this is likely to be all the more true for other spellings with <qu>.

¹ The earliest inscriptional evidence for this change appears to be hypercorrect *oquoltod* for *oculto* ‘hidden’ in the *SC de Bacchanalibus* (CIL 1².581, 186 BC). It took place after monophthongisation of /ei/ to /e:/ about the middle of the third century BC (see p. 40), on the basis of cases like *deus* ‘god’ < $*dēos < *dēyos < *deiyos$ (Weiss 2020: 110; assuming that $*u$ and the rounding of $*k^w$ were lost at the same time).

² The <qu> spelling is preferred by Cornutus (in Cassiodorus, *De orthographia* 1.29).

³ I have found the following dated instances for *quom* ‘when’: CIL 6.38824 (AD 1–50, EDR170711), CIL 3.8135 (first century AD, Cugusi and Splendorio Cugusi 2008 no. 1), CIL 11.6125 (AD 51–100, EDR107371), CIL 11.5325 (AD 201–300, EDR123338), also CIL 4.1846, 4.10024 (both before AD 79); *quom* ‘with’: AE 1926.23 (AD 40 or shortly after, AE 2010.1847), Paribeni (1923: 373) (AD 1–50, EDR000294), AE 2011.1182 (Augustan/first century AD); uncertain whether ‘when’ or ‘with’: CIL 4.5269 (before AD 79); *quomque* (CIL 6.12133; AD 1–50, EDR151276); *quae{.}quomque* (CIL 11.600; late Augustan period, Cenerini 1992: 43); *queiquomque* (CIL 4.1857; before AD 79).

Old-fashioned Spellings

Velius Longus and Curtius Valerianus confirm the view that on the whole the <qu> spellings are old-fashioned:

‘q’ quoque littera facit differentiam uocum ab antiquis maxime obseruata<m>. <nam ‘cum’> quotiens pro aduerbio temporis scribebant, ‘q’ littera utebantur; <quotiens> pro praepositione, ‘c’ ponebant. aliud est ‘cum subito adsurgens’, aliud ‘cum fluctu’. et haec pronomina, ‘cuius’ et ‘cui’, per ‘q’ censuerunt quidam scribenda, quo magis seruaretur origini fides, ut, quomodo ‘quis’ inciperet a ‘q’, si<c> ‘quiuis’ ‘qui’. hoc amplius, quo pinguior esset enuntiatio, ‘o’ quoque inserebant et per ‘quo’ ‘quouis’ ‘quoi’ scribebant. nos ad breuitatem festinauimus scribendi et illam pinguitudinem limare maluimus, tam hercule quam ‘cur’ magis <scribimus quam ‘quor’> quod genus est ἐτυμολογίας.

Also the ancients used the letter *q* very much to make a distinction between words. Whenever they used to write *cum*, in the sense of a temporal adverb, they used the letter *q*; whenever they used it as a preposition they spelt with *c*. Because ‘when (*cum*) suddenly rising up’ is a different thing from ‘with (*cum*) the tide’. And some of them thought that the pronoun forms *cuius* and *cui* should be spelt with *q*, the better to faithfully represent their origins, so that, just as *quis* begins with *q*, so should *quiuis* and *qui*. Furthermore, so that these words should be pronounced more fully, they also inserted an *o* and used to write *quouis* and *quoi* with the sequence *quo*. We in our hurry aim for brevity in writing and have preferred to file off such fullness, even going so far, by Hercules, as writing *cur* rather than *quor*, which is etymologically correct. (Velius Longus, *De orthographia* 8.4.1–3 = GL 7.70.15–71.3)

item ‘cui’ utrum per ‘q’ an per ‘c’ debeat scribi, quia non nulli inuenti sunt qui ‘q’ littera<m> illo catholico tuentur, quod in nulla uoce per declinationem prima littera immutetur. ita cum sit ‘quis’, ‘quiuis’ et ‘qui’ per ‘q’ litteram censent scribendum.

Likewise, whether *cui* ought to be written with ‘q’ or ‘c’, because a number of people can be found who maintain the letter ‘q’, on the general rule that in no word does declension take place by changing the first letter. So, since it is *quis*, they think one should write *quiuis* and *qui*, with the letter ‘q’. (Velius Longus, *De orthographia* 9.3 = GL 7.72.8–11)

quasdam uero scriptiones antiquis relinquamus, ut in eo quod est ‘cur’. illi enim per ‘quor’ scribebant, ut supra dixi, nam et ipsum ‘cui’ per ‘quoi’, quo pinguius sonaret. <nos> contenti sumus per ‘cur’ scribere . . .

But let us leave certain spellings to the ancients, as in the case of *cur*. Because they used to spell it *quor*, as I have said above, and even *cui* as *quoi*, so that it might have a fuller sound. We are content to write *cur* . . . (Velius Longus, *De orthographia* 13.7 = GL 7.77.9–12)

‘cur’ alii per *c* scribendum putauerunt dicentes non posse *q* litteram poni, ubi *u* esset sine alia uocale, secundum regulam supradictam; alii per *q*, eo quod

<qu> for /k/ before Back Vowels

originem trahat ab interrogatiuis aduerbiis, quae sunt ‘quando’, ‘quorsum’. usus autem obtinuit ut ‘cur’ per *c* scribatur.

Some have thought that *cur* ought to be written with *c* on the grounds that *q* should not be used when it is followed by *u* but no other vowel, according to the rule I have previously discussed; others that it should be written with *q*, on the grounds that it has the same origin as the interrogative adverbs, such as *quando* and *quorsum*. But usage has won out, so that *cur* is written with *c*.⁴ (Curtius Valerianus in Cassiodorus, *De orthographia* 3.10–12 = GL 7.156.12–15)

However, Curtius Valerianus (in Cassiodorus, *De orthographia* 3.3–4) and Marius Victorinus make an exception for *cum* as a temporal adverb, recommending a (rather artificial) spelling *quum*. But the spelling *quom* (unmentioned by Curtius Valerius) is too old-fashioned for Marius Victorinus:

‘cum’ aduerbium temporis antiqui quattuor litteris scribebant [in] his, Q U U M; apud Catonem ‘quum’ rursus per o, ‘quom’ . . . item ‘cuius’ per Q U O I U S litteras scribebant. de quibus ne plura scribam, hoc custodite, ut, cum fuerit aduerbium temporis, per Q U siue unum siue duo scribatis, ut ‘qum primum’ et ‘qum hoc facerem’.

The ancients used to write *cum* as a temporal adverb with four letters, as *quum*; Cato even took the spelling further back in time with *o*: *quom* . . . Likewise they used to write *cuius* as *quoius*. So as not to say anything more about these words, take care that when it is a temporal adverb, you write it with *qu* or *quu*, as in *qum primum* ‘when first’ and *quom hoc facerem* ‘when I was doing this’. (Marius Victorinus *Ars grammatica* 4.31–32 = GL 7.13.11–12)

Terentius Scaurus, however, does not rule out *quom* as old-fashioned:

‘cum’ quidam per ‘cum’, nonnulli per ‘quom’. quidam etiam esse differentiam putant, quod praepositio quidem per ‘c’: ‘<cum> illo’, ‘cum Claudio’, ‘cum Camillo’; aduerbium autem per ‘q’ debeat scribi, ut ‘quom legissem’, ‘quom fecissem’, quoniam antiqui pro hoc aduerbio †cuine† dicebant . . .

For *cum* some people write *cum*, others *quom*. There are even some who think that the difference is that the preposition should be spelt with *c*, as in *cum illo* ‘with him’, *cum Claudio* ‘with Claudius’, *cum Camillo* ‘with Camillus’; but the adverb should be spelt *quom*, as in *quom legissem* ‘when I had read’, *quom fecissem* ‘when I had done’, since the ancients used to say †cuine† for this adverb . . . (Terentius Scaurus, *De orthographia* 8.6.3 = GL 7.28.6–9)

⁴ Of course, this information about usage would be more helpful if we knew the period to which it applied, since the date at which Curtius Valerianus was writing is uncertain.

Caesellius Vindex recommends not only *quum* but also *quiusque* for *cuiusque*:

‘cum’ praepositio per *c* scribenda est; ‘quum’ aduerbium temporis, quod significat ‘quando’, per *q* scribendum est discretionis causa . . . ‘quiusque’ non per *c* scribitur, sed per *q* . . .

The preposition *cum* ought to be spelt with *c*; the temporal adverb *quum*, which means ‘when’, ought to be written with *q* in order to distinguish it from *cum* . . . *quiusque* ought not to be written with *c* but with *q* . . . (Caesellius Vindex in Cassiodorus, *De orthographia* 10.7–9 = GL 7.207.1–4)

In line with most of the writers on language, spellings with <qu> are infrequent in the corpora. Although *cum* is a common word across these texts, we find *quom* ‘when, since’ only in a letter written by a scribe at Vindolanda (Tab. Vindol. 248) and *qu[u]m* or *qu[o]m* in a Claudius Tiberianus letter (P. Mich. VIII 472/CEL 147).⁵ At Vindolanda we also find *quur* (Tab. Vindol. 652) for *cūr* ‘why’ in a fragmentary letter whose writer is unidentifiable, although as they use an *apex* they are likely to be a scribe (see pp. 226–32).

There appears to be a hypercorrect use of <qu> in *laquonecoru* (CEL 225), presumably for *lacōnicōrum* ‘steam baths’, in a papyrus letter of the fourth century AD from Karanis in Egypt, apparently a petition of some sort whose writer shows some substandard features.⁶ Curiously, there are also hypercorrect examples before <a> in a pair of curse tablets from Baetica in the first century BC: *omut[e]sq[ua]nt* (Kropp 2.2.3/4), *[om]utesquant*, *[omut]esquant* (2.2.3/5) for *obmūtescant* ‘may they become dumb’.

This evidence suggests that while use of <qu> in these contexts was old-fashioned and uncommon, it did survive within some educational traditions for quite some time, although its restriction to words in which it was etymologically correct was not necessarily well learnt or taught.⁷

⁵ The damaged context does not allow us to be sure whether this means ‘when’ or ‘with’, but the ‘with’ form is spelt as *qum* in *mequm* ‘with me’.

⁶ Absence of final <m> and <e> for /i/ in *laquonecoru*, *domni* for *dominī* ‘master’ (gen. sg. or nom. pl.).

⁷ Cf. *quomitatū* for *comitatū* ‘escort, company’ (EDCS-73700030, AD 301 to 500; published in *Rivista di Archeologia Cristiana* 1975, 229, which was not available to me).

Mancini (2019) provides a useful summary of the history of the spelling <xs> for <x>. The earliest example in a Latin inscription is *exstrad* (twice) in the *SC de Bacchanalibus* (CIL 1².581) of 186 BC,¹ although two instances of *faxsit* in testimonia of the Laws of the Twelve Tables are argued by Mancini to reflect an edition carried out by Sextus Aelius Paetus, curule aedile in 200 BC, consul 198, and censor in 194.² In addition, the Marrucian ‘Bronze of Rapino’, datable to the second half of the third century BC, has *lixs* ‘law’ < *lēg-s. In a corpus of inscriptions from this period until 30 BC, Mancini counts 135 occurrences of <xs> beside 1,310 of <x> (<xs> thus making up 9% of the total).

From the Augustan period it more or less dies out in ‘official’ inscriptions, with occasional archaising usages in juridical inscriptions in the first and, once, second century AD. However, it continues to be used in other inscriptions until a late period, although always making up a small minority compared to uses of <x>. Mancini compares the 655 examples of *uixsit* ‘(s)he lived’ with 62,946 cases of *uixit* (1%); likewise he finds 497 cases of *uxsor* beside

¹ Mancini argues that the reason for the creation of the digraph <xs> is the innovatory practice, at the same period, of writing geminate consonants double. According to him, this reflects a move towards a principle of matching spelling to syllabification, whereby for example in /mit.tɔː/, the spelling *mitto* more accurately represents the fact that the geminate /tt/ crosses a syllable boundary than *mito*. Likewise, in *deixsit* the digraph <xs> marks the syllabic structure /de:k.sit/. However, if this is correct, it is hard to see why, in the *SC de Bacchanalibus*, we should find <xs> but a determined avoidance of geminate consonants. Cugusi (CEL 2, p. 22) sees use of <xs> as an expansion of the spelling in words like *expectō* recommended by the grammarians just below.

² As explained by Mancini (2019: 29–30), the first is in Aulus Gellius, *Noctes Atticae* 20.1.12, read in the δ family of manuscripts (Parisinus Lat. 8664 = Q and Leidensis Vossianus F7 = Z) as well as Franequeranus (= F); this has better authority than *faxit*, which is found in the γ family. The second is a conjecture by Schoell for *factum sit* found in all manuscripts of Macrobius, *Saturnalia* 1.4.19. Given the fairly common use of <xs> into the imperial period (below), there seems little certainty that the <xs> spelling could not have entered the text of the Tables subsequent to the early second century BC.

Old-fashioned Spellings

6,858 of *uxor* (7%).³ To what extent these figures are reliable as to the rate at which <xs> was used is unclear. The EDCS with which he carried out these searches throws up plenty of false positives, and with such great numbers not much checking can have been carried out. As an additional contribution, I carried out searches for *sexaginta* and *sexsaginta*, and checked them for accuracy. The former appeared in 71 inscriptions, the latter in 14 (16%), giving a much larger minority for <xs>.⁴ The variation may reflect the smaller numbers of *sexaginta* in inscriptions, or genuine lexical variation as to use of <xs> versus <x> (although no particular pattern arises on this front from my investigation of the corpora below).

The spelling <xs> is barely mentioned by the writers on language, except for a brief hint by Cornutus and more explicit statements by Caesellius and Terentius Scaurus that <xs> should only be used in compounds consisting of the preposition *ex* plus a word beginning with /s/. There is no suggestion that <xs> is old-fashioned, just incorrect:

‘exsilium’ cum s: “ex solo” enim ire, quasi ‘exsolium’ . . .

Exsilium with s: because it comes from *ex solo*, as though it were *exsolium* . . . (Cornutus, in Cassiodorus, *De orthographia* 1.77 = GL 7.152.6)

quaecumque uerba primo loco ab s littera incipient, ea cum praepositione ‘ex’ composita litteram eandem s habere debebunt . . . cetera, quae simplicia sunt et non componuntur, sine ulla dubitatione x tantum habebunt, ut ‘uixi’, ‘dixi’, ‘uexaui’, ‘faxim’, ‘uxor’, ‘auxilium’, ‘examen’, ‘axis’ et ‘exemplum’.

Any word which begins with s ought to maintain the s when preceded by the preposition *ex* . . .⁵ Other words, which are *simplicia* and not compounds, should have, without any doubt, only x, such as *uixi*, *dixi*, *uexaui*, *faxim*, *uxor*, *auxilium*, *examen*, *axis*, and *exemplum*. (Caesellius, in Cassiodorus, *De orthographia* 10.18–45 = GL 7.203.14–24)

item cum ‘exsul’ et ‘exspectatus’ sine ‘s’ littera scribuntur, cum alioqui adiecta ea debeant scribi, quoniam similiter ‘solum’ ‘spectatus’que dicatur, et adiecta praepositione saluum esse illis initium debeat.

³ These percentages are mistakenly given as 0.01% and 0.06% respectively by Mancini (2019: 21–2); before rounding up, $497/(497+6,858)$ is 0.068 (to three significant figures).

⁴ Just taking the headline numbers from the search gave 82 inscriptions with *sexaginta*, and 13 with *sexsaginta* = 14% <xs>.

⁵ Followed by a long list of examples of words whose simplex does and does not begin with s, beginning with *exsilio* and *exspecto*.

<xs> for /ks/

Likewise when *exsul* and *expectatus* are written without *s*, when on the contrary they should be written with it, since one says *solum* and *spectatus* alike, and their initial letter ought to be preserved when the preposition is added. (Terentius Scaurus, *De orthographia* 7.2 = GL 7.22.13–16)

Terentius Scaurus also mentions people who argue that words ending in <x> should have <xs>; again this is described as incorrect rather than old-fashioned:

similiter peccant et qui ‘nux’ et ‘trux’ et ‘ferox’ in <‘s’> nouissimam litteram dirigunt, cum alioqui duplex sufficiat, quae in se et ‘s’ habet.

Likewise those who direct an additional *s* onto the end of *nux*, *trux* and *ferox*, when, on the contrary, the double letter (*x*) is enough, which contains *s* within it. (Terentius Scaurus, *De orthographia* 6.4 = GL 7.19.13–14)

The marginality of the spelling <xs> is confirmed in my corpora, although with some variation.⁶ In the Vindolanda tablets (see Table 19) I find 10 certain instances of <xs> vs 66 of <x>.⁷ Mancini (2019: 27) reproves Adams (1995: 90) for the statement that ‘*x* is commonly written for *s* in the tablets’, but at 13%, <xs> does appear at a higher rate than *uixsit* and *uxsor* in Mancini’s calculations from the whole corpus of Latin inscriptions. Adams

Table 19 <xs> at Vindolanda

<xs>	Tablet	Document type
uexşillari	Tab. Vindol. 181	Account
exsigas	Tab. Vindol. 284	Letter
sexs	Tab. Vindol. 301	Letter
axes	Tab. Vindol. 309	Letter
axis	Tab. Vindol. 309	Letter
axes	Tab. Vindol. 309	Letter
uexsaře	Tab. Vindol. 343	Letter
uexsilló	Tab. Vindol. 628	Letter
maşşimum	Tab. Vindol. 662	Draft of letters
dışşıt	Tab. Vindol. 735	Unknown

⁶ I have not included instances of compounds of *ex* and a word beginning with <s>.

⁷ There is also the name *Exy*.. [(Tab. Vindol. 581), and *...şę* (Tab. Vindol. 876), where we cannot rule out that the <s> is etymological.

sees the use of <xs> as formal or archaising, while Mancini (2019: 28) argues that it is ‘informal and bureaucratic’ (informale e cancelleresco).⁸ This disagreement may be due to a different perspective on the status of the Vindolanda tablets. Mancini is comparing the presence of <xs> in ‘everyday documents’ such as the tablets from Vindolanda, London and those of Caecilius Jucundus from Pompeii, alongside papyrus letters, with its absence in public epigraphy. By comparison, Adams is more focussed on the usages of individuals in the Vindolanda tablets, and variation between genres within the corpus.

Clearly, the letters found at Vindolanda are ‘informal’ relative to public epigraphy, but we do have a hint that they could be marked out from other genres by the tendency for *apices* to be used preferentially in letters as opposed to other types of text (see pp. 235–6). And in fact, *apices* and <xs> co-occur in Tab. Vindol. 628. The sequence <xs> also tends to appear in letters, which provide 8 out of 9 instances in which the genre of the text is recognisable.⁹ This compares with <x>, of which 37/65 instances appear in letters (one document is of uncertain genre). The numbers are too small, however, to be sure that <xs> does correlate with letters.¹⁰ The use of <xs> is also not necessarily consistent within a text: 301 has *explices* beside *sexs*,¹¹ and in the letter of Octavius (343), apart from *uexsare*, there are 6 instances of <x>, consisting of *dixi* and 5 examples of the preverb *ex-*.

Adams also observes that the three examples of <xs> in 309 appear alongside the spelling of *mīstī* ‘I sent’ as *missi*, *missi*, in a text whose spelling is otherwise standard. And in fact there are further connections between use of <xs> and <ss>. The same hand that writes 181, which contains *uexsillari*, also writes 180, another account, and 344, a letter which enables the author to be identified

⁸ For more on this, see pp. 268–9.

⁹ Although the editors remark of Tab. Vindol. 309, which contains 3 of the examples of <xs>, that ‘[t]hough couched in the form of a letter, it is in fact no more than an inventory of goods despatched’.

¹⁰ The distribution has a *p*-value of 0.0804, using the Fisher Exact Test Calculator at www.socscistatistics.com/tests/fisher/default2.aspx (accessed 23/10/2020), which is low, but not statistically significant at a significance level of 0.05.

¹¹ The use of <x> in *souxtum* apparently represents /χ/ in this Celtic loan word (Adams 2007: 597–8).

as a civilian trader. 180 (which has <x> in *ex*) also has <ss> in *ussus* for *ūsūs* ‘uses’. 344 has no instances of <x(s)> but writes *comississem* for *comīsissem* ‘I had committed’. Given the civilian status of the author, it may be that the spelling he or his scribe uses is the result of different training from that of the scribes in the army. In 343, the spelling <ss> is also attested indirectly in the form *nissi* for *nisi* ‘if not’ (see p. 185). It is striking that 5 of the 22 instances of <ss> in the Vindolanda tablets occur in documents which also have <xs>. In 343, apart from using <xs> and <ss>, the writer is also characterised by the rare use of <k> in a word other than *k(alendae)* and *cārus* ‘dear’: *karrum* and *qarro* for *carrum* ‘wagon’.

The spelling <xs>, therefore, appears in texts which use other spellings which might be considered old-fashioned. It is reasonable to suppose that <xs> may have had a similar value. From a sociolinguistic perspective, <xs> appears in letters from a range of backgrounds. In 301, the writer Severus is a slave, writing to a slave of the prefect Flavius Genialis in his own hand. The author of 284 is probably a decurion, writing to the prefect Flavius Cerialis, and 628 is also a letter to Cerialis from a decurion called Masclus (but both are probably using scribes; note the use of *apices* in the latter). The author of 309 (Metto?) is probably a civilian trader, though most of the letter is written in another hand. Very little remains of 662 or 735. All of these show otherwise standard spelling, as far as we can tell (other than *Masclus* for *Masculus* in 628, with a ‘vulgar’ syncope; but since this is the author’s name this does not necessarily suggest a lower educational standard on the part of the writer).¹²

On the other hand, the writer of 343, whose author was Octavius, who may have been ‘a civilian entrepreneur and merchant, or a military officer responsible for organising supplies for the Vindolanda unit’, according to the editors, combines use of <xs>, <ss> and <k> with the substandard spellings <e> for <ae> in *illec* for *illaec* ‘those things’, *arre* for *arrae* ‘pledge’, *que* for *quae* ‘which’, *male* for *malae* ‘bad’, <ae> for <e> in *mae* for *mē* ‘me’,

¹² 735 has *Ingenius* as opposed to the substandard *Ingenus*, which also appears at Vindolanda.

Old-fashioned Spellings

and <i> for <ii> in *necessari* for *necessariī* ‘necessary’. The letter 344 contains only standard spelling, but the accounts 180 and 181, by the same writer, do include a few substandard spellings: *bubulcaris* for *bubulcāriīs* ‘ox-herds’, *turtas* for *tortās* ‘twisted loaves’ (both 180), *emtis* for *emptīs*, *balniatore* for *balneātōre*, and *Ingenus* for *Ingenuus* (all 181).

Overall, Adams’ view that <xs> is formal or archaising, within the context of the Vindolanda tablets, receives some support from its association with other old-fashioned spellings, in the form of <ss> for <s> by three different writers, and with <k> in one of them. However, we cannot be sure that its greater frequency in letters is due to the relatively more formal status of these than other types of document. The writers who include <xs> in their texts all probably belong to the sub-elite, consisting of slaves, scribes and perhaps civilian traders. It is found in texts which demonstrate both standard and substandard spelling. It is conceivable that <xs> is not actually a major part of the scribal tradition of the army itself, since at least 4 of the instances come from letters whose authors were civilians (5 if Octavius, the author of 343, was also a civilian), and only 284 (1 example) and 628 (1 example) seem to have definitely been written by military personnel. But of course, military scribes, and/or education in writing, may have been available also to non-military personnel.

Two of the other corpora are particularly noteworthy in terms of use of <xs>. One is the London tablets, which contain 4 examples of <xs> and only 3 of <x> (see Table 20). The spelling of WT 44 and 45 is standard; WT 55 is substandard (see p. 264), and also uses another old-fashioned spelling, <ss> after a long vowel in *u/s{s}uras* and

Table 20 <xs> and <x> in the London tablets

<xs>	Text	Date	<x>	Text	Date
exs	WT 44	AD 53–60/1	a duxerat	WT 29	AD 80–90/5
conduxisse	WT 45	AD 60/1–62	sex	WT 31	AD 62–65/70
dixsit	WT 55	AD 65/70– 90/5	ex	WT 72	AD 65/70–80
Sexsti	WT 67	AD 90/5–125			

promis{ſ}it; the spelling of WT 67 is also substandard (see p. 264). As for the tablets which have <x>, WT 29 has substandard features (see p. 264), along with 2 instances of <ss> in [*o*]cassionem for *occāsiōnem* ‘occasion’ and (hypercorrect) *messibus* for *mēnsibus* ‘months’. WT 31 has standard spelling except for *Aticus* for *Atticus*, which may simply be a haplography. WT 72 has *Butu* for *Butum*, but the reading is difficult and the word is at the end of a line anyway so may reflect lack of space. What other text there is has standard spelling (n.b. *Ianuarium*) and a hypercorrect use of <ss> in *ceruessam*. It seems that in these tablets <xs> can correlate with both standard and substandard spelling, and with <ss>, while <x> is found with substandard spelling and <ss>, but there is hardly enough evidence to draw particular conclusions from this other than that <xs> is remarkably common.

The other corpus is the tablets of Jucundus, in which <xs> is characteristic of the scribes, who use it 35 times to 11 instances of <x>, whereas the other writers have 2 examples of <xs> and 15 of <x> (see Table 21 and Table 22). In fact, there seem to be three important factors which apply to the use of <xs>. 25 of the examples of <xs> occur in the word *dixsit* (and *dixserunt*) in tablets concerning *auctiones*, which contain the formulas *habere se dixsit* ... ‘(s)he said that (s)he has [a certain amount of money]’ and *accepisse se dixit/dixserunt* ... ‘(s)he/they said that (s)he/they has/have received [a certain amount of money]’, which are always written by scribes. The difference between use of <xs> in *dīxit/dīxērunt* and in other words by the scribes is statistically significant.¹³ An explanation for this might be that the spelling with <xs> was felt to be particularly appropriate for this word because it appears in a formulaic context.¹⁴ However, even if we leave *dīxit/dīxērunt* out of the equation (and not including one uncertain case), there is still a statistically significant difference between the rates of use of <xs> and <x> in other words by scribes (10:11) and other writers (2:15); see

¹³ The distribution has a *p*-value of 0.0312 (at $p \leq 0.05$), using the Fisher Exact Test Calculator at www.socscistatistics.com/tests/fisher/default2.aspx (accessed 16/11/2020).

¹⁴ If so, it could be relevant that all instances of *dixsit* occur in the sequence *habere se dixsit*, while the two spellings of *dixit* appear in a different version *accepisse se dixit* (although the only instance of *dixserunt* in the plural also has *accepisse* but uses the <xs> spelling).

Old-fashioned Spellings

Table 21 <xs> and <x> in dixit in the *Caecilius Jucundus* tablets

<xs>	Tablet (CIL 4.3340)	Date	Writer	<x>	Tablet (CIL 4.3340)	Date	Writer
dixsit	2	AD 27	Scribe	dixit	1	AD 15	Scribe
dixsit	10	AD 55	Scribe	dixit	5	AD 54	Scribe
dixsit	11	AD 55	Scribe				
dixsit	12	AD 55	Scribe				
[di]xsit	13	AD 55	Scribe				
dixsit	14	AD 55	Scribe				
dixsit	17	AD 55	Scribe				
dixsit	22	AD 56	Scribe				
dixsit	25	AD 56	Scribe				
dixsi[t	26	AD 56	Scribe				
dixsit	27	AD 56	Scribe				
dixsit	28	AD 57	Scribe				
dixsit	31	AD 57	Scribe				
dixsit	32	AD 57	Scribe				
di]xsit	34	AD 57	Scribe				
dixsit	35	AD 57	Scribe				
dixsit	40	AD 57	Scribe				
dixsit	43	AD 57	Scribe				
dixsit	46	AD 56?	Scribe				
dixsit	47	?	Scribe				
dixserunt	48	?	Scribe				
dixs[it]	55	?	Scribe				
di]xsit	57	?	Scribe				
dixsit	78	?	Scribe				
dixsit	124	?	Scribe				

Table 23.¹⁵ Tablet 1 is the earliest of the tablets, and perhaps reflects a slightly different orthographic training: as well as using <x> in *dixit*, it also uses the spelling *pequnia* versus the *pecunia* found uniformly in the other tablets.

It is difficult to identify a cohesive pattern in the use of <xs> across the corpora. On the one hand, the scribes of the *Caecilius Jucundus* tablets heavily favour <xs> at a rate of 69%, or 53% if

¹⁵ The distribution is statistically significant at $p \leq .05$, with a p -value of 0.014 (Using the Easy Fisher Exact Test Calculator at www.socscistatistics.com/tests/fisher/default2.aspx (accessed 27/11/2020)).

Table 22 <xs> and <x> in other words in the *Caecilius Jucundus* tablets

<xs>	Tablet (CIL 4.3340)	Date	Writer	<x>	Tablet (CIL 4.3340)	Date	Writer
Maxs.	10	AD 55	Scribe	buxiaria(m)	5	AD 54	Scribe
s[e]xs	21	AD 56	M. Alleius Carpus	ex	17	AD 55	Non-scribe
sexsaginta	23	AD 56	Slave Of Umbricia Antiochis	ex	25	AD 56	D. Volcius Thallus
Maxsim(i)	38	AD 57	Scribe	ex	25	AD 56	D. Volcius Thallus
Axsioc.	40	AD 57	Scribe	se]x	26	AD 56	N. Blaesus Fructio
Maxsimus	49	?	Scribe	ex	28	AD 57	M. Fabius Secundus
Maxsi(mi)	49	?	Scribe	ex	33	AD 57	A. Messius Speratus
proxsima	71	?	Scribe ^a	ex	33	AD 57	Uncertain ^b
Maxsimi	80	?	Scribe	Axiochus	40	AD 57	Sex. Pompeius Axiochus
Maxsi[m]i	84	?	Scribe	sexages	40	AD 57	Sex. Pompeius Axiochus
Alexsandrini	100	?	Scribe	ex	40	AD 57	Sex. Pompeius Axiochus
Alexsandrini	100	?	Scribe	ex	45	?	P. Alfenus Varus
				ex	45	?	Scribe
				ex	46	AD 56?	Non-scribe
				Sextili	71	?	Scribe

Table 22 (*cont.*)

<xs>	Tablet (CIL 4.3340)	Date	Writer	<x>	Tablet (CIL 4.3340)	Date	Writer
				Sextili	92	?	Scribe
				Dextri	103	?	Scribe
				ex	141	AD 58	Privatus, slave of the colonia
				ex	141	AD 58	Scribe
				ex	142	AD 58	Privatus, slave of the colonia
				Sextio	143	AD 59	Privatus, slave of the colonia
				Sextio	143	AD 59	Scribe
				Sextio	143	AD 59	Scribe
				ex	145	AD 58	Privatus, slave of the colonia
				ex	145	AD 58	Scribe

^a Page 2 of this tablet, on which *proxima* occurs, has lost almost all its writing, but on the basis that there are nine witnesses, this tablet must be the record of an *auctio*, in which case the inner writing is always carried out by a scribe (Andreau 1974: 18–19).

^b Page 2 of this tablet contains the *chirographum* of A. Messius Speratus, which seems to end on that page; on page 3, on which *ex* occurs, we then get what appears to be an incomplete version of the *auctio* formula, which is in the third person, and hence would be expected to be written by a scribe. However, the spelling is substandard (*abere* for *habēre* ‘to have’, *Mesius* for *Messius*, *Pompes* for *Pompeis*), as in the *chirographum*, and it looks as though the writer may have started off using the first person: Zangemeister prints *abere m...* and comments ‘inchoasse videtur aliam constructionem: *me (scripsi vel dixi)*’. It seems more likely that for some reason Messius also wrote this page.

Table 23 Use of <xs> and <x> by scribes and others in the *Caecilius Jucundus* tablets

	Scribes	Others
<xs>	10	2
<x>	9	15

we assume that *dix(s)it* is a special case, which compares significantly with the usage of the other writers, who use <xs> only 12% of the time. By comparison, the typologically, geographically and chronologically similar corpora TPSulp. and TH² demonstrate an avoidance of <xs>, on the part of both scribes and others. The former has a single use of <xs> in *sexstum* (TPSulp. 46, scribe), compared to 87 other examples of <x> (and one case of <cs> in *Aļeçsi*, TPSulp. 90). The latter has 32 instances of <x> and none of <xs>.

In Kropp's corpus of curse tablets there are 19 instances of <xs> overall, and 131 of <x>, giving a rate of 13%. 7 of these are in texts dated to the second and first centuries BC; Table 24 gives all examples from the first century AD onwards. All of these tablets except 3.2/26 feature substandard spellings; 3.2/24 and 3.22/3 also have (hypercorrect) <ss> in *nissi* for *nisi* 'if not'.

The Isola Sacra inscriptions contain a few instances of <xs>, with 5 compared to 105 of <x>. 1 example of *uixsit* (IS 258) compares with 43 instances of the perfect stem of *uīuō* with <x>, and the 1 example of *uxsori* (IS 98) with 7 of *uxor* (though this does give rates of 2% and 14% respectively, both twice as frequent as the rates found by Mancini in the epigraphic evidence more generally). Strikingly, the word most frequently spelt with <xs> is the cognomen *Fēlix*, with 3 instances of <xs> (IS 44, 225, 312) versus 4 of <x>. Only one of the inscriptions containing <xs> also contains a substandard spelling, in the form of *comparaberunt* for *comparāuēřunt* (IS 312). The same inscription also has <x> in *Maxima*.

Old-fashioned Spellings

Table 24 <xs> in the curse tablets

	Tablet	Date	Location
exemplaria	Kropp 2.2.1/1	AD 100–150	Hispania Baetica
Exsactoris	Kropp 3.2/9	Third century AD (?)	Aquae Sulis
paxsa	Kropp 3.2/24	Third–fourth century AD	Aquae Sulis
exsigatur	Kropp 3.2/26	Second–third century AD	Aquae Sulis
paxsam	Kropp 3.2/54	Third–fourth century AD	Aquae Sulis
exsigat	Kropp 3.22/3	Second–fourth century AD	Uley
exsigat	Kropp 3.22/3	Second–fourth century AD	Uley
maxsime	Kropp 5.1.3/1	First–second century AD	Germania Superior
uxsor	Kropp 5.1.4/8	First half of the second century AD	Germania Superior
uxso[r]	Kropp 5.1.4/8	First half of the second century AD	Germania Superior
Maxsumus	Kropp 5.1.4/10	First half of the second century AD	Germania Superior
proxsimis	Kropp 7.5/1	c. AD 150	Raetia

The other corpora mostly show no or little use of <xs>. The only instance of <xs> in the Bu Njem ostraca is *sexsagi[n]ta* (O. BuNjem 78), in a letter written by a soldier called Aemilius Aemilianus, whose spelling is not as bad as in some of the other texts, but does include some substandard features (see p. 263). They also include the non–old-fashioned *transmisi*, which appears in all the letters, but this spelling probably comes from the template that Aemilianus was using (Adams 1994: 92–4). There are 24 instances of <x> in other ostraca. At Dura Europos <xs> is entirely absent, and there are more than a hundred cases of <x>. Vindonissa has no examples of <xs>, but only 3 of <x>. The graffiti from the Paedagogium have 25 instances of <x> and none of <xs>.

Within the corpus of letters, <xs> is interestingly absent from those of Claudius Tiberianus, despite the preponderance of both old-fashioned and substandard spellings (although there are only 8 instances of <x>, 4 each in P. Mich VIII 467/CEL 141 and 472/147). The letters definitely attributed to Rustius Barbarus also have 9 instances of <x> (CEL 73, 74, 77, 78) and none of <xs>, although CEL 80, which belongs to the same cache but may not have been written by Rustius, has *exsigas* for *exigās* ‘you should take out’. Of the other letters, the private letter of the slave Suneros (CEL 10), of Augustan date, has 3 instances of <xs> (on Suneros’ spelling, see pp. 10–11). There is then 1 in CEL 88 (probably first century AD), and CEL 140, a papyrus copy of an official letter of *probatio* from Oxyrhynchus (AD 103), which also contains three examples of <x>, and which has otherwise standard spelling (including <k> in *karissim[e]*).

Geminates and Singletons

A number of different changes took place to reduce original geminate consonants in Latin. In addition, there was another rule (or rules) which produced geminates out of original single consonants. Since these changes did not take place at the same time, and were not necessarily reflected in spelling at the same rate, I will discuss them here separately.

<ss> and <s>

Double /ss/ was degeminated after a long vowel or diphthong around the start of the first century BC (Meiser 1998: 125; Weiss 2020: 66, 170), for example *caussa* > *causa*. A search for *caussa* finds 23 inscriptions from the first four centuries AD, compared to 269 for *causa* (a frequency of 8%), although the spelling with <ss> is rather higher in the first century AD (18 or 19 inscriptions containing *caussa* to 60 inscriptions containing *causa* = 23 or 24%),¹ including in official inscriptions such as the *Res Gestae Diui Augusti* (Scheid 2007; CIL 3, pp. 769–99, AD 14),² the *SC de Cn. Pisone patri* (9 instances of *causa* to 3 of *caussa* in the B copy; Eck et al. 1968, AD 20), and CIL 14.85 (AD 46, EDR094023). By comparison, a search for (-)missit finds 4 instances in the first four centuries AD compared to 192 of (-)misit (a frequency of 2%).³

¹ I searched the EDCS for ‘caussa’ in the ‘original texts’ search, with a date range of ‘1’ to ‘400’, and for ‘causa’ in the ‘original texts’ search, with a date range of ‘1’ to ‘400’ and ‘1’ to ‘100’ (15/09/2021). I omitted instances of *caussa* from the tablets of the Sulpicii.

² Which also has *cl]aussum* alongside *clausum* ‘closed’.

³ I searched the EDCS for ‘missit’ in the ‘original texts’ search, with a date range of ‘1’ to ‘400’, and for ‘misit’ in the ‘original texts’ search, with a date range of ‘1’ to ‘400’ (15/09/2021). I omitted instances of (-)missit from the London tablets.

Geminates and Singletons

Most of the writers on language clearly considered the <ss> spelling old-fashioned:

‘causam’ per unam *s* nec quemquam moueat antiqua scriptura: nam et ‘accussare’ per duo *ss* scripserunt, sicut ‘fuisse’, ‘diuississe’, ‘esse’ et ‘caussae’ per duo *ss* scriptum inuenio; in qua enuntiatione quomodo duarum consonantium sonus exaudiatur, non inuenio.

Archaic writing should not prevent anyone from writing *causa* with a single *s*: for they also wrote *accussare* [for *accūsāre*], just as I find *fuisse*, *diuississe*, *esse*, *caussae* written with double *ss* [as one would expect]. When these words are pronounced I do not know what the double consonant is supposed to sound like. (Cornutus in Cassiodorus, *De orthographia* 1.34–36 = GL 7.149. 12–15)

quid, quod Ciceronis temporibus paulumque infra, fere quotiens *s* littera media uocalium longarum uel subiecta longis esset, geminabatur, ut “caussae” “cassus” “diuissiones”? quo modo et ipsum et Vergilium quoque scripsisse manus eorum docent.

What of the fact that in Cicero’s time and a little later, often whenever the letter *s* was between long vowels or after a long vowel, it was written double, as in *caussae*, *cassus*, *diuissione*. That both he and Virgil wrote this way is shown by writings in their own hand. (Quintilian, *Institutio oratoria* 1.7.20)

iidem uoces quae pressiore sono edu[cu]ntur, ‘ausus, causa, fusus, odiosus’, per duo *s* scribebant, ‘aussus’.

The same people [i.e. the *antiqui*] wrote words which are now produced with a briefer sound, such as *ausus*, *causa*, *fusus*, *odiosus*, with double *s*, like this: *aussus*. (Marius Victorinus, *Ars grammatica* 4.2 = GL 6.8.5–6)

Although Terentius Scaurus states that there are ‘many’ who use the double <ss> spelling in *causa*:

‘causam’ item <a> multis scio per duo ‘s’ scribi ut non attendentibus hanc litteram . . . nisi praecedente uocali correpta non solere geminari.

I know that *causa* is spelt by many with two *s*-es, as by those not paying attention to the fact that this letter is not geminated unless the preceding vowel is short. (Terentius Scaurus, *De orthographia* 6.11.1 = GL 7.21.14–17)

At Vindolanda the 21 instances of etymologically correct <ss> compare with 24 of <s>, giving a total of 47% (see Table 25).⁴ The frequency with which the <ss> spelling is found in *mīs-*, the perfect

⁴ I do not include *.ussu*. (641), which could be *ussus* for *ūsus* ‘use’ or *iussū* ‘by order’.

Old-fashioned Spellings

Table 25 <ss> at *Vindolanda*

<ss>	Tablet (Tab. Vindol.)
ussus	180
oççaşşionem	225
[oc]çassionem	
ussibus	
remisseris	256
missi	268
missi	280
missit	299
missi	309
missi	
promissit	310
misseras	312
missi	314
missi	318
nissi	343
commississem	344
]nissici ^a	595
fussa ^b	645
dimissi	691
]assum ^c	838
missi	868
missi	892

^a The editors suggest that this is to be taken as *c]onfussici* ‘mixed’.

^b See [Adams \(2003: 556–7\)](#).

^c Assuming that the editors are right to understand this as *c]assem* ‘cheese’.

stem of *mittō* ‘I send’, is out of kilter with the uncommon spelling of this lexeme with <ss> in the epigraphic evidence as a whole.

In 225, <ss> is used in the draft of a letter probably written in the hand of Flavius Cerialis, prefect of the Ninth Cohort of Batavians himself, a man apparently of some education (on which, see [Adams](#)

1995: 129, and p. 1), who also uses <uo> for /wu/. It is also found in 255, from Clodius Super to Cerialis; the editors suggest that though a centurion, Clodius may have been an equestrian (but there is no evidence he wrote it himself). In 256, a letter to Cerialis from a certain Genialis, <uo> is also used for /wu/ in *siluolas*; there are no substandard spellings. In the case of 312, a letter from Tullio to a *duplicarius* whose gentilicium is Cessaucius, the editors note that '[t]he hand is rather crude and sprawling', which may suggest a lower level of education in the writer, although no substandard spellings are found.⁵

Metto (the author of 309) and the anonymous author of 180 and 344 were probably civilians, and therefore not necessarily using military scribes. The writer of 309 also uses <xs> for <x>, as does the writer of 180 and 344 (who also writes 181: *uexşillari*), who also includes substandard spellings in 180 (*bubulcariis* for *bubulcariis* 'ox-herds', *turtas* for *tortas* 'twisted loaves' and 181 (*emtis* for *emptis*, *balniatore* for *balneātore*, and *Ingenus* for *Ingenuus*). Substandard spellings are also found in 892, a letter from the decurion Masclus to Julius Verecundus, prefect of the First Cohort of Tungrians, which has *commiatum* for *commeātum* and *Reti* and *Retorum* for *Raeti*, *-ōrum*. Since the final greeting is in a different hand, presumably that of Masclus himself, the writer of the rest of the text was probably a scribe.

Tab. Vindol. 343, whose author, Octavius, could have been a civilian or in the military, also contains a number of substandard spelling features (see p. 262), but also <k> for /k/ before /a/, and <xs>. The single example of <ss> in *nissi* is interesting because there was never an etymological *-ss- in *nisi*, which comes from the univerbation of **ne sei*. However, since this univerbation must have occurred after rhotacism, *nisi* presumably contained an intervocalic voiceless /s/, a feature shared almost exclusively with forms like *mīsī* < *mīssī*, where it was the result of degemination of original /ss/. The writer of 343 must have learnt the spelling with <ss> and mistakenly overgeneralised it to *nisi*.

We can conclude that the spelling <ss> for /s/ after a long vowel or diphthong is common at Vindolanda (nearly half the examples).

⁵ Then again, the same could be said of my handwriting.

Old-fashioned Spellings

It correlates with other old-fashioned spellings such as <uo> for /wu/, <xs> for <x>, and <k> for /k/ before /a/. However, it does not correlate with quality of spelling: although it is used by the well-educated Cerialis, it also appears in texts which also feature substandard spellings, and in texts which are not necessarily written by military scribes.

Cotugno and Marotta (2017) argue against <ss> at Vindolanda being an old-fashioned feature, on the basis that since <ss> is found in accounts as well as letters, it cannot have been used as a stylistic marker, as might be the case in letters, and consequently that its use should not be considered an archaism. They suggest that instead it arose as a way of marking a voiceless tense /s/ among Batavian speakers of Latin (North-Western Germanic languages having, like Latin, turned original voiceless *s into /r/ by rhotacism); in this view, therefore, the use of <ss> would reflect Germanic interference in the Latin spoken by the Batavians at Vindolanda. But this is unlikely for several reasons. Firstly, given that (almost) all examples of <ss> are etymologically correct, Occam's razor would lead us to prefer old-fashioned spelling as an explanation; secondly, spellings with double <ss> are found in other corpora where Germanic influence is not to be suspected (albeit mostly at lower rates); thirdly, other old-fashioned features, such as use of <xs> (Chapter 14) and <uo> for /wu/ (Chapter 8) are also found in documents other than letters; fourthly, it is implausible that the highly educated Cerialis, who otherwise spells in a completely standard manner and uses other old-fashioned features (<uo>), should have used a non-standard spelling solely in the use of <ss>; fifthly, at least three of the documents containing <ss> originate from civilian authors, who were therefore probably not Germanic speakers; these may of course have been written by military scribes but they might well not have been. The argument also rests on the implicit assumption that old-fashioned spelling is a variable that differs according to the register of text in which it is found. This may, but need not, be true, and requires demonstration rather than being a premise.

In the tablets of the Sulpicii, apart from in the sections written by C. Novius Eunus, which I consider separately below, spellings with <ss> are outnumbered by those with <s>: there are 4

instances, all of *caussa*, and 12 of <s> (25%); however, two of the instances of <ss> belong to a single writer, Lucius Faenius Eumenes, and another is found in the scribal portion of the same tablet (one wonders if the scribe, who also uses <s> in *causá*, could have been influenced by the spelling of Faenius). The clustering of examples of <ss> in *causa* and not in other lexemes seems to fit with the usage of the epigraphic evidence as a whole (see Table 26).

Eunus shows a consistent double writing of intervocalic /s/, regardless of whether it results from original /ss/ or not. Once again, this will be an overgeneralisation of the rule that <ss> is to be written for /s/ in many words after a diphthong or long vowel to apply to all instances of /s/ (Adams 1990: 239–40; Seidl 1996: 107–8).⁶ Thus, in addition to *promissi* (TPSulp. 68), where <ss> is etymologically correct, he consistently spells the name *Caesar* with <ss> (51; 52, 3 times; 67, twice; 68, 3 times), generally does so for the name *Hesychus* (51, twice, 52, twice, 68 once, but twice with <s>), and also uses double <ss> in writing *Asinius* (67) and *positus* (51; 52, twice).

In the curse tablets, all instances of etymological <ss> are spelt with single <s> (7 examples, 3 of *amisit*,⁷ 4 of *causa*⁸), but Britain, and in particular Uley, provides a large number of instances of non-etymological <ss>, particularly in the word *nisi* (see Table 27).⁹ Should we explain double <ss> in *nissi/nessi* as the result of failure to learn (or teach) the rule whereby some words with /s/ are written with <ss> due to degemination after a long vowel, as with Eunus? Or should we posit some other local development, whether that be an educational tradition or influence on pronunciation from a second language (presumably Celtic)?

⁶ This seems to me to be a more straightforward description of Eunus' practice than that of Adams (1990: 239–40), who refers to 'a feeling on the part of Eunus that, regardless of the pronunciation, a double -ss- spelling after a long vowel or diphthong was older and more "correct"', but also says that '[w]hile -ss- tended to be simplified after a long vowel or diphthong, there was a complementary tendency for s to be doubled after a short vowel'.

⁷ Bath, Uley and Britannia, second–third centuries AD.

⁸ Carthage and Africa, second or third centuries AD.

⁹ *Pisso* (Kropp 3.2/77) is probably Celtic, according to Hassall and Tomlin (1982: 407), rather than a version of the Roman name *Pisō*.

Table 26 <ss> and <s> in the tablets of the Sulpicii

<ss>	Tablet	Date	Writer	<s>	Tablet	Date	Writer
caussa	27	AD 48	Lucius Faenius Eumenes	promisit	13	After AD 44	Scribe
caussa	27	AD 48	Lucius Faenius Eumenes	pr]omisit	14	After AD 44	Scribe
çaussa	27	AD 48	Scribe	causá	27	AD 48	Scribe
caussa	87	AD 51	Scribe	promisisset	48	AD 48	C. Iulius Prudens
				promisisset	48	AD 48	Scribe
				promisi	56	AD 52	Scribe
				promisi	58	No date	Pyramus, slave of Caesia Priscilla
				promisi	68	AD 39	Scribe
				pr]omisisse	81	AD 45	Aulus Castricius
				causa	90	AD 61	Scribe
				causa	91	AD 61	Scribe
				uşus	101	AD 48	Scribe

The former seems more likely: it may seem remarkable that (mis)use of <ss> should cluster around this word in particular, but its frequency is probably just the result of the formulaic nature of the curse tablets: in the curse tablets from Britain it is common for the curse to threaten a thief with unpleasant punishments unless (*nisi*) the property is returned either to the owner (thus Kropp 3.22/2, Kropp 3.22/29) or to a temple (Kropp 3.2/24, Kropp 3.18/1, Kropp 3.22/3, Kropp 3.22/5). An alternative formula is that the thief is given as a gift to the god, and ‘may not redeem this gift except (*nisi*) with his own blood’ (3.2/79, 3.22/32). And in most of the tablets there are no other examples of single /s/, so we cannot say that it is only *nisi* which receives this treatment, while in 3.22/4, the only example is *misericordia* for *misericordia* ‘pity’, which is also spelt with a geminate.

However, there are two cases where /s/ is spelt singly in tablets which also have <ss> after a short vowel; in 3.22/3 there is also *amisit*, which has <ss> etymologically, and in 3.22./34 there is *thesaurus*, which does not have etymological <ss>, but which might be expected to be spelt with <ss> if the writer had generalised the rule that all instances of /s/ were to be spelt <ss>. But it is also possible that the writers of these tablets were simply inconsistent in their spelling.

The use of <ss> correlates with <xs> in 3.2/24 (*paxsam* ‘tunic’, but [3]xe[3]), 3.33/3 (*exsigat* ‘may (s)he hound’ twice, but *laxetur*); in both the spelling is not far from the standard, although the former has *Minerue* for *Mineruae* and the latter *lintia* for *lintea*. Most of the tablets have some substandard features in addition to <ss> after a short vowel:¹⁰ *Minerue* for *Mineruae*, *serus* for *seruus*, *redemat* for *redimat*, *nessi* for *nisi* (3.2/79), [di]mediam for *dīmidiam*, *nessi* for *nisi* (3.18/1), *coscientiam* for *cōnscientiam* (3.22/5),¹¹ *tuui* for *tuī*, *praecibus* for *precibus*, *pareat* for *pariat* (3.22/29), *redemere* for *redimere* (3.22/32).

In the London tablets (see Table 28), <ss> shows a remarkably high distribution, including in tablets relatively late in the first century AD; WT 56 includes two spellings with <ss> (*promissit*,

¹⁰ The exceptions are 3.22/2 and 3.22/34.

¹¹ I assume that *pedit* for *perdidit* is at least partly a mechanical error (haplography) rather than reflecting a substandard spelling.

Old-fashioned Spellings

Table 27 *Unetymological <ss> for /s/ in the curse tablets*

<ss>	Tablet	Date	Location
nissi nissi	Kropp 3.2/24	Third–fourth century AD	Aquae Sulis
nessi	Kropp 3.2/79	Third–fourth century AD	Aquae Sulis
nessi	Kropp 3.18/1	First half of the third century AD	Pagans Hill
nissi	Kropp 3.22/2	Mid-third century AD	Uley
nissi	Kropp 3.22/3	Second–fourth century AD	Uley
ness[i] ness[i]	Kropp 3.22/5	Fourth century AD	Uley
nissi	Kropp 3.22/29	Second–third century AD	Uley
nessi	Kropp 3.22/32	Second–third century AD	Uley
misericordia	Kropp 3.22/34	Second–third century AD	Uley

ussurae) and one with <s> (*causae*). In addition there is mistaken use of <ss>, in *messibus* (WT 29) for *mēnsibus* ‘months’, which would have been pronounced [mē:sibus] and hence appeared to be a case of single /s/ after a long vowel, where only one <s> is found in the 4 other instances of the same word in this tablet. The word *ceruesa* ‘beer’ is generally supposed to have been borrowed from Gaulish, and there is no evidence that it ever contained double /ss/. Four other instances in this tablet are spelt with single <s>. If the reading is correct, this would be an example of use of <ss> for /s/ after a short vowel. Once again, this is a corpus which has high frequency of the spelling <xs>.

In the tablets from Herculaneum, geminate <ss> is only found in the name *Nassius* (TH² A3, D13, A16, 4),¹² where the spelling

¹² Cf. *nāsus* ‘nose’ and the cognomen *Nāsō*.

change may have been retarded in a name (cf. *causam* TH² 89, *promisi* A10, *repromisise* 4, all 60s AD). In the letters, the only possible instances of <ss> being used after a long vowel or diphthong is *bessem* ‘two thirds (of an *as*)’ in CEL (72) in a papyrus letter of AD 48–49 from Egypt. I think the preceding vowel was probably long, but cannot be certain.¹³ Otherwise, 31 other instances show <s>.¹⁴

In the Isola Sacra inscriptions there are instances of *causa* (IS 57), *laesit* (IS 10), *manumiserit* (IS 320), *permisit* (IS 142 and 179) and, with <ss>, the word *crissasse* (IS 46) for *crīsāsse* ‘(of a woman) to move the haunches as in coitus’ (in a graffito written on a tomb; not earlier than the reign of Antoninus). The word is otherwise found

¹³ Evidence for vowel length in this word is exiguous and somewhat contradictory. Both TLL and OLD give the nominative as *bēs* and the genitive as *bēs(s)is* (although differing as to which *s* the brackets are placed around in the genitive). The nominative seems not to be attested in a metrical context which would allow us to tell whether it scanned light or heavy. The only evidence for a long vowel appears to lie in the claim by the (probably) sixth century AD grammarian Adamantius Martyrius that ‘likewise I have found *bes* with a long vowel as a monosyllabic noun’ (*bes longam similiter nomen monosyllabum reperi*, *De b et u*, GL 7.177.1). However, it is possible that Martyrius’ claim is based on metrical evidence unavailable to us; on the assumption that the nominative went back to **bess* (like the word from which it is presumably derived, *as* < **ass*, *assis* ‘an *as*’), this might explain heavy scansion in the nominative. In the rest of the paradigm, if the vowel were long we would expect the eventual standard spelling of the stem to be *bes-* rather than *bess-*. In fact, both of these spellings are found in manuscripts (TLL s.v.), and inscriptionally: *besse* (CIL 11.213, no date), *bese* (CIL 12.1657, second half of the second century; AE 2001.1326; and AE 1957.128, first half of the third century). The examples in the TLL suggest that the <ss> spelling was fairly widespread, which is somewhat surprising if the vowel was long. On the other hand, the very fact that there exist frequent spellings with a single <s> implies that the vowel is long (compare the non-nominative forms of *as*, *assis*, of which TLL records only a single instance of *as-*). In addition, the manuscript spelling *bissem*, *bissis*, *bisse*, mostly in relatively late authors, may also suggest original /e:/, which subsequently fell together with /i/ (unless there was some contamination with *bis* ‘twice’). Furthermore, the derivative *besalis* ‘comprising two thirds’ is almost always spelt with one <s> in ‘libri boni’ (TLL s.v.), and has a heavy initial syllable at Martial 8.71.7, suggesting **bēsālis* > *bēsālis* (according to the *mamilla* rule, on which see Weiss 2020: 169, one would expect **bessālis* to give **besālis*, if there were a short vowel in the first syllable). This evidence leans towards a long vowel, though without being completely conclusive. But the only plausible explanation of the form *bes* does so by way of univerbation of a phrase *duo (partes) assis* ‘two parts of an *as*’, via **du’assis* > **dūyassis* > **dūyēssis* by vowel weakening, followed by the development of the classical stress rule leading to penultimate stress to give **dūyēssis*, with initial syllable syncope to give **dūyēssis* > *bessis*. This form was then (re)interpreted as a genitive, with a nominative singular *bes* being backformed on the model of *as*, *assis* (on all of this, see Vine 2016, with further examples of initial syllable syncope). And this explanation relies on a short vowel.

¹⁴ Texts with <s> include CEL 13, from AD 27; 73, 74, 75, 76, 78 and 79 (the Rustius Barbarus ostraca, probably from the first century AD); and 85 in Egypt, from AD 84, a papyrus copy of imperial codicil, in chancellery hand.

Old-fashioned Spellings

Table 28 <ss> and <s> in the London tablets

<ss>	Tablet	Date	<s>	Tablet	Date
occas{s} ionem messibus	WT 29	AD 80–90/5	causa	WT 30	AD 43–53
fussum	WT 38	AD 80–90/5	promisi	WT 41	AD 80–90/5
u]s{s}uras promis{s}it	WT 55	AD 65/70–80	causae	WT 56	AD 65/70–80
promis{s}it us{s}urae	WT 56	AD 65/70–80			
cerues{s}am	WT 72	AD 65/70–80			

with a single <s> at AE 2005.633 (second half of the second or early third century AD) and Solin (2020, no. 24a). An original geminate is implied by the absence of rhotacism, and is found in Martial and in the grammarians (TLL 1206, s.v. *crīso*).¹⁵

At Bu Njem there is no sign of the <ss> spelling, but 17 examples of original /ss/ with <s>. At Dura Europos there are 5 examples of (*a*)*misit*; there are no examples of a double spelling for an old geminate.

<ll> and <l>

Double /ll/ was degenerated after a diphthong, as in *paulus* <*paullus* ‘little’, *caelum* ‘sky’ <**kaid-(s)lo-* (Weiss 2012: 161–70) and between [i:] and [i], as in *uīlicus* ‘estate overseer’ beside *uīlla* ‘estate’, *mīlle* ‘thousand’ beside *mīlia* ‘thousands’ (Meiser 1998: 125).¹⁶ The latter change had taken place by the second half of the first century BC.¹⁷

¹⁵ The etymological handbooks disagree on its origin, but IEW (937) and Walde and Hoffman (1938–54: 1.292–3) are right to compare Middle Irish *crith* ‘trembling’, Middle Welsh *cryt*, *cryd* ‘shivering, trembling’ <**krit-u-* or **krit-i-*, Old Saxon *hrīdo*, Old High German *rīdo* ‘fever, trembling’ <**kreit-on-* (Kroonen 2013: 248). It will originally be a repetitive formed from **kreit-sā-* (on this formation, see de Vaan 2012: 317–18; Weiss 2020: 424–5).

¹⁶ Oddly, Weiss (2020: 193, 314 fn. 151) acknowledges only the first environment.

¹⁷ Perhaps the earliest example is *uīlicus* (AE 2004.539, first century BC; 70–31 BC according to EDRo16499); the earliest inscriptional example I can find for *mīlia*, *mīlibus* is dated to the reign of Tiberius (AE 1978.286). CIL 1².638 includes *mīliarios* ‘mile-’,

The standard spelling for *mīlia* and *mīlibus* retained the double <ll> until late in the first century AD. Not including the TPSulp. tablets, I find 27 inscriptions containing these spellings dated to between AD 14 and 100 (many of which would be characterised as official),¹⁸ and only 11 in this period with the spelling *milia*, *miliarius*, *milibus*.¹⁹

The only reference to the geminate spelling in this context in the writers on language which I have found is by Terentius Scaurus, who actually recommends the double spelling:

uerum sine dubio peccant qui ‘paullum’ [et Paullinum] per unum ‘l’ scribunt . . .

There is no doubt that those who write *paullus* with one *l* are wrong . . . (Terentius Scaurus, *De orthographia* 6.7 = GL 7.15–16)

The corpus with the greatest number of relevant forms is the tablets of the Sulpicii, all in the word *mīlia*, *mīlibus* ‘thousands’.²⁰ By comparison to the use of <ss>, where <s> is favoured by both scribes and writers other than Eumenes and Eunus, <ll> appears to be the standard for *milia* and *milibus* in the tablets, in agreement with the rest of the epigraphic evidence.²¹ In Table 29 there are 30 instances of these words being spelt with <ll>, by both scribes and others; none of the 11 instances of spelling with <l> are by scribes; 9 of them are by C. Novius Eunus, whose spelling is highly substandard (see p. 262).

In the Caecilius Jucundus tablets, the balance between <ll> and <l> in *millia* ~ *milia* is much more even, with 4 instances of each spelling (Table 30). It looks rather as if use of *milia* tends to correlate with less standard spelling, and *millia* with more standard spelling, as we might expect if *millia* is standard.

meilia ‘miles’ twice in the second century BC, but this inscription does not write geminate consonants, cf. *tabelarios* for *tabellarios*, *suma* for *summa*.

¹⁸ Including in the *Res Gestae* of Augustus (Scheid 2007; CIL 3, pp. 769–99).

¹⁹ The searches I carried out were: ‘millia’ in the ‘wrong spelling’ option on the EDCS with the dates set as from AD ‘14’ to ‘100’; ‘milibus’ in the ‘wrong spelling’ option on the EDCS with the dates set as from AD ‘14’ to ‘100’; ‘milia’ in the ‘no solutions’ option on the EDCS database with the dates set as from AD ‘14’ to ‘100’; ‘milibus’ in the ‘no solutions’ option on the EDCS database with the dates set as from AD ‘14’ to ‘100’ (11/11/2020).

²⁰ There is also a peculiar mistaken use of <ll> in *Putiollis* (TPSulp. 9) after a short vowel.

²¹ Curiously, Adams (1990: 238 fn. 54) refers to the spelling with geminate <ll> as hypercorrect.

Table 29 <ll> and <l> in the tablets of the Sulpicii

<l>	Tablet (TPSulp.)	Date	Written by	<l>	Tablet (TPSulp.)	Date	Written by
millia	22	AD 35	Aulus Castricius Celer	milia milia milia milibus	51	AD 37	C. Novius Eunus
millia	46	AD 40	Nardus, slave of P. Annius Seleucus	milia milia milia mila	52	AD 37	C. Novius Eunus
millia	46	AD 40	Scribe	m[i]llia	76	No date	C. Trebonius Auctus
milli[bus]	49	AD 49	Scribe	milia	82	AD 43 or 45	L. Patulcius Epaphroditus
millia millia millia	51	AD 37	Scribe				

millia	53	AD 40	L. Marius
millia			Jucundus
millia	53	AD 40	Scribe
millia	54	AD 45	Scribe
millia			
millia	57	AD 50?	Scribe
millia			
millia	58	No date	Pyramus, slave of
millia			Caesia Priscilla
millia	59	No date	Unknown
			non-scribe
millia	66	AD 29	M. Caecilius
			Maximus
millia	69	AD 51	C. Sulpicius
millia			Cinnamus
millia	71	AD 46	C. Julius
			Amarantus
millia	74	AD 51	Scribe

Table 29 (*cont.*)

<ll>	Tablet (TPSulp.)	Date	Written by	<l>	Tablet (TPSulp.)	Date	Written by
mil[l]ia							
millia	77	AD 58	C. Caesius Quartio				
mi ia	79	AD 40	Scribe				
millia							
milliā	98	AD 43 or 45?	Q. Publicus C[. . .]				
millibus	108	No date	Unknown non- scribe				

There are no instances of this word written by scribes. The writing of N. Blaesus Fructio (CIL 4.3340.26), who uses *milia*, is highly substandard (see p. 9 fn. 11). That of Salvius the slave (6) is much better, but omits final <m> in a number of words (see p. 262). M. Fabius Secundus (28) omits all final <m>: *de]ce(m)*, *auctione(m)*, *mea(m)*, *tabellaru(m)*, *s[ign]ataru(m)*. In what is left of the writing of M. Aurelius Felicio (34), the spelling is largely standard, but he does omit the <n> in *duce(n)tos*.

By comparison, in tablet 3 there is little remaining of the writing of the non-scribe but the spelling is standard. Privatus, slave of the colonia, who writes the other tablets with *millia*, has largely standard spelling as well as the old-fashioned spellings *seruos* (142) and *duomuiris* (144). He does, however, have occasional deviations from the standard: *Hupsaei*, *Hupsaeo* for *Hypsaei*, *Hypsaeo* (tablets 143, 147 respectively), *pasquam* for *pascuum* (145, 146), *pasqua* for *pascua* (147).

In the tablets from Herculaneum, there are two instances of <ll> in this lexeme (*millibus*, TH² 52 + 90, interior; *mi]llibūš* A10, interior), both from the 60s AD, and none of <l>. The spelling with <ll> is also found in the name *Pa]ullināe* (62).

In the letters the only case of <ll> is the name *Paullini* (CEL 13); I have found no other instances of original /ll/ after a long vowel or diphthong. At Vindolanda there is one instance of *milia* without a geminate (Tab. Vindol. 343 – the letter of Octavius, whose writing is characterised by both old-fashioned and substandard spelling; p. 262). The curses have *paullisper* (Kropp 1.5.4/3) in a curse tablet from Pompeii and hence no later than AD 79, whose spelling is entirely standard, but *Paulina*, 8.4/1, from the mid-second century AD, and *milibus* in 3.10/1 and 3.18/1, both from third century AD Britain. At Bu Njem there are no examples of original /ll/, and at Dura Europos there is only 1 example of the name *Paulus*. In the Isola Sacra inscriptions there is *milia* (IS 233, dated to the reign of Hadrian), and the names *Paulus* (176), *Paulino* (IS 288) and *Paulinae* (IS 343). This compares with one example of the <ll> spelling in the name *Paullinae* (IS 90).

Singletons for Geminate Consonants after Original Long Vowels

There were (at least) two sporadic rules which produced geminate consonants in the original sequence $(^*)V:C > VCC$ (Weiss 2010; Sen 2015: 42–78). One of these affected high vowels followed by a voiceless consonant, in forms like *Iūpiter* > *Iuppiter*. Since long /i:/ and /u:/ from original $*e_i$ and $*ou$ were affected, a *terminus post quem* for the change is the mid-second century BC. Another rule resulted in the sequence /a:R/ becoming /arr/ (Weiss), or synchronic variation between /a:R/ and /aRR/ (Sen).

According to Sen, the first rule was a diachronic change, while the variation between /a:R/ and /aRR/ was a continuing synchronic development. However, the exact status of the rules is difficult to establish, partly because the evidence of both manuscripts and inscriptions is not always easy to analyse or to date, partly because older spellings could continue to be used beside newer spellings, and partly because of the sporadic nature of the change: in the case of *cūpa* ‘cask’ and *cuppa* ‘cup’, both versions were maintained beside each other (and both continued into Romance), although with a semantic divergence. However, support for the *Iūpiter*-type rule being diachronic comes from the non-attestation of the long vowel variants of some words such as *uitta* ‘headband’ < $*ūita$. The evidence for the change involving /a:R/ is even weaker, but all the best examples ($*pāsokaiḍā > parriḥida$ ‘parricide’, *gnārus* ‘knowing’ beside *narrāre* ‘I tell’, *parret* ‘it appears’ besides $(ap)pāreō$ ‘appear, be visible’) suggest a direction of change /a:R/ > /aRR/ and not vice versa, so I take it that this too is a diachronic change.

In the corpora there are two lexemes which contain these environments. The first is *parret*. The consistent long vowel in *pāreō* and its derivatives suggests that the long vowel was original in this word (de Vaan 2008: 445). Festus says that it should be spelt with <r>, on analogical grounds, but noting that it appears particularly in contracts:

parret, quod est in formulis, debuit et producta priore syllaba pronuntiari, et non gemino r scribi, ut fieret paret, quod est inveniatur, ut comparet, apparet.

Old-fashioned Spellings

Parret, which is found in contracts, ought both to be pronounced with a long first syllable, and not to be written with double *r*, so that it becomes *paret*, which is *inuieniatur* ‘should it be proved’, as in *comparet* and *apparet*. (Festus, *De significatu uerborum* 262.16–19)

There is no clear chronological development in the attestations of *parret* and *paret*, but Festus does suggest that (in practice), the double <rr> spelling was found particularly in contracts, and, in our admittedly meagre data, there does seem to be a distinction between the impersonal usage with <rr> in legalistic contexts, while <r> was used in other senses and contexts. The <rr> spelling is attested in 87 BC in the Tabula Contrebiensis from Spain (CIL I².2951a), the *Lex riui hiberiensis*, also from Spain, from the time of Hadrian (Beltrán Lloris 2006), and in a fresco depicting a wax tablet in a villa near Rome of around 60–40 BC (Costabile et al. 2018: 78, and for the dating 22–3).²² The spelling *paret* appears in the non-impersonal usage at CIL 12.915, CIL 13.5708, Kropp 4.4.1/1 (first century AD), and impersonal but not legalistic at CIL 3.3196 (dated to the second century by the EDCS: EDCS-28600186). The spelling *parret* (TPSulp. 31, scribe) is, therefore, not old-fashioned in the sense that the older form was probably *pāret*. However, it may be that its use with this spelling was specific to the legal/contractual context, and may therefore reflect particular training for this genre for the scribe.

The other relevant lexeme is *littera*, for which the non-geminate spelling is rare; *leteras* (CIL I².583, 123–122 BC) probably represents /li:tera:s/ (Sen 2015: 218), and one may add *litas* (CIL I².3128; 100–50 BC, EDR102136), *līteras* (Castrén and Lilius 1970, no. 266). The spelling with <tt>, on the other hand, is well attested inscriptionally, the earliest examples being *litteras* (CIL I².588.10, 78 BC and CIL I².590.1.3, 70s BC; Sen 2015: 218). In my corpora, the geminate is used in *litteras* in TPSulp. 46 (scribe, AD 40), 78 (non-scribe, AD 38) and 98 (non-scribe, AD

²² Costabile et al. (2018: 82) also observe that ‘in the Veronese parchment *codex* of Gaius *parret* is found only twice, at III 91 and IV 43, probably surviving through the tradition from the original manuscript of the Antonine era on papyrus, and elsewhere normalised to *paret* by post-classical copyists’ (nel codice pergameneo veronese di Gaio *parret* si trova solo due volte in III 91 e IV 43, probabilmente per sopravvivenza dalla tradizione manoscritta originaria di età antonina, su papiro, per il resto normalizzato sempre dai copisti postclassici in *paret*).

Geminates and Singletons

43 or 45). The geminate in *litteras* is found twice at Kropp 6.2/1, from Noricum. The spelling *literae* (Kropp 11.1.1.7, Carthage, first–third centuries AD) is probably a reflection of the writer’s inability to spell geminates correctly rather than an old-fashioned spelling (cf. *posit* for *possit* (twice), *posu[nt]* for *possunt*, *posint* for *possint*, *ilos* for *illōc*). An early letter (CEL 9, last quarter of the first century BC), has *litteras*; otherwise we find only *littera-* (CEL 13, AD 27, then 7 other examples, from the second to the fifth century). The spelling with a single <ɿ> in CEL 9 might, however, be due to a general loss of geminates in this author, who also writes *disperise* for *disperisse*, *sucesorem* for *succesōrem*, *suffragatur* for *suffrāgātur*, rather than reflecting an old-fashioned spelling.

CHAPTER 16

spepondi

The reduplicated perfect of *spondeō* ‘I swear’ was originally *spepondī*, a spelling still used by Valerius Antias, Cicero and Caesar in the first century BC, according to the second century AD author Aulus Gellius (*Noctes Atticae* 6.9.12–15), implying that *spepondi* was the standard spelling at the time. The inscriptional evidence outside the corpora is not very numerous; to some extent it supports this interpretation. There are only 4 instances of *spepondi* (AE 1987.198, AD 256; AE 1987.199, AD 254–256, both from Ostia; CIL 6.10241, around the age of Hadrian; CIL 6.18937). By comparison, there are 8 of *sपोpondi*, of which 2 are dated to the first century AD: CIL 2.5042 = 5406 (AE 2000.66), CIL 6.10239 (EDR177718).¹

It is reasonable to deduce that *sपोpondi* is the standard spelling in the tablets of the Sulpicii and the Herculaneum tablets; it appears frequently in those parts written by both scribes and others (TPSulp. 1, 1bis, 2, 6, 7, 8, 12, 22, 27, 42, 44, 48 (4 times), 51, 53, 54, 57, 63, 68, 69, 75, 103, 104, 105; TH² 6, 60, 59 + DoI, 61, A6, A7, D12, 4, 3). It also appears once in the Caecilius Jucundus tablets (CIL 4.3340.154), and once at Vindonissa (T. Vindon. 3, AD 90).

In the tablets of the Sulpicii there are also instances of *spepondi* in the *chirographa* of C. Novius Eunus (TPSulp. 51, 52, 67, 68, AD 37–39), who actually writes *spepodi*, L. Faenius Eumenes (27, AD 48), and L. Marius Jucundus, freedman of Dida (53, AD 40). It is noteworthy that the old-fashioned spelling appears only in the writing of non-scribes, and that all three writers have at least one substandard spelling. In addition, both Novius Eunus and Faenius Eumenes also include other old-fashioned features. For the spelling of these writers, see p. 262.²

¹ I searched for ‘spepond’ and ‘sपोpond’ in the ‘original texts’ search of EDCS (17/05/2021). One more instance of *sपोpondi*, AE 1982.201, is in fact part of TPSulp. 105.

² Jucundus’ use of *millia* is not old-fashioned, since this was the standard spelling at this date (see pp. 193–8).

CHAPTER 17

popl- and *pupl-* for *publ-*

The word *populus* goes back to **poplos*, and the unepenthesised form is still attested in inscriptions from the fifth to the early second century BC; *populus* is first seen in inscriptions dating from the second half of the second century BC (Sen 2015: 149–51). The word *pūblicus* ‘public’ and names such as *Pūblius* ultimately go back to derived forms like **poplikos*, **popliios* etc. At some point the first vowel became /u:/ and the second **p* became /b/. It is commonly supposed that this was due to contamination with *pūbēs* ‘manpower, adult population’, but a sound change is not ruled out. Both changes had taken place by the start of the second century BC on the basis of inscriptional evidence like *Publio(s)* (Marengo 2004: 169–70 no. 17: third or start of the second century), *Poublilia* (CIL 1².42), *poublicom* (CIL 1².402), *poublīcom* (CIL 1².403), and long scansion of the first vowel in Plautus. On all this, see Sen (2015: 142–6, 151–2).

In the imperial period, the old spelling with <o> and <p> appears in names in *Poplicola*, *Popliçola* (TPSulp. 48) for *Pūblicola*, and with <o> but in *Poblici(us)* (Kropp 1.7.4/1, Cremona, early first century AD) for *Pūblicius*, *Poblicola* (TPSulp. 3, 77), *Po[b]lico[l]a* (TPSulp. 32) for *Pūblicola* and *Poblicius* (TPSulp. 98) for *Pūblicius*. I have not done a thorough collection of examples in the corpora, since this spelling probably has more to do with the choices of the bearer of the name than the writer (assuming that those with this name adopted a spelling pronunciation).

However, there are also forms which are spelt with <u> but <p> rather than . Whether *pūblicus* etc. is explained analogically, or by voicing of **p* to /b/ followed by ‘breaking’ of **o* to /ou/ > /u:/ as Sen supposes, there can never have been a form in which the

Old-fashioned Spellings

**o* had developed to /u(:)/ but **p* had not become /b/. So these forms must reflect not only old-fashioned spelling but artificial spelling. Again, in names such as *Puplianus* (P. Dura 100.xvii.13), I do not think that this tells us much about the education of the writer.¹

One writer, however, uses the spelling with <u> and <p> outside an onomastic context. C. Novius Eunus has *puplicis* for *pūblicīs* (TPSulp. 51, 52). The standard form is found in the part of the tablet written by a scribe, and also in both hands of one other tablet. Prior to its appearance in Eunus' tablets this spelling only appears in the legal text CIL 1².583 (123–122 BC, Crawford 1996 no. 1), where it is presumably a false archaism felt to be appropriate for the legal register (the same text also has *poplic-* and *poblic-*). The old-fashioned nature of *puplicis* is highlighted by the fact that neither *poplicus* nor *publicus* are attested even in legal texts after the end of the second century BC (Decorte 2015: 168–9). The spelling *puplic-* is attested in a handful of inscriptions later (or possibly later) than the tablets of Eunus: CIL 8.1280 (no date), CIL 14.3530 (AD 88), CIL 6.2097 (AD 61–180, EDR020711), *puplico(rum)* (ILA 492, AD 412–414).²

¹ James Clackson (p.c.) points out to me that, since the name *Publius* is written Πόπλιος in Greek, we could also envisage Greek influence, at least at Dura. There is practically no evidence that Eunus, whose spelling is discussed in the next paragraph, was a second-language speaker at all, let alone of Greek (Adams 1990: 245 mentions the 'remote possibility' one syntactic feature is a Grecism; on possible Oscan influence, see Adams 1990: 232–3 and Zair in press: 337–8, fn. 31).

² In this last inscription a mistake is not out of the question, since it also has *ciuiuat[is]* for *cūiūtātis* and *contatione* for *conlātiōne*.

PART II

APICES AND I-LONGA

CHAPTER 18

Apices and i-longa: Introduction

The *apex* was a diacritical sign which appears in inscriptional evidence above or to the right of the vowel sign it modifies.¹ The earliest datable example, according to Oliver (1966: 50), is *múrum* (CIL I².679, 104 BC). We are informed by the writers on language that the purpose of the *apex* was to mark vowel length. Thus Quintilian notes, of the letters for vowels:

at, quae ut uocales iunguntur, aut unam longam faciunt, ut ueteres scripserunt, qui geminatione earum uelut apice utebantur aut duas . . .

When joined together as vowels, however, they either make one long vowel (as in the old writers who used double vowels instead of an *apex*) or two vowels . . .² (Quintilian, *Institutio oratoria* 1.4.10)

ut longis syllabis omnibus adponere apicem ineptissimum est, quia plurimae natura ipsa uerbi, quod scribitur, patent, sed interim necessarium, cum eadem littera alium atque alium intellectum, prout correpta uel producta est, facit: ut “malus” arborem significat an hominem non bonum, apice distinguitur, “palus” aliud priore syllaba longa, aliud sequenti significat, et cum eadem littera nominatio casu breuis, ablatiuo longa est, utrum sequamur, plerumque hac nota monendi sumus.

For example: it would be very silly to put an apex over all long syllables, because the length of most of them is obvious from the nature of the word which is written, but it is sometimes necessary, namely when the same letter produces different senses if it is long and if it is short. Thus, in *malus*, an apex indicates that it means “apple tree” and not “bad man”; *palus* also means one thing if the first syllable is long and another if the second is long; and when the same letter is found as short in the nominative and as long in the ablative, we commonly need to be reminded which interpretation to choose.³ (Quintilian, *Institutio oratoria* 1.7.2–3)

¹ On the varying shapes of the *apex*, see Oliver (1966: 149–50).

² Translation from Russell (2001). ³ Translation from Russell (2001).

A fragment following the *De orthographia* of Terentius Scaurus in the manuscripts and sometimes attributed to him (see [Zetzel 2018: 319](#)) also provides some information about the *apex*:

apices ibi poni debent, ubi isdem litteris alia atque alia res designatur, ut uēnit et uenit, āret et aret, lēgit et legit, ceteraque his similia. super i tamen litteram apex non ponitur: melius enim [i pila] in longum produceretur. ceterae uocales, quae eodem ordine positae diuersa significant, apice distinguuntur, ne legens dubitatione impediatur, hoc est ne uno sono eadem pronuntientur.

Apices ought to be placed where by means of the same spelling two different words are written, such as *uēnit* and *uenit*, *āret* and *aret*, *lēgit* and *legit*, and other similar instances. No *apex* is placed over the letter *i*: it is better for this to be pronounced long by means of *i-longa*. Other vowels, which, placed in the same order, signify different things, are distinguished by an *apex*, so that the reader is not impeded by uncertainty, that is so that he does not pronounce with the same sound these same vowels. ('Terentius Scaurus', GL 7.33.5–10)

From these two writers then, it is generally gathered that *apices* and *i-longa* were used to mark long vowels,⁴ but they recommend using them only when words are distinguished only by length of a vowel. This part of the prescription of Quintilian and 'Scaurus', that *apices* should be used only to distinguish words that were otherwise written identically, is not followed in any inscription of any length ([Rolfe 1922: 88, 92](#); [Oliver 1966: 133–8](#)).

A couple of letters may suggest that some writers aimed to use *apices* not only on long vowels, but also on most, if not all, long vowels (except for /i:/, which seldom receives an *apex*). One of these is CEL 8, written on papyrus, which is dated to between 24 and 21 BC, and probably comes from a military scriptorium. [Kramer \(1991\)](#) provides a different reading from that of CEL. If he is correct, this would be an example of (almost) every long vowel being marked:⁵ 44 *apices* or *i-longa* on 49 long vowels, plus 1 *i-longa* on a short vowel; but of the 5 missing a mark, 2 are in areas where the papyrus is damaged, so they might have been

⁴ Strictly speaking, Quintilian says that they are placed over long syllables, but his examples all involve a length difference in the vowels. 'Terentius Scaurus' does not say explicitly that the *apex* marks long vowels, although his statement that one should use an *i-longa* instead of an *apex* with /i/ implies this – in principle he could equally be suggesting that *apex* be used to mark short vowels when there is a difference in vowel length between words otherwise spelt the same.

⁵ Including a historic long vowel, in *tibi*.

lost.⁶ CEL 83 is a papyrus letter from the Fayûm, described by the editor as ‘in elegant epistular cursive’ (in *corsiva epistolare elegante*), and again perhaps in a military context. Cugusi prefers a date in the second half of the first century AD, but second and third century dates have been suggested. This letter contains 14 *apices*, 7 on /ɔ:/, 4 on /a:/, 1 on /e:/, 1 on /u:/ and 1 on /i:/ (there are no instances of *i-longa*). This compares to 3 other instances of /ɔ:/ without an *apex* and 2 of /u:/ (and 9 of /i:/).

Apart from these rare cases, exactly what rule or rules governed the placement of *apices* therefore often remains obscure, and may vary according to time, place, register or genre, or training. There are three variables which are relevant for our discussion of *apices*, and to some extent also *i-longa*. These are (1) the position in the text or nature of a word which contains an *apex* or *i-longa*, (2) the position in the word of a vowel or diphthong which bears an *apex* or which is an *i-longa*, and (3) the nature of the vowel (or diphthong) that bears an *apex*: (a) is it long or short (if it is a single vowel), and (b) what vowel or diphthong is it? In the case of *i-longa*, the relevant question for (3) is whether it represents long or short /i(:)/ or consonantal /j/. These variables are not necessarily independent: for instance, if the writer was marking all long vowels in a text with an *apex* or *i-longa*, or were following the advice of Quintilian and ‘Scaurus’ to only mark long vowels in homonyms, this would obviously determine their position in both the text and in the word. However, when the situation is not so clear-cut, as it nearly never is, it is important to take these variables into account, and to consider which apply. As we shall see, there is considerable variation in our texts, or at least those for which the editions provide information about *apices* and *i-longa*. This variation is extremely interesting in terms of the questions surrounding sub-elite education that I am addressing in this book, since it suggests that individual groups of scribes or stonemasons had developed their own rules for when and where to use these diacritics.

⁶ Under Cugusi’s reading in CEL, there are only 12 *apices* out of 27 long vowels, by comparison with the use of *i-longa* to mark every /i:/ (and if *Nireo* really stands for *Nērio*, one /e:/, with spelling confusion arising from the merger of /i/ and /e/; Cugusi 1973: 661), with the exception of *Macedoni* (line 1) in the greeting.

Apices and *i-longa* have been the subject of a number of studies, which have discussed some of the variables which we have mentioned. The use of the *apex* primarily to mark long vowels (but not all long vowels) is largely confirmed by long inscriptions which presumably reflect elite usage such as the evidence of the *Laudatio Turiae* of 15–9 BC (CIL 6.1527, 6.37053; EDR093344), and the *Res Gestae Diui Augusti* of AD 14 (Scheid 2007; CIL 3, pp. 769–99), as discussed by Flobert (1990: 103–4). The first of these has 5 *apices* on short vowels or diphthongs out of 134 *apices* altogether (so 129/134 = 96% long vowels), while the *Res Gestae* has 9 out of 427 (418/427 = 98% long vowels). However, this is by no means consistent across all inscriptions. Flobert's (1990) corpus of inscriptions from Vienne and Lyon has 75–77% of *apices* on long vowels, and Christiansen (1889: 17) notes the relative frequency of an *apex* on <ae>.⁷

The passage of 'Scaurus' also implies that *i-longa* is the equivalent of the *apex*, that is it is used to mark vowel length for /i:/. While, again, this is true in some inscriptions, Christiansen (1889: 29–32) identified many cases where it represented /j/, and also suggested that it was used for purely ornamental purposes, at the start of an inscription, at the beginning or end of a line, or even to mark a new phrase (Christiansen 1889: 36–7). Many of the examples of ornamental or text-organisational *i-longa* are found on a short /i/. Very

⁷ Flobert includes instances of *i-longa* in his figures, but since the use of *i-longa* is different in both quantity and type in the Isola Sacra inscriptions and TPSulp. tablets, and *i-longa* is not recorded in the editions of the Vindolanda tablets, I have given here the figures of *apices* only. The numbers for Vienne and Lyon are not quite certain: *apices* on non-long vowels are 55–56 out of 224 *apices* in total, consisting of 38 instances of *ae* or *aē*, 1 of *au*, then perhaps 16 or 17 short vowels under the *apex*. According to Flobert (1990: 106) there are 22 'quantitative faults' in the corpus (in which he does not include *apices* on diphthongs), but the data he gives consists of 4 instances involving *i-longa*, 16 of *apices* on short vowels, an instance of *Gallicae* printed without *apex* or *i-longa* (and described as one of three examples 'quite poorly established' (assez mal établis), and the third syllable of *cūrāuerint* and *curaerunt* (23 items in total). Since *-erunt* was certainly alive in poetry and may have still existed in (educated) speech, I do not count the *apices* on *-erunt* as on short vowels. Going by p. 108, we should read *Gallicae* rather than *Gallicae*, unless the *apex* on <ī> is a mistake for an *i-longa*. It is not clear what inscription *Gallicae* comes from: the only instance of this word I can find in the corpus is *Gallic(ae)* in CIL 13.1807, which is printed with neither *apex* nor *i-longa*; the pictures available online at [db.edcs.eu/epigr/bilder.php?bild=\\$CIL_13_01807.jpg;\\$CIL_13_01807_1.jpg&nr=1](https://db.edcs.eu/epigr/bilder.php?bild=$CIL_13_01807.jpg;$CIL_13_01807_1.jpg&nr=1) and [db.edcs.eu/epigr/bilder.php?bild=\\$CIL_13_01807.jpg;\\$CIL_13_01807_1.jpg&nr=2](https://db.edcs.eu/epigr/bilder.php?bild=$CIL_13_01807.jpg;$CIL_13_01807_1.jpg&nr=2) (viewed 24/10/2018) are not of high enough quality to allow for certainty, but I do not believe there is an *i-longa*, and cannot tell whether there is an *apex*.

similar conclusions were drawn from an examination of the inscriptions from Hispania by Rodríguez Adrados (1971), and from a corpus of military diplomas dating from AD 52 to 300 by García González (1994). This latter provides some further evidence for the use of *i-longa* as ornamental, or as a way of marking out text structure, in observing that use of *i-longa* in the abbreviation *imp(erator)* correlates with position at the start of the diploma, and is not used so frequently in other places in the text (García González 1994: 523).

Rolfe (1922) identified several tendencies in placement of the *apex* (and *i-longa*) in the inscriptional texts he examined. Firstly, that they tend to be used frequently in some passages but not in others; two words in agreement often both bear them, but sometimes consecutive non-agreeing words also have them. Secondly, that they seem to add dignity or majesty to certain terms, especially connected with the Emperor and official titles; frequent use in names may also fall under this heading. Thirdly, they act as a type of punctuation, before a section mark in the *Res Gestae* or where punctuation is used in the English translation. Fourthly, they appear on the preposition *a*, and on monosyllabic words in general. Lastly, they mark preverbs, word division in compounds and close phrases, suffixes, case endings, and verbs in the perfect tense. In his study of *apices* and *i-longa*, Flobert (1990: 106), assuming that their basic purpose is to mark long vowels, suggests reasons for cases on short vowels. Like Rolfe, he sees them as a marker of an important word or name, and draws attention to the use of *i-longa* in his corpus in the name of the Emperor Tiberius (although for some doubt about this, see pp. 256–7).⁸ More recently, Fortson (2020) has identified, in an inscription of the Arval Brothers (CIL 6.2080, AD 120), the use of *apices* and *i-longa* to mark out phrase units, generally on the last word of the phrase.⁹

⁸ Other reasons identified by Flobert include ‘attaque énergique’ on the first syllable, noting that ‘it is known that the intensity of the initial syllable has left traces in the Romance languages’ (on sait que l’intensité initiale a laissé des traces dans les langues romanes), analogy (e.g. *coniūgi* after *coniūnx*), marking of syllables long by position, as in *cūius* [kujjus], or ‘contagion’ in cases like *cūrauerunt*, where the scribe was apparently on a roll after three *apices* on long vowels, and saw no reason to stop.

⁹ Following all these factors, use of the *apex* and *i-longa* may strike the reader as rather overdetermined.

Most of the evidence for *apices* and *i-longa* mentioned above has come from inscriptions on stone or bronze, often with a particular focus on the long official/elite inscriptions such as the *Res Gestae* and the speech of Claudius from Lyon (CIL 13.1668).¹⁰ In the following sections I will discuss the evidence of some sub-elite corpora, on stone in the case of the funerary inscriptions of the Isola Sacra, and on wax or wooden tablets in the case of the archive of the Sulpicii, and the texts from Herculaneum and Vindolanda.¹¹ These will suggest that use of *apices* and *i-longa* in these corpora was often rather different from the picture shown by our elite sources, and that it was often associated in particular with scribes and stonemasons rather than other writers, thus providing evidence for their orthographic education.

Since the relatively few letters which boast *apices* do not form a cohesive corpus in terms of time or place of composition, I will not discuss them at great length here.¹² A couple of relevant instances have already been mentioned above. In general, the letters match expectations on the basis of the evidence of the writers on language and the elite inscriptions in that the *apices* appear almost entirely on long vowels: out of a total of 73 *apices* (using the reading of Kramer 1991 for CEL 8), all but 2 or 3 are non-long vowels: the exceptions are *Cláudi* (CEL 72), *epistolám* (CEL 166), where the vowel is phonetically long [ã:], and perhaps *J.gó* (CEL 85), which, if it is *ego*, marks a historically long vowel. This makes the divergent usage in the other corpora all the more striking (especially at Vindolanda, where many of the texts containing *apices* are letters).

Since, as already mentioned, and as will become even clearer from the discussion below, *i-longa* and *apices* generally cannot be considered as simply equivalents of each other for /i/ and other

¹⁰ The recent edition of Malloch (2020) regrettably does not include *apices* or *i-longae*, but does briefly discuss their use at Malloch (2020: 18–19).

¹¹ Unfortunately, editions often do not report the presence of *i-longa*; for example, the editors of the Vindolanda tablets give *apices* but not *i-longa* (but for some information on *i-longa* in this corpus, see Cotugno 2015), while in his edition of the London tablets, Tomlin (2016: 19) does not include *i-longa*, commenting that '[i]t serves to mark an initial letter . . . and is not confined to vowels which are quantitatively long . . .', and giving only a couple of examples.

¹² These letters are CEL 8, 72, 83, 85, 140, 151, 154, 163, 166, 168, 173, 174, 175, 177, 191, 194.

vowels respectively, I will discuss the two features separately. The exception to this is the discussion of the Isola Sacra inscriptions with which I begin, where it makes sense to take the two together because their use is rather similar.

Before we turn to these particular corpora in detail, however, it is worth pointing out two serious methodological problems in dealing with *apices* and *i-longa*. One of these is the question of how to recognise long and short vowels. Latin underwent a number of sound changes which affected inherited long and short vowels, such that it is not always easy to be sure whether a given vowel was long or short at the time and place of writing of a given document, nor whether length was phonological or phonetic. Of particular relevance are iambic shortening and shortening of other long word-final syllables, and lengthening before /r/ in a syllable coda (see pp. 42–3). I will assume here that in originally iambic words which were paradigmatically isolated, like *ego* < *egō* ‘I’, the final vowel is short, but that all other originally long final vowels, even in iambic word forms which are not paradigmatically isolated, were long (or at least, it was known that these ‘should’ be long). I will also assume that vowels before coda /r/ could be phonetically long.

The second issue is the question of what is being counted. If we want to draw conclusions about the use of *apices* or *i-longa* it is important to know which vowels are marked in this fashion, but also which are not. For example, as we shall see, Adams observes that *apices* are particularly common on word-final /a(:)/ and /ɔ(:)/ in the Vindolanda tablets. However, this information is incomplete unless we also know what proportion these instances of *apices* make up of relevant vowels in these tablets. To take an example: suppose in the tablets containing <á> and <ó> these were the only vowels (or the only long vowels, or the only word-final vowels): this would make a significant difference to our analysis of how the *apex* was being used compared to a situation where there are plentiful examples of /a(:)/ and /ɔ(:)/ (not to mention /ɛ(:)/, /e:/ and /u(:)/ without *apices*).

This example was intentionally absurd. But, as we shall see, the tablets do contain a particularly high number of *apices* on long final /ɔ(:)/ compared to other text types. This does not necessarily

mean that writers at Vindolanda were more fond of putting an *apex* on /ɔ(:)/ in this position than on /a(:)/, but may simply reflect a preponderance of this context: most of the tablets containing *apices* are letters written to and from men; consequently the greetings formula and addresses of these letters tend to contain large numbers of second declension nouns in the dative and ablative; likewise, names mentioned in the main text are more commonly men than women.

To collect all instances of vowels without *apices* as well as with *apices* in the Vindolanda tablets, or in other large corpora which have *apices* and *i-longa*, would be overwhelming, but I will look closely at some texts which have relatively large numbers, in order to get at least a qualitative idea of whether the picture from looking over the whole corpus seems to fit in with the practice in individual texts.

Apices and *i-longa* in the Isola Sacra Inscriptions

Several of the Isola Sacra funerary inscriptions contain *apices* (see Table 31). The most important variable in the use of the *apices* is position in the text. Their main purpose is to emphasise the initial *dīs mānibus* formula (as noted by Christiansen 1889: 12) and/or some or all of the names on the tomb (particularly the names of the deceased, or the person for whom the tomb is intended).¹ As will be discussed shortly, although the *i-longa* is mostly used differently, in some cases it also takes part in this usage. Thus in IS 69, there are *apices* on *mānibus* and on three out of four of the non-abbreviated parts of the name formulas of the two dead women, while in IS 70, which uses the abbreviation *d. m.* for *dīs mānibus*, there are two name formulas which each receive an *apex* on the only long vowel (which is not /i:/) in the formula. In some cases words modifying these names are also given *apices*.

In the fairly long IS 253, the initial two name formulas do not receive an *apex*, but at the second mention of M. Antonius Vitalis an *apex* is used (on, unusually, an <i>). The two lines containing the name formulas at the start of the inscription are in larger letters than the rest of the text, so it is possible that these were already felt to be appropriately marked out, and not to require an *apex*.

Apart from IS 127, on which see directly below, out of 15 inscriptions containing *apices*, only 4 inscriptions (IS 97, 110, 169 and 314) place *apices* on words that do not fall into these categories. These *apices* are all on long vowels. The apparent disparities in these texts from the standard practice in the latter two are less stark than they may at first seem. IS 169 is the only inscription which contains the unabbreviated *dīs mānibus* formula and which does not place an *apex* on either of the words. However,

¹ Similar emphasis has been put on the *dīs mānibus* formula and on names by means of variation in letter sizes in IS 82 and 92.

Table 31 *Apices in the Isola Sacra inscriptions*

Inscription	dis manibus	Name(s) of deceased	Name(s) of builder	Other words
IS 69	dis mánibus	Alfiáe M. f. Próciállae	P. Sextilius Pannychianus	
IS 70	d. m.	Cónsidiáe Saturninae M. Licinius Hermés		
IS 72	dís mánibus	P. Betileno Synegdemo	Betiliena Antiochis	
IS 79	d.m.	Aphrodisiáe karíssiamaé béne merenti	L. Suallius Eupór	
IS 97	diis m. (right side)	C. Nunnidius Fortunatus	Claudi Luperci	púrum ^a
IS 110		Iúliae C. f. Quintae M. Antonio Hermeti		filí
IS 128	diis mánibus	Iúliae L. f. Apollóniae	C. Annius Proculus C. Nymphidius Ogulnianus	
IS 130	d. m.	Antoniáe Tyche matri optimáe	MMM Antonii Vitális, Capitó, Ianúárius filii	
IS 169	dis manibus	Aristida Artemidori fil. Rodius Petróniae Hygiae Petrónio Dextro		fécit eórum
IS 195		Ónesimé	Erós cónseru[
IS 210	d. m.	M. Ulpio Marciano Marco Ulpio Eú tacto	Ulpia	
IS 253	d.m.	M. Antonius Vitalis M. Antonius M. filius Verus M. Antoní Vitalis		

IS 309	dis mánibus	Murdiae Apelidi	Ampliato Eróte Ampelide Nice	
IS 314		Ti. Plauti[agró
IS 360	d.m.]li Eutychetis]odius Deúther	

^a The *apex* is not printed by the editors, but is noted in the commentary and is clear in the photograph.

the first line and most of the second, containing *dīs mānibus* and the first name formula, have been erased and rewritten. Since both of the other two name formulas in this inscription are given an *apex*, it is reasonable to suppose that the same would have been true of the first one, and probably also of *dīs mānibus*. In the case of IS 314 the inscription is extremely damaged and not much text remains, so it is impossible to know whether it would also have used *apices* on the *dīs mānibus* formula, or on some of the names as well.

IS 127 shows a markedly divergent, as well as highly enthusiastic, use of *apices*: the editors identify them as dividing words, indicating abbreviations, filling empty spaces, and indicating the accent. As to the accent position, I presume they refer to the small number of *apices* which appear above rather than between letters, on the initial letters of every word of the second line *Žosimes quae uixit*, and on *tabell(arius)*. I would analyse the use of *apices* in the second line as emphasising the name of the deceased (the first line is simply *d.m.*).

The distribution by vowels and diphthongs is remarkably even, including, unexpectedly, on <i>:

a:	ε	e:	i	i:	o	o:	u	u:	ae	eu
6	1	3	1	4	3	8	2	2	6	2

There is a weak tendency for the *apex* to be placed on long vowels: except for <u>, there are more *apices* found on the long version of each vowel than on the short; out of the 4 instances of non-abbreviated *mānibus* which bear the *apex*, all have an *apex* on the <a>, and only one (also) has an *apex* on the <u>; and some inscriptions (IS 70, 128, 309, 169, plus 314 and 253, in which only one *apex* is found) only use *apices* on long vowels. Also, all *apices* which are not on the *dīs mānibus* formula, on names, or on adjectives agreeing with names, are on a long vowel, although this may be a coincidence. But only 23/38 = 61% *apices* are on long vowels, with 8 being on diphthongs and 7 on short vowels. As we will see, this is a much lower rate than even the Vindolanda tablets or the tablets of the Sulpicii, both of which show a lower rate than the 75–77% in the Lyon and Vienne inscriptions examined by Flobert (1990). The position in the word is also evenly

spread, with only 14/38 (37% plus 1 monosyllable) *apices* being on the final syllable (again, this is much lower than at Vindolanda or the tablets of the Sulpicii, which favour final syllables).

It seems pretty clear that in general the use of *apices* in the Isola Sacra inscriptions is for decoration/text structure rather than for the purpose of marking vowel length, although this may have been a secondary consideration, since some inscriptions only used *apices* on long vowels. IS 169 and perhaps IS 314 took a somewhat different approach, in which only long vowels were marked, even on words which are not part of a name or an attributive noun or adjective phrase – although even in IS 169, 2 out of 4 words with an *apex* are names.

We must remember that inscriptions from the Isola Sacra which contain *apices* are very much the minority. Nonetheless, the fact that there is a pattern in the use of *apices* in the inscriptions which contain them suggests some sort of educational tradition among the writers of these inscriptions, however broadly defined. We might think of a relatively formal tradition among those who were employed to compose funeral inscriptions or advise customers on their composition, a much looser tendency among some writers to reproduce what they find in looking at other funerary inscriptions, or even a habit passed along by the stonemasons of tombstones themselves, adding *apices* on their own initiative at the time of engraving the texts.

There are 84 instances of *i-longa* compared to 36 instances of *apices* in the Isola Sacra inscriptions, introducing the theme we will see in the tablets of the Sulpicii, and those from Herculaneum, of greater use of *i-longa* than of the *apex*. As in the other corpora, *i-longa* is found to represent long /i:/ (37; Table 33), short /i/ (34; Table 32), as well as /j/ (9; Table 34), plus 4 more uncertain whether short /i/ or /j/.² Unlike in the TH² corpus, where <i> is massively favoured as a way to write /i:/, a (small) plurality but not a majority of <i> in the Isola Sacra inscriptions represent /i:/. This matches with the use of *apices* in this corpus, where marking of long vowels was not a priority.

² The uncertain cases are *Caninae*, *Piae*, *Caninae* (all IS 160), *Valeria* (IS 199). In Classical Latin these would all be on short /i/, but in at least some sociolects, short /i/ in hiatus had been desyllabified to /j/.

Table 32 *i*-longa on short /i/ in the *Isola Sacra* inscriptions

Word containing <i>i</i> -longa	Text
incomparabili	Isola Sacra 16
in	
in	
Ionici	Isola Sacra 60
Crescentis	Isola Sacra 68
in	Isola Sacra 103
in	
ita	Isola Sacra 106 ^a
inferatur	
in	
in	
ita	Isola Sacra 107
inferatur	
in	
piïssim(o)	Isola Sacra 126
piïssimae	Isola Sacra 128
piïssimi	Isola Sacra 130
piïssimae	Isola Sacra 132
piïssimae	Isola Sacra 154
piïssimis	Isola Sacra 156
priuignae	Isola Sacra 160
Maximo	
in	Isola Sacra 167
in	
quibus	
piïssimo	Isola Sacra 169
piïssimo	Isola Sacra 177
piïss(imae)	Isola Sacra 183
sibi	Isola Sacra 269
fecit	Isola Sacra 272
piïssimae	Isola Sacra 278
piïssimae	Isola Sacra 291
piïssimo	Isola Sacra 323
Titiniae	Isola Sacra 335

^a The second *in* in the final line is not marked with an *i*-longa by the editors, but is clearly visible in the accompanying photo.

Table 33 *i-longa on long /i:/ in the Isola Sacra inscriptions*

Word containing <i>i-longa</i>	Text
incomparabili	Isola Sacra 16
dii	Isola Sacra 36
posterisque	Isola Sacra 50
dis	Isola Sacra 67
Auxesi	Isola Sacra 71
Didiae	Isola Sacra 75
libertis	
diis	Isola Sacra 97
diis	
libert(is)	Isola Sacra 103
libertab(usque)	
libert(is)	Isola Sacra 106
libertabus	
libert(is)	Isola Sacra 107
libertabus	
Anniani	Isola Sacra 114
diis	Isola Sacra 128
Antonii	Isola Sacra 130
fili	
matri	
Vitalis	
diis	Isola Sacra 132
filis	Isola Sacra 160
Caninia	
libertis	
libertis	
libertabusque	
is	Isola Sacra 167
Italiam ^a	Isola Sacra 223
Niceni	Isola Sacra 225
qui	Isola Sacra 226
suis	
Macrina	Isola Sacra 228
idus	Isola Sacra 251
dis	Isola Sacra 309
lib(ertis)	
mei	Isola Sacra 320

^a In context, as the first syllable of a hexametric line, <i> the is presumably considered long.

Table 34 *i-longa* on /j/ in the Isola Sacra inscriptions

Word containing <i>i-longa</i>	Text
Luceiāe	Isola Sacra 16
coniugi	Isola Sacra 103
̄Iuliae	Isola Sacra 110
̄Iulia	Isola Sacra 153
ius	Isola Sacra 167
coiux	Isola Sacra 210
̄Iuniāe	Isola Sacra 226
eius	Isola Sacra 268
̄Ianuarius	Isola Sacra 318

The reason for this fairly equal distribution is that, even more than with the *apices*, use of *i-longa* is often driven by non-strictly linguistic factors, in particular a tendency for *i-longa* to be used to create visual clarity when preceded or followed by a letter formed with an upright stroke. The clearest example of this is the use of <i> for the second vowel in a sequence /i.i/ found in the word *piissimus*, which makes up 12/34 of the instances of *i-longa* for a short /i/. There was evidently a convention that in such a sequence the second <i> was lengthened for visual clarity.³ Many of the examples occur in inscriptions in which *i-longa* was not otherwise used, despite the presence of other instances of <i> (IS 126, 154, 156, 169,⁴ 177, 183, 278, 291, 323), which demonstrates that it is just this sequence which was targeted.

Unsurprisingly, where the second <i> in the sequence represented long /i:/, *i-longa* is also sometimes found. Again, in IS 36 (*dīi*), 97 (*dīis*, twice), and 132 (*dīis*, *pīissimae*), it is only used in

³ As already observed by Gordon and Gordon (1957: 191), ‘the I plus tall I [i.e. *i-longa*] is both more legible and handsomer than two I’s [sic] of normal height’; see also Christiansen (1889: 39–40). Rodríguez Adrados (1971: 164) suggests that the avoidance of two identical strokes was due to the possibility of misunderstanding II as one of the ways of writing <e>. This seems unlikely with regard to the Isola Sacra inscriptions, however, where I have found no examples of II for <e>, at least in those inscriptions with published drawings or photographs.

⁴ This inscription has no other examples of *i-longa*, but does use *apices*, only on long vowels.

this context. The same is true of 128 (*diis, piùssimae*, although long vowels are also given *apices* in *mánibus, Iúliae, Apollóniae*). In IS 130, three sequences of <i> are found (*Antonii, filiù, piùssimi*), but the *i-longa* is also used to mark long /i:/ in *matrì* and *Vitális*. In these last two inscriptions, an interaction between use of *i-longa* and the decorational/emphatic purpose of the *apex* seems possible (*diis* agreeing with *mánibus, piùssimae* with *Iúliae* and *Apollóniae; filiù* and *piùssimi* agreeing with *Vitális, Capitó, and Ianúarius*). In *Ídus* (251), the first letter of the word comes directly after the number IIII, so the *i-longa* here serves a useful function in marking off the number from the start of the word (although there is also an interpunct there is little space between the two).

Practically all the instances of *i-longa* for short /i/ can be explained by a similar habit, where I is next to N (*in, in-*), M (*maximo*) or T (*Crescentis, ita, Titinia, fecit*), as can many instances for long /i:/ and /j/: L (*libertis, libertabus, filis*), T (*libertis, Ítaliám, Vitális*), N (*Anniani, Niceni, Macrina, Antoni, coniugi*). In these cases, the adjacent letters all involve one or two uprights which, when adjacent to the single upright of I, could cause some confusion in reading.⁵ Of course, this may be coincidental, and there are examples of <i> next to other letters. But support comes firstly from the very clear case of *Caninia* and *Can\inia*, where the photo shows how much more difficult to segment the sequence NINI in the former and INI in the latter would be without the use of *i-longa*; and secondly from the fact that <i> is not in fact the only letter that takes place in this process. Thus we find, for example, <t> lengthened in *Sitti, merenti* (IS 68), *fecit, Rutiliae* (IS 49), *fecit* (IS 99), *optimae* (IS 130), *libertis* (IS 241, left side), *Primitibus* (IS 315), *fecit, adiutum, manumiserit* (IS 320), *Tattia* (IS 332, third <t>) and <l> lengthened in *libertis, libertabusque* (IS 14), *libertis* (IS 71), *libertab(usque)* (IS 120).⁶

⁵ Rodríguez Adrados (1971: 167) suggests that there was also another practical motivation for *i-longa* in these contexts, to avoid chipping.

⁶ There are also various other contexts in which letters tend to be elongated in this corpus, notably <t> when followed by <e>, as in *fecit* and *felix*, as well as the abbreviation for *filius*, and <t> in *et*. In addition, it is not uncommon to find a letter elongated for which no such context emerges, sometimes for reasons of space, sometimes for no very obvious reason.

Most examples of *i-longa* can be explained by reference to this practice, as well as the tendency we have already seen in the discussion of *apices* to use it as one of several methods to emphasise personal names.⁷ In IS 60, for instance, in addition to *Ionici*, the <y> found in *Alypo* and *Chrysopolis* is considerably higher above the line of the other letters (although there are no examples of <y> in non-names in this inscription to compare it to); the initial <a> of *Alypo* appears in the photo also to extend higher above the line than elsewhere, although this is not commented on by the editors. The <f> of *f(ilio)* in the name formula is also described by the editors as ‘grande’ (as well as the <x> of *uixit*). In IS 71, *Auxesi* has an elongated <x> as well as the *i-longa*, as does the <f> of *Felici* (although, as noted in fn. 6, <f> tends to be elongated before <e> anyway). In IS 75, beside the *i-longa* of *Didiae*, the second <e> of the cognomen *Helpidis* bears what the editors call ‘a stroke at the top, lengthened towards the left’ (un trattino superiore . . . allungato verso sinistra), which seems to be another way of marking out the name. In 130, every word in the sequence *Antoniáe Tyche matrì optimáe* has either an *apex* or an elongated letter (in the case of *Tyche* it is the <y>).⁸

Unlike with the *apices*, whose use might be a feature of the spelling of the writers of the inscriptions or a practice of the stonemasons themselves, the heavy usage of *i-longa* as a means of avoiding consecutive upright strokes seems more likely to be due to the stonemasons rather than telling us anything about sub-elite education more widely.

All in all, there are only a handful of cases of *i-longa* which do not fit into this picture. For example, in 167 the third line features a run of *i-longa* in *is quibus ius*, for which I do not have an explanation, but observe that <i> is used here on a long /i:/, a short /i/ and a /j/ respectively, so is probably not marking a linguistic feature (there are several other instances of unmarked <i>, as well as two of *in*).

⁷ Compare the results of Gordon and Gordon (1957: 195–6), who find, in their corpus, that *i-longa* is most common in short /i/ and /j/ when word-initial and that ‘tall initial consonantal I is limited for the most part to the names of months, gods, and persons, and that tall initial short I is especially favored in the words *in*, *item*, and *ita*’.

⁸ García González (1994: 523–4) also identifies word-initial position more generally as a favoured place for elongation of the first letter.

Apices and *i-longa* in the Isola Sacra Inscriptions

There may be one or two instances where the writers are intentionally marking long /i:/ (e.g. *quì* and *suis* in IS 226), but on the whole I would attribute the remaining unexplained cases as due to the practical or aesthetic considerations of the stonemasons. The emphasis on practicality, decoration and text structure over phonology in the use of *apices* and *i-longa* in the Isola Sacra inscriptions is something to keep in mind as a parallel when considering usage in the other texts which we are about to look at: although of course in some ways the praxis of writing with ink or a stylus on wood or wax is very different from carving on stone, nonetheless there are – as we shall see – some similarities. They also give us an idea of the range of uses that these features can be put to, which are quite different from those implied by the writers on language and by elite inscriptions.

Apices in the Vindolanda Tablets

Adams (1995: 97–8, 2003: 531–2) collected most examples of *apices* in the Vindolanda tablets in Tab. Vindol. II and III. Including some doubtful cases, he counts 92 instances. We can add a further 7 found in the more recently published tablets, and 6 which he omitted.¹ With the new cases we have a total of 105 instances of *apices* (Table 35), of which 82 = 78% are on long vowels, and 19 = 18% are on short vowels, with a further 2 = 2% on vowels which were short but used to be long, and 2 = 2% on vowels of uncertain length (Table 36).²

It seems likely that use of *apices* was a practice restricted to, or at least most common among, scribes at (and around) Vindolanda. While it is not always easy to tell whether a given tablet at Vindolanda was written by a scribe or by another writer, letters often feature a second hand which provides the final salutation formula, and in these cases it is reasonable to suppose that the first hand is that of a scribe. Sometimes these hands also appear in other texts. The following texts have *apices* in scribal parts: Tab. Vindol. 234,³ 239, 242, 243, 245, 248, 263, 291, 292, 305, 310, 311, 611,⁴ 613, 622, perhaps 628,⁵ 641, 706. Conversely, there are very few or no examples of *apices* in texts which we know or suspect not to

¹ *Córis* (175), *censús* (304), *J.s.nió* (325), *s[[s]]ummá* (645), *diligénter* (693), *frám* (734). I follow Adams (1995: 97) in leaving out ‘the (mostly doubtful) cases listed by the editors from 371–513’.

² As discussed above (p. 213), *ego* certainly had a short vowel at the period of the Vindolanda tablets, although Adams counts the two instances among the long vowels. It is also possible that word-final long vowels had also been shortened, at least in the iambic verbal forms *rogo* and *puto*, and possibly in all cases (see pp. 42–3), but I count these as long here.

³ In addition to the fact that the hand of this draft letter is the same as that of 239, whereas Cerialis’ own hand is probably used in the letters 225–232, the writer of this letter at one point wrote and erased *et hiem*, replacing it with *etiam*, suggesting that he was taking dictation and misanalysed what he had heard.

⁴ Although this letter may have been sent to Genialis from Corbridge, and therefore not have been written by scribes at Vindolanda.

⁵ If *uale* is written in a second hand.

Table 35 Apices in the *Vindolanda* tablets

Long vowels	Text (Tab. Vindol.)	Short vowels originally long	Text (Tab. Vindol.)	Short vowels	Text (Tab. Vindol.)	Vowels of uncertain length	Text (Tab. Vindol.)
Laterarió compendiárium	194	egó egó	645	rógo Córis	175	censús ^a	304
á á Brocc hó	196			-neariá	192	Frám ^b	734
Verecundó suó	212			-brá membrá	198		
aequó (?) Cassió	215			sagá	207		
Fláuió	221			óptamus	248		
Octóbres	234			Káalendarum sácrifició	265		
Fláuius suó	239			Seuerá facturá	291		

Table 35 (*cont.*)

Long vowels	Text (Tab. Vindol.)	Short vowels originally long	Text (Tab. Vindol.)	Short vowels	Text (Tab. Vindol.)	Vowels of uncertain length	Text (Tab. Vindol.)
numerátioni	242			necessariá	292		
suó	243			t.[c. 6.]á ^c	588		
fráter							
-ró ^d	245			mágis (possibly)	611		
tú	248			dómine	628		
Flauió	255			uólui	645		
				itá ^c			
suó	261			diligénter	693		
tuó	263			dómine (possibly)	796		
fráter	265						
sácrifició							
uoluerás							
rogó	291						
interuentú							
salutá							
faciás							

Brochó	292
uná	
Vettió	305
Seueró	
exoró	307
suó	310
cupió	311
putó	
scribó	
rogó	
nómina	
Veranió	319
suó	
-inná ^f	324
]..s.nió ^g	325
meó	330
Licinió	580
stabuló	581
á	588
[r]atió	608

Table 35 (*cont.*)

Long vowels	Text (Tab. Vindol.)	Short vowels originally long	Text (Tab. Vindol.)	Short vowels	Text (Tab. Vindol.)	Vowels of uncertain length	Text (Tab. Vindol.)
Flauió tantó (possibly)	611						
Flauió	613						
Lepidiná (possibly)	622						
rogó	628						
uexsilló							
rogó							
praecipíás							
suó	631						
Flauió	632						
occasió	640						
á							
Marinó	641						
Flórus	644						
meó	645						
gesseró							
Coccejió							
Maritimó							
fussá							
morá							

s[[s]]ummá	
Flaiú	648
fació	652
Priscinó	663
benefició	666
illórum	693
immó	706
tuá	880
Verēcundó	893
suó	
Decuminó	
Iulió	
Verēcundó	
Decmó	893 add

^a The editors suggest a gen. sg. *censūs*, but the context is damaged, and nom. sg. *census* cannot be ruled out.

^b On the back of a tablet, probably a name in the address of a letter.

^c Perhaps *tr[ansla]tá*.

^d Probably part of a name.

^e But the text is not certain here.

^f Probably a name in the ablative.

^g This is in the address on the back of the letter: it will be a name in the dative.

Table 36 *Distribution of apices in the Vindolanda tablets*

Vowel letter	Long	Short	Originally long	Uncertain length	Percentage of total <i>apices</i>
a	21	12		1	32%
e		1			1%
o	59	6	2		64%
u	2			1	3%
Percentage of total <i>apices</i>	78%	18%	2%	2%	

be written by scribes, such as the letters written by Cerialis (225–232), the *renuntium* reports written by the *optiones* (127–153), the relatively long closing messages of Lepidina at 291 and 292 (both letters where the scribe uses *apices*), the letters of Octavius (343) and Florus (643),⁶ and the writer of the letter 344 and accounts 180 and 181.⁷ Of course, it may be that there was a feeling that letters were more formal documents than other types of text, so that use of *apices* in them may have been more appropriate, as Adams suggests (see fn. 14). However, this does not explain why we don't find *apices* in the parts of letters written by non-scribes.

Furthermore, the scribes appear to have been trained in, or to have developed among themselves, a usage of *apices* that is characteristic of the Vindolanda tablets. Firstly, use of the *apex* is highly restricted in terms of vowel quality, with /a:/ and /ɔ:/ making up practically all the vowels with an *apex* (101/105 = 96%); secondly, it is highly restricted in terms of position in the word. Not including monosyllables, of which there are 5, 80 (= 80%) instances of the *apex* are on the final syllable, 76 (= 95%) of these are on an absolute word-final vowel,⁸ and 75 (94%) are on <o> or <a>.⁹ This means that out of all 105 instances of *apices*, 71% are on absolute word-final <o> or <a>.

⁶ On which, see Adams (2003: 530, 533–5).

⁷ Note also the comment by Bowman and Thomas (1994: 59) that 'there is no instance of the use of an apex in a military document'.

⁸ The exceptions are *uoluerás, faciás, praecipíás, censús*.

⁹ The exception is *interuentú*.

Now, these are doubtless the most frequent word-final vowels in Latin, probably both in terms of type within the language and token within most texts, but the disproportion in terms of both *apex* position in the word and letter on which the *apex* is placed marks the Vindolanda tablets out from other texts containing *apices* (as we will see in [Chapter 21](#)).

Adams (2003: 531) makes two possible suggestions for the preponderance of final <ó> and <á>:

either that a stylized form of writing is at issue, such that writers, if they remembered, signed off words ending in one or the other of the two long vowels with a sort of flourish, or, if a linguistic explanation is to be sought, that long vowels in final position were subject to shortening in speech, and that scribes were encouraged to use the apex as a mnemonic for preserving the ‘correct’ quantity.

It seems to me less likely that Adams’ linguistic explanation is correct. It is important to note that nearly every word-final /ɔ/ in Latin was long (and all examples of short /ɔ/ came from original /ɔ:/, by iambic shortening). This was not the case with /a/ and /a:/. Therefore, if shortening of absolute final vowels had occurred, and the scribes were trying to mark vowels that ought to be long, they would succeed simply by putting an *apex* on practically every word-final <o>. When it came to <a>, however, such an approach would not work. Indeed, this is what we find: there are only 8 examples of long final /a:/ with an *apex*, but 9 of short final /a/.

On the face of it, therefore, this is evidence in favour of shortening of word-final vowels: in cases where the scribes actively had to recognise whether an /a/ was long or short, they could not. However, it seems somewhat surprising that the scribes, who were so successful in producing non-intuitive standard spelling in other ways, had not managed successfully to learn this particular feature. Moreover, if the *apex* was taught as a means of maintaining the correct quantity, it is surprising that we find it so often on final /ɔ/. After all, since there are practically no words which differ in meaning depending on whether final /ɔ/ is long or short, the value in marking it is very little compared to that of final /a/ and /a:/.¹⁰ Nor is there any

¹⁰ One could get around this argument by suggesting that the point of the use of the *apex* was not to demonstrate that the scribes knew which vowels should be long, nor to help with analysing the meaning of a word, but to aid the reader to pronounce the text correctly when reading aloud.

point, from this perspective, in the three examples of word-final /a:s/ in which the vowel bears an *apex*, since there are no verb forms ending in /as/ with which they could have been confused (nor was there a shortening taking place of non-word-final vowels). In addition, when *apices* are used on non-final syllables, they appear with equal frequency on short vowels as on long vowels (10/20 instances; see Table 37), even though vowel length was still maintained in non-final syllables at this time.¹¹ All of this suggests that marking vowel length may not have been the primary purpose of the *apex*.

Given the divergence of the placement of the *apex* at Vindolanda from what Quintilian and ‘Scaurus’ say about the *apex*, and indeed its divergence from other inscriptions and corpora discussed below, it seems reasonable to assume that the scribes were using *apices* according to their own rules or sense of where an *apex* was appropriate, which can only be derived from the evidence of the Vindolanda tablets themselves. Although these

Table 37 *Apices on vowels in non-final syllables at Vindolanda*

Stressed long vowel	Unstressed long vowel	Stressed short vowel	Unstressed short vowel	Unclear stress
compendiárum	numerátoni	rógo	óptamus	Frám
Fláuío		dómine	Káalendarum	
Octóbres		uólui	sácrifició	
Fláuíus		mágis		
fráter		dómine		
fráter		Córis		
nómina		diligénter		
Flórus				
illórum				

¹¹ If one really wanted to maintain the idea that the *apex* was aiming to mark vowel length, one would have to suppose that vowel length had also become non-contrastive in non-final syllables; while this did take place on the way into the Romance languages, it is highly unlikely that it had taken place as early as the period of the Vindolanda tablets (Adams 2013: 43–51; Loporcaro 2015: 18–60).

rules or feelings were not necessarily shared by all scribes, or used consistently by any given scribe, overall we can identify some tendencies. Starting from this position, without preconceived ideas, the most important principle seems to be that the *apex* should appear on /ɔ(:)/ or, less often, on /a(:)/; the next most important that it should appear on a vowel in the final syllable of a word (ideally on a vowel which is word-final).¹² Given these principles, it is inevitable that most *apices* will end up on long vowels (or at least vowels which were originally long, if shortening of word-final long vowels has taken place), but this will be epiphenomenal, rather than being a principle in itself.¹³

If the reason for these ranked principles is not linguistic, what is it? It could be connected with the fact that *apices* seem to be used more in letters than in other types of text.¹⁴ Using the list showing all tablets from Tab. Vindol. II and III, at Vindolanda Tablets Online II,¹⁵ I count 129 non-letters, and 206 letters. There are 67 documents containing *apices*, of which 54 are letters, 12 are not, and 1 is uncertain. The proportion of documents containing *apices* that are letters is thus much higher than the proportion of letters as

¹² 96% of *apices* at Vindolanda are on /ɔ(:)/ or /a(:)/; 77% are on /ɔ(:)/ or /a(:)/ in a final syllable (including 4 monosyllables); 74% are on /ɔ(:)/ or /a(:)/ word-finally.

¹³ On the practice of individual scribes, see below. I find only one letter of sufficient length for which a strong case could be made that it is using *apices* specifically to mark long vowels (or at least /ɔ:/, which has an *apex* in *cupiō*, *putō*, *scribō*, *rogō*, *nōmina*). Except for *homo*, and in the address on the back, which contains *Batauorum*, there are no other instances of /ɔ:/ in the text. One could explain the lack of *apex* on *homō* by supposing that it had a short final vowel in speech at this time; note that it is iambic, and that there is no /ɔ:/ elsewhere in the paradigm. However, even if /ɔ:/ was normally preserved, it could also be relevant, assuming the letter was dictated, that *homo* is followed by a word beginning with a vowel, and hence may have been elided or shortened; the other instances at word end were followed by a clause end, or a word beginning with a consonant, as far as we can tell.

¹⁴ 'Rather more apices are used in the letters than in the accounts and other documents (about 87 per cent of the total are in letters), and a significant number (as was the case in the earlier tablets) are on names in the address of letters (for example, all four cases of *Flauio*). It would seem that there was a certain stylization about the use of the *apex* which made it more appropriate to creative or formal composition (that is, letters, particularly in the address) than to mundane lists' (Adams 2003: 531–2). See also Adams (1995: 98).

¹⁵ web.archive.org/web/20160704222601/http://vto2.classics.ox.ac.uk/index.php/tablets/view-all-tablets (accessed 27/04/2021). Descripta and minor texts have been discounted, since they include both letters and other texts; note that 'miscellaneous' stands for 'miscellaneous correspondence'.

a whole at Vindolanda.¹⁶ There is other evidence that it was a feature of letter writing for *apices* to have been used on word-final <o> of datives in the greeting formula in the prescript of a letter or the address of a letter on the back, a usage which continues into the third century AD in papyrus letters (Kramer 1991: 142; Bowman and Thomas 1994: 60–1).¹⁷ About a third of *apices* at Vindolanda occur in this context, almost all of them on final <o>. Indeed, there are a certain number of letters where an *apex* does not appear anywhere except in this context.¹⁸ A plausible instance of these factors being important is Tab. Vindol. 893, a letter whose author was Caecilius Secundus, the prefect of a unit, probably in the late 80s AD. There are five datives of the second declension with final /o:/, and all five are marked with an *apex*. Two of these are found in the greetings formula (*Verecundó suó*), and two in the address on the back (*Iulió Verecundó*), and the remaining instance is a proper name coming directly after the greeting (*Decuminó*). No other vowels are marked in the text, which includes one other instance of word-final /o:/ in *scito* and several of long final /a:/ (*de qua re, in praesentia*, as well as the preposition *a*).

With regard to the position of *apices* in non-final syllables, Bowman and Thomas (1994: 60) have suggested that the presence of the accent may be relevant. As Adams (1995: 97–8, 2003: 531–2) points out, this is not an appealing argument on the basis of Occam’s razor, since this factor cannot explain the far greater number of *apices* on the final syllable. It is true that there is a certain amount of correlation between *apices* on non-final syllables and the position of the accent, with 16/20 (= 80%) of

¹⁶ This is statistically significant, with a *p*-value of .000538. To calculate the *p*-value, I used the exact binomial test of goodness of fit spreadsheet available at www.biostathandbook.com/exactbin.xls (accessed 09/07/2020), with 54 and 12 entered as observed distribution, and 206 and 129 entered as expected proportions.

¹⁷ The particular appropriateness of the greeting formula for *apices* is suggested by the long and well-preserved text CEL 140, from Oxyrhynchus, AD 103 (copy of an official letter), in which *suó* is the only word with an *apex* (including *CJelsiano*, the name with which it agrees). Likewise, in CEL 154, from Karanis in Egypt and dated to AD 140, the only *apex* is on *Iulió* in the greeting.

¹⁸ Those in which there is enough text remaining for this to seem likely to be a meaningful distinction are Tab. Vindol. 255, 305, 310, 613, 632, 641, 648; several other letters with *apices* preserve little other than the greeting and/or address.

instances of *apices* appearing on vowels in stressed syllables. However, almost the same success rate is found by positing a rule that *apices* must appear on the initial syllable of a word (16/21 cases = 76%).¹⁹ Ultimately, the problem is the slightness of the evidence.

I conclude that the very specific tendencies around *apex* use at Vindolanda probably are not based around their use of diacritics for linguistic purposes, but more as markers of the different part of the text. This would be rather similar to their usage in the Isola Sacra inscriptions. In addition to the tendency for *apices* to be used in greetings formulas which I have already mentioned, we also find the opposite pattern, where the main text contains *apices*, which are lacking in the greeting. For example, the brief letter Tab. Vindol. 265 contains a high number of *apices*, all of which come after the greeting formula *Çerĩalı suo salutem*. Almost every subsequent instance of /a(:)/ receives one (*fráter*, *sácrifició*, *káalendarum*, *uøluerás*), along with word-final /ɔ:/ in *sácrifició* (and not *ego*). This also has the effect of marking the different parts of the letter. The same pattern is found in 248.

This is not to say that this type of text-marking was the only function of the *apex*. Sometimes, it seems to have been used out of pure exuberance, and without consistency. An interesting case is the collection of letters Tab. Vindol. 243, 244, 248 and 291, all written by the same scribe. In 291, in the sections written by the scribe, almost every word-final vowel, whether long or short, receives an *apex* (only *tuo* is without): *salutá*, *rogó*, *interuentú*, and short /a/ in *Seuerá* (in the greeting formula) and *facturá*; in addition, *faciás* has one on a non-word-final vowel (although in a final syllable; no *apex* is found on *uenias*, *nos*). In 243, a five word fragment, *apices* appear on *suó* (in the greeting formula) and *fráter*, but not on the long vowels of *Çerĩalı* or *salutem*. 244 uses no *apices*, although only the line *Seuera mea uos salutat* and the address *Flauio Ceriali* survive. The largely undamaged 248 uses an *apex* only on *óptamus* and *tú*, but not on the only examples of word-final /ɔ(:)/ (*suo*, in the greeting, and *pro*; there are no

¹⁹ The additional example here comes from including *Frám* (734), whose *apex* is definitely on the initial syllable, although we do not know whether it was also the stressed syllable.

examples of word-final /a(:)/, nor on the other instance of *op<t>amus*, nor the two other instances of *frater*, which received an *apex* in 243.

By comparison, Tab. Vindol. 645 is a long letter, which fits much better than those written by the scribe of 243 etc. into the normal tendency at Vindolanda to use an *apex* on word-final /a(:)/ and /ɔ(:)/:²⁰ *meó, gesseró, fússá, egó* (twice), *morá, s[[s]]ummá, Coccejió, Maritimó* (the last two in the address), and *ítá* (on a short /a/, if it is read correctly). According to the editors, the remaining instances of *meo* and of *ego* may have had *apices* which were lost; otherwise in the main body of the letter only *pro* and *opto* remain without an *apex* on word-final /a:/ or /ɔ:/, along with *eo, quo* in the postscript written between the columns, in which haste or space may have been a factor. There is also an *apex* on an initial vowel in *uólui*.²¹

Although consistency within a single document or across all of a scribe's output may not have been of great importance, the shared tendencies suggest that as a group the scribes of Vindolanda had developed their own habits of usage for *apices*.

²⁰ Although the letter was actually sent from outside Vindolanda.

²¹ Interestingly, this is also the only text in which a plausible case might be made for an analysis along the lines of that of Fortson (2020), for *apices* to be used to mark phrases: at any rate in the main text the final word of the prepositional phrases *ab patri meó, de fússá, sine morá, pro s[[s]]ummá* has an *apex*. Both *scire te uólui* (followed by an accusative and infinitive) and *quid gesseró* are also phrasal units. But neither of the instances of *egó*, nor *ítá*, form a close phrase with any adjacent words.

Apices in the Tablets of the Sulpicii

In the tablets of the Sulpicii there are 76 instances of *apices* (Table 38).¹ 27 of them are on personal names. In the TPSulp. tablets, as at Vindolanda, *apices* feature particularly in parts of the tablets written by the scribes (Camodeca 1999: 39): out of 76 instances of *apices*, 74 are found in scribal parts, with the remaining two coming from the *chirographum* of A. Castricius (*deductá* 8I, *repraesentátum* 8I). This divide between scribes, who use *apices*, and individual writers, who mostly do not, suggests a difference in education for the purpose of writing, as at Vindolanda.

In the tablets of the Sulpicii, as at Vindolanda, *a* and *o* also make up a large percentage of all letters with *apices* (78%), as observed by Camodeca (1999: 39). But *e* and *u* make up a greater percentage of cases than at Vindolanda, and *au* and *eu* are also found with *apices*, unlike at Vindolanda (see Table 39).

The proportion of *apices* on long vowels is surprisingly small. I assume that originally long final vowels have not been shortened and that lengthening has taken place before coda /r/. Not including the two vowels of uncertain length this means that only 49/74 = 66% *apices* are on long vowels, with a further 5 on diphthongs. However, there are 4 instances of an *apex* on an originally short vowel in the accusative singular ending (*acceptám* 27, *arám* 16, *[Ho]rdionianám* 40, *Páctu[m]eìám* 40). This is likely to have become [ã:] before the first century AD (Adams 2013: 128–32), and the scribes may have therefore considered it a long vowel. This takes us to 72% (53 *apices* on long vowels out of 74).

The final syllable is a favoured site for the *apex*, with 35/71 (49%) of relevant *apices* on a final syllable (there are also two

¹ In addition to the 74 *apices* given in Index X by Camodeca (1999: 410–11), there are two not included: *mútua* (51) and *nominé* (3).

Table 38 *Apices in the tablets of the Sulpicii*

Apex	Text (TPSulp.)	Writer
Hósidio	1	Scribe
D]ióg[e]nis foró	1 bis	Scribe
Hordiónianam		
Faustó	2	Scribe
nominé	3	Scribe
Sulpició		
arám	16	Scribe
Cin̄[a]/mús		
Cadmó	18	Scribe
secundá		
noná	19	Scribe
áb	27	Scribe
acceptám		
ágitur		
causá		
eá		
eá		
eó		
eó		
eó		
eórum		
Faustó		
Fáustus		
Galló		
háberet		
ideó		
iudicátum		
m]eó		
s[t]ipulátio/[nem]		
tánt[am]		
tertiá		
á[ctum]	32	Scribe
Δipstán[o]		
Áug(-)	33	Scribe
[arbitr]átú	34	Scribe

Apices in the Tablets of the Sulpicii

Table 38 (*cont.*)

Apex	Text (TPSulp.)	Writer
Á(uli)		
contestatá		
chalcidicó	35	Scribe
ánte	40	Scribe
Á(uli)		
Faustó		
horá		
[Ho]rdionia/nám		
Páctu[m]eiám		
tertiá		
Titiano		
Eúni	45	Scribe
Irénaei		
Iúli		
Iúlii		
Mévii		
acceptiónis	47	Scribe
Hordeónió		
chirógraphum	50	Scribe
primás		
Eunús	51	Scribe
Eunús		
mútua		
séstertiis		
stipulátus		
Galló	55	Scribe
mé	57	Scribe
Alexándri	58	Scribe
Áfro	68	Scribe
[Q]uártiónis	77	Scribe
deductá	81	A. Castricius
repraesentátum		
chirográphum	82	Scribe
Pátulci		
Márius	84	Scribe
Tróphi	110	Scribe

Table 39 *Distribution of apices by vowels and diphthongs in the tablets of the Sulpicii*

Vowel letter(s)	Long ^a	Long nasalised	Short	Uncertain length	Diphthong	Percentage of total <i>apices</i>
a	21	4	8	2 ^b		46%
e	4		1			7%
o	20		4			32%
u	4		3			9%
au					4	5%
eu					1	1%
Percentage of total <i>apices</i>	64%	5%	21%	3%	7%	

^a Including [a:] by lengthening before coda /r/ in [Q]uártiónis.

^b There are two cases where I do not know the vowel length: the first vowels of *Páctu[m]eiám*, *Pátulci*.

monosyllables, and three abbreviations).² Camodeca (1999: 39) links this concentration on final syllables to Adams' explanation of the preference for final position at Vindolanda as reflecting shortening of word-final long vowels. However, of these 35, 26 are on original word-final long vowels, 4 are on final /ā:/ represented by <am>, 4 are on long or short vowels followed by /s/, and only 1 is on a short vowel, the ablative *nominé* (3.2.7). There are 10 instances of an *apex* on long word-final /a:/ (not including [ā:]), and none on word-final /a/. This suggests that the scribes were able to tell these sounds apart; there is practically no evidence for shortening of final long vowels, so it seems unlikely that the placement of *apices* on final syllables is to be explained in this way.

Outside final syllables, the picture is much more mixed. Omitting monosyllables, and abbreviated names, and the 2 instances where I do not know the vowel length, there are 36 cases of an *apex* on a non-final syllable, of which 11 are on a short vowel, 2 on a diphthong and 21 on a long vowel (including the vowel in the first syllable of [Q]uártionis). It is possible that there is a correlation here between stress and position of the *apex*, and the numbers of examples are slightly greater than at Vindolanda, which provides a little more confidence.³ The key evidence for such a correlation is in short vowels, which do not in themselves draw the accent, as long vowels and diphthongs do. For the short vowels, 9/11 = 82% instances of the *apex* fall on the stressed syllable (exceptions are *chirográphum*, *Hósidio*);⁴ this is

² These are *áb*, *mé*, *Áug(-)*, *Á(uli)* twice.

³ Flobert (1990) also draws attention to the tendency of *apices* on non-final syllables to appear on stressed syllables in the inscriptions he studies, both when placed over long and short vowels and diphthongs.

⁴ Given that so many of the instances of short vowel or diphthong with an *apex* are in disyllables, one could also argue that the rule is simply to mark the initial syllable of a word. Taking all the short vowels with *apices* into account this would give 7/11 (plus *Páctu[m]eiám*, *Pátulci*, if short). If one counts only words of three syllables or more, where it is possible to distinguish between accent placement and initial position, we find that an *apex* is put on a stressed short vowel in *ágitur*, *Alexándri*, *chirógraphum*, *D]ióg[e]nis* and *háberet*, and put on an unstressed vowel in *chirográphum* and *Hósidio* (5/7, plus *Páctu[m]eiám*, *Pátulci*, if short). It is put on a stressed initial syllable in *ágitur*, *háberet* and *Hósidio* (3/7, plus *Páctu[m]eiám*, *Pátulci* if short). The numbers are too small to be sure that accent position rather than word-initial position is a meaningful criterion. But an interpretation favouring initial placement works less well for cases of *apices* on diphthongs and long vowels, where only 10 instances of vowels in initial syllables have the *apex*, versus 13 in which the *apex* is placed elsewhere.

suggestive of a correlation between stress and *apex* placement, although not completely conclusive, especially since regardless of the length of the vowel, the (initial) *apex* cannot be on a stressed vowel in *Páctu[m]eiám* and *Pátulci*. Including diphthongs and long vowels gives us a total of 27/36 = 75% of *apices* on non-final syllables that fall on stressed syllables.

However, this correlation does not provide evidence for lengthening of vowels in open syllables at this period, a change which took place on the way into Romance, and which may have already occurred by the third century AD in at least some varieties of Latin, with perhaps some occasional evidence for its occurrence earlier (Loporcaro 2015: 18–60; Adams 2013: 43–51, note in particular footnote 11). This is because, of the short vowels with an *apex* under the accent, only 6/9 are in an open syllable (*ágitur*, *chirógraphum*, *háberet*, *Márius*, *Tróphi*, *D]ióg[e]nis* vs *Alexándri*, *ánte*, *tánt[am]*). So it looks as though, if the correlation with the accent is correct, it is the position of the accent that is being marked, rather than stressed long vowels. Within the word, only about a third of the examples of an *apex* occur on a long vowel. This may be due to a tendency to mark with an *apex* vowels or diphthongs which were stressed, regardless of whether they were long or not.

In conclusion, the scribes in the tablets of the Sulpicii tended to use *apices* in two different ways which are unique to them: in final syllables they were usually placed on long vowels (including long nasalised vowels); in non-final syllables they tended to be placed on stressed syllables.

Apex Use in the Vindolanda and TPSulp. Tablets in Comparison

As we have seen, the use of *apices* is characteristic of the writing of scribes in both the Vindolanda and TPSulp. tablets, but a fine-grained analysis highlights similarities and differences between the two corpora, and between them and the inscriptions studied by other scholars.

As shown by Table 40, in terms of the distribution of *apices* across all vowels, both the tablets of the Sulpicii and the Vindolanda tablets favour <a> and <o> compared to the inscriptional evidence collected by Flobert (1990) and Rolfe (1922),¹ which show a wide range from 54% (Vienne/Lyon) through 60% (*Laudatio*), 68% (speech of Claudius) to 70% (*Res Gestae*). TPSulp.'s ratio of 78% is not massively higher than that of *Res Gestae*, while Vindolanda's is far greater at 96%. Vindolanda also has a preponderance of <ó> compared to <á>, whereas the *Laudatio*, *Res Gestae*, speech of Claudius, and TPSulp. have more <á> than <ó>, and the two are roughly equal in the Vienne/Lyon corpus.² Unsurprisingly, given the emphasis on <á> and <ó> at Vindolanda, no other corpus has such a restricted range of vowel types which bear an *apex* as Vindolanda.

Presumably, these particular features of the Vindolanda tablets also partly reflect the text type and social context in which the letters were written: as we have already observed (see pp. 235–6), *apices* are particularly common in the address and greetings formulas of letters (33 out of 105 *apices* appear in these places, almost all on names). In these, ablatives and datives of the second declension feature very

¹ All figures are taken from Flobert except those of the speech of Claudius from Lyon (CIL 13.1668), which come from Rolfe (1922: 93). The reliability of the latter is somewhat compromised by the fact that Rolfe enumerates 77 instances of *apices* and 49 of *i-longa*, but gives a total for both of 130; it is unclear where the missing 4 come from.

² The overall tendency of <o> and <a> to have the *apex* more than other vowels across all the corpora may simply be because /a:/ and /ɔ:/ appear more often than the other long vowels and diphthongs across the Latin lexicon.

Table 40 Apices in different corpora

	<i>Laudatio Turiae</i>	<i>Res Gestae</i>	Vienne/Lyon	Speech of Claudius	Tab. Vindol.	TPSulp.
a	52 = 39%	185 = 43%	56 = 25%	32 = 42%	34 = 32%	35 = 46%
e	29 = 22%	66 = 15%	29 = 13%	13 = 17%	1 = 1%	5 = 7%
o	28 = 21%	117 = 27%	65 = 29%	20 = 26%	67 = 64%	24 = 32%
u	23 = 17%	57 = 13%	35 = 16%	12 = 16%	3 = 3%	7 = 9%
y		1 = < 1%				
ae	2 = 1%	1 = < 1%	38 = 17%			
au			1 = < 1%			4 = 5%
eu						1 = 1%
Total	134	427	224	77	105	76

strongly, since most of the letters are sent by men to men; there are only two first declension names with an *apex* in a letter's greeting or address: *Seuerá* (Tab. Vindol. 291), and *-inná* (324).

The proportion of *apices* which are actually on long vowels is smaller in the tablets of the Sulpicii at 72% than all the other corpora, although not far below that of the Vienne/Lyon corpus's 75–77% and Vindolanda's 82%;³ in the official inscriptions practically all *apices* are on long vowels: speech of Claudius 100%; *Laudatio Turiae* 96%; *Res Gestae* 98%. Despite Vindolanda's higher ratio of long vowels, I would suggest that this is an artefact of the scribes' preference for word-final <a> and <o> as a site for the *apex*; this derives in part from generic and textual factors, rather than reflecting a preference for marking long vowels (see pp. 235–6).

At Vindolanda 79/100 = 79% of *apices* on polysyllables fall on the final syllable, while in the tablets of the Sulpicii the figure is much lower at 35/71 (49%). Again, the tablets of the Sulpicii are more similar to the pattern found in inscriptional evidence: in the *Res Gestae* 40% of *apices* are on long vowels or diphthongs at the end of a word, in the *Laudatio* of Turia 49%; in the corpus from Vienne and Lyon 52/203 = 26% of *apices* in polysyllabic words are on final syllables.⁴ There are also notable differences in the type of final syllable which receives the *apex* in the tablets of the Sulpicii compared to those from Vindolanda. At Vindolanda, all but four *apices* in the final syllable are on a word-final vowel (75/79 = 95%; the exceptions are *uoluerás*, *faciás*, *praecipíás*, *censús*), most of which are /ɔ:/. The favouring of word-final /ɔ:/ as the site of the *apex* at Vindolanda may not be completely isolated in this regard. According to Rolfe (1922: 92), the dative and ablative ending in /ɔ:/ is almost never given an *apex* in the *Res Gestae* but is frequent in other inscriptions.⁵ In the tablets of the Sulpicii 27/35 =

³ 82 out of 105 *apices* are on certainly long vowels, but the 2 instances of *ego* and 2 of uncertain length should not be included in the total.

⁴ The figures are taken from Flobert's (1990: 109) table, and were calculated by adding together the figures for vowels and diphthongs in polysyllabic words (not including *i-longa* or monosyllables). His figure, at p. 105, of 23.21% is for long vowels and diphthongs at the end of a word, including *i-longa* with *apices*, and including monosyllables.

⁵ 74 times in CIL 12, apparently, a figure which is not much use without knowing how many instances of this ending there are in total.

77% of *apices* in polysyllables are on a word-final vowel. Assuming that final <am> counts as containing a long vowel, the 3 instances on nominative singulars in *-us* (*Eunús* twice in the same document, and *Cinn[a]/mús*), and *nominé* are the only exception to the rule that the *apex* in a final syllable of a polysyllabic word appears on a long vowel ($31/35 = 89\%$) in TPSulp.

On the basis of these comparisons, in terms of which vowels receive an *apex*, and position in the word, both the Vindolanda tablets and those of the Sulpicii are fairly divergent from the other inscriptional corpora for which figures are available, although this is more pronounced with the Vindolanda tablets than with those of the Sulpicii (there is also an interesting tendency for the Vienne/Lyon inscriptions to differ from the long official inscriptions). The use of the *apex* by the scribes of the Sulpicii arguably comes closer to the advice of Quintilian than that of Vindolanda, in that first declension ablatives in long /a:/, which may receive the *apex*, are carefully distinguished from nominative singulars and neuter plurals ending in /a/, which may not. However, in both corpora (originally) long vowels are frequently given an *apex* even when this would not lead to confusion with any other word which differs only in the vowel length of one of its vowels. In this regard both corpora match with a more general disregard of the grammarians' advice in epigraphic contexts (Rolfé 1922: 88, 92).

Both corpora are also characterised by a higher rate of *apices* being placed on short vowels (although long vowels are still greatly preferred). In the case of the Vindolanda tablets this seems to be the result of a determined placement of the *apex* on word-final <a> and <o> without regard to length. Where *apices* occur in non-final syllables, it is possible but not certain that this is the result of placement on the stressed syllable. In my view this is more likely in the TPSulp. tablets than at Vindolanda, where it is at least as likely that scribes tended simply to mark the vowel in an initial syllable.

Apart from these questions of which vowels, where in the word, receive the *apex*, we can also compare the corpora in terms of questions regarding positioning within larger units of texts. Within the letters they frequently seem to be used to mark out greeting and

Apex Use in the Vindolanda and TPSulp. Tablets in Comparison

address sections from the rest of the letter, in common with letters as a genre from other places. This may interact with a more general feeling that names deserved to be marked out by the presence of an *apex* (as we have also seen in the Isola Sacra inscriptions, and has been suggested for other inscriptions; see p. 211 and Chapter 19). It is notable that a large proportion of the words with *apices* on them in both the Vindolanda and TPSulp. tablets are personal or place names. In the tablets of the Sulpicii, 30/76 (39%) of *apices* are on personal names, including all 5 instances of the apex on a diphthong (one the imperial name *Augustus*), and 9 out of 16 of the *apices* on a short vowel.

CHAPTER 23

Apices in the Tablets from Herculaneum

The wax tablets from Herculaneum, presenting a corpus very similar in use and purpose to that of the TPSulp. tablets, contain a very small number of *apices*, consisting of 16 instances on 14 words across 5 tablets (out of a total of 40 documents, including one copy). For the sake of completeness, I give all examples below this paragraph. 12 examples out of 16 are on long /a:/ and /ɔ:/, 1 is on /ɔ/ arising by iambic shortening, 1 is on /ɔ/, 1 is on /æ/, and 1 is on /u/. It is a remarkable coincidence that one of the words is *pálós*, one of the examples used by Quintilian of where an *apex* is appropriate. No overarching rationale for the use of *apices* arises, particularly given the extremely fragmentary material. Some instances are on personal or place names. In TH² 77 + 78 + 80 + 53 + 92, the sequence *egó meós palof[s CCCXXX] caesós á te* begins a record of direct speech which could be being marked off; but the same is not true of the other instances of *apices* in the text. We do find prepositional phrases receiving an *apex* on one or other of their members in *á se*, *á te*, and perhaps *in contro]uersiá*, but this still leaves *pálós*.

TH² 5 + 99, AD 60: *suá*

TH² 77 + 78 + 80 + 53 + 92, AD 69: *á, pálós, contro]uersiá, egó, meós, caesós, á*

TH² 61: *Erastó, Pompeianó*

TH² A8, before AD 62–63: *Calátório*

TH² A12, early 60s AD: *factáe, Iúni Theóphili*

i-longa in the Tablets of the Sulpicii
and the Tablets from Herculaneum

The use of *i-longa* is very different from that of *apices* in the tablets of the Sulpicii and the tablets from Herculaneum. For one thing, *i-longas* are far more common than *apices*. In the TPSulp. tablets I count 799 instances of *i-longa* (compared to 76 *apices*), which appear in all but 16 of the 127 documents.¹ In the TH² tablets they appear in 26 documents out of 40, and I count 243 instances in total. They also differ in the range of phonemes which they represent. Adams (2013: 104–8) discusses the use of <i> in the tablets of the Sulpicii at some length, although without a rigorous collection of examples. He observes that it is found for long /i:/ (as might be expected on the basis of the grammatical tradition), for short /i/, and for /j/, both word-initially and word-medially between vowels.² The large numbers of *i-longa* in the tablets of the Sulpicii make a full investigation difficult, but 163 cases are used to write a synchronic short vowel (with 19 of these being vowels which were originally long), which equates to 20% of the total.³

The Herculaneum tablets contain 243 instances of *i-longa*, of which there are 209 instances of <i> representing a long vowel,⁴ 5 cases where it represents a long vowel subsequently

¹ As given in Appendix XI in Camodeca (1999: 412–20), and omitting one instance of *mi[n]or* (46), which appears twice. Documents without *i-longa* are: TPSulp. 20, 47, 59, 76, 82, 97, 100, 102, 104, 113, 116, 124, 125, 126, 127, some of which do not contain any contexts in which its use would be possible. 115 is in Greek letters.

² The use for /j/ is of linguistic importance, because, in words like *uadimonium* (TPSulp. 27) <i> is used on what was originally a short /i/ in hiatus, but which was desyllabified to give /j/. If one could demonstrate that <i> was used more often in hiatus contexts than for short /i/ in other contexts it would suggest that this development had already taken place by the time of the tablets of the Sulpicii.

³ 15 on /i/ resulting from iambic shortening (*mihi, sibi, tibi, ubi*) and another 4 of third singular perfects in /it/.

⁴ Including *infra* (TH² 89), whose first vowel was originally short, but was lengthened before /nf/.

shortened,⁵ 14 where it represents an original short vowel,⁶ 8 representing /j/,⁷ and 7 representing original /i/ in hiatus, for which it is uncertain whether this represents /i/ or /j/ (on which see fn. 2 and p. 292 fn. 2).⁸ Combining original /i/ and /i/ as the result of shortening (but not /i/ in hiatus) gives us a proportion of 19/243 (8%). Clearly <i> is used to represent /i/ much less frequently at Herculaneum than in the tablets of the Sulpicii.⁹

In the tablets of the Sulpicii, Adams suggests that <i> seems to be used particularly often on long /i:/ (or /i/ which was originally long) when it comes at the end of the word, and also particularly on the initial /i(:)/ of a word, even where the *i* is short, in both cases as a decorative device. The problem with these claims is that in order to know if *i-longa* is used more often in a particular position we need to be able to compare the cases both where *i-longa* is used and where it isn't used. So, to assess whether *i-longa* is used particularly when word-final we would need to count all instances of (long) final /i(:)/ which was written with and without *i-longa* (which would be a very large task) and compare this with all instances of long /i:/ which are not word-final (which would be an immense task). I do not intend to attempt this process, but I would observe that the number of instances of final /i:/ is likely to be very high in the tablets, both because it appears in a large number of Latin endings and because genitives of the second declension feature particularly heavily in the lists of witnesses. Thus, the fact that a large number of instances of *i-longa* appear word-finally may reflect the very high

⁵ *spondit* (TH² 61), *a[b]soluit* (TH² 85b), *ibi* (TH² 77 + 78 + 80 + 53 + 92), *[mi]hi*, *[mi]hi* (TH² 89).

⁶ *ii[aque]*, *Ti.* (TH² 89), *in* (TH² A2), *Ti.* (TH² 6), *Ti.* (TH² 77 + 78 + 80 + 53 + 92), *emisse*, *in* (TH² 61), *Ti.* (TH² A12), *in*, *inde* (TH² 4), *Ti.*, *Ti.*, *Ti.* (TH² A13), *Ti.* (TH² A14). It is uncertain whether the second vowel of *Vibi[di]ae* (TH² 59 + Do1) is long or short.

⁷ *eius* (TH² 89), *Velleio* (TH² 5 + 99), *Ian[uari] ?* (TH² A3), *iusto* (TH² D13), *eius*, *Maia*, *fadei[ussore]* (TH² A8), *Tetteius* (TH² 4).

⁸ *Nonium*, *Secundiani* (TH² 77 + 78 + 80 + 53 + 92), *Memmio* (TH² 61), *Ar[run]tio*, *Pieri*, *Pie[ri]* (TH² A13), *Micci[onis]* (TH² 49).

⁹ A Fisher exact test gives a *p*-value of 0.0001 for these figures, i.e. the difference between the rates is significant at a *p*-value of 0.05. The test was carried out using the Easy Fisher Exact Test Calculator at Social Science Statistics (www.socscistatistics.com/tests/fisher/default2.aspx, accessed 21/09/2021).

i-longa in the Tablets of the Sulpicii and the Tablets from Herculaneum number of instances of word-final long /i:/ rather than a higher ratio of *i-longa* usage in this environment.

Along similar lines, it struck me at first sight that in the more manageable Herculaneum corpus the use of *i-longa* seemed to be greater in the lists of witnesses on the tablets than in other contexts. However, this is probably a reflection of the frequency of the second declension genitive singular in *-ī* in that context, rather than being due to a difference in the usage of *i-longa*. I count 138 instances of *i-longa* used to write gen. sg. in *-ī* in witness lists, versus 136 instances of it being written without *i-longa* (i.e. practically 50% of instances). In other parts of the tablets, I have found 25 instances of the gen. sg. with *i-longa*, and 21 without it, a distribution which suggests that there is no difference between use of *i-longa* in witness lists and elsewhere.¹⁰

To give an idea of the usage of <ī> in the tablets of the Sulpicii, I have collected all examples of <ī> and <i> at the beginning of a word. This is achievable thanks to the excellent analytical indexes in [Camodeca \(1999\)](#). This allows me to compare the distribution of word-initial <ī> when used to represent long /i:/, short /i/, and /j/. There are 39 instances of initial long /i:/ written with <ī>, and a further 8 written with <i> (83%). There are 174 examples of initial /i/, of which 65 are written with <ī> (37%). There are 153 examples of initial /j/, of which 96 are written with <ī> (63%). From this we can conclude that the use of *i-longa* word-initially is not solely ornamental, since if so, we would expect an equal distribution of use among the categories. These figures suggest that <ī> is being systematically used to represent /i:/, but not /i/. Use of <ī> for /j/ is much more common than for /i/, but also notably less common than for /i:/. If someone were to count all examples of /i/ followed by a consonant vs /i/ in hiatus in the TPSulp. corpus, the distribution could be compared with these figures to ascertain whether <ī> was being used intentionally to represent /j/ arising from /i/ in hiatus.

¹⁰ A Fisher exact test gives a *p*-value of 0.6362 for these figures, i.e. the difference between the rates is not significant. The test was carried out using the Easy Fisher Exact Test Calculator at Social Science Statistics (www.socscistatistics.com/tests/fisher/default2.aspx, accessed 21/09/2021).

Since so many of the TPSulp. documents are *chirographa*, they allow us to test whether there is any significant difference in usage of *i*-longa between scribes and other individuals. The answer is yes: while there is no significant difference between scribes and other writers in use of <î> to write /i:/ (Table 41) or /j/ (Table 42),¹¹ the scribes use <î> to represent /i/ much more frequently than other writers (Table 43).¹²

Table 41 *Use of <î> for /i:/ in the tablets of the Sulpicii*

	î for initial /i:/	i for initial /i:/
Scribes	31	14
Individuals	8	3

Table 42 *Use of <î> for /j/ in the tablets of the Sulpicii*

	î for initial /j/	i for initial /j/
Scribes	78	45
Individuals	18	12

Table 43 *Use of <î> for /i/ in the tablets of the Sulpicii*

	î for initial /i/	i for initial /i/
Scribes	66	77
Individuals	11	32

¹¹ Apart from some uncertain cases, for /i:/ I also left out instances of *infra* and *infitari*, in which I take it that the vowel was phonetically [i:] but phonologically [i]. A Fisher exact test gave a *p*-value of 1. For /j/ the *p*-value was 0.7287 (to four significant figures).

¹² I again omit instances of *infra* and *infitari*. The *p*-value is 0.0212, which is significant at ≤ 0.05 .

i-longa in the Tablets of the Sulpicii and the Tablets from Herculaneum

This suggests a difference in the practice (and hence, presumably, the training) of scribes and individuals: scribes appear to be trained to use *i-longa* for short word-initial /i/, about half the time, whereas individuals only do so a third of the time. The words with initial short /i/ marked with an *i-longa* consist of *id*, *ideo*, *in* (and its misspelling *im*) and words beginning with *in-*, *ipso*, *is*, *Isochrysi*, *ita*, *italum* and *item*. There is no clear correlation between use of the *i-longa* on a short vowel and stress in TPSulp.; these correlate in 80 instances out of 163.

Given the very high amount of tokens of <i> that consist of *in* and *im* (44 out of 77; all but 1 by scribes), I wondered whether there was some linguistic factor regarding *in* which could explain this distribution. Allen (1978: 65) notes that *i-longa* is found inscriptionally in sequences where *in* is followed by a word beginning with a fricative, where we would expect lengthening before nasal plus fricative clusters. But the tablets of the Sulpicii show no particular correlation between use of *i-longa* in *in* and a following fricative (Table 44).¹³

In the interests of completeness, I have also checked in the TPSulp. tablets whether there is any correlation between use and non-use of the *i-longa* in *in* and its differing semantics and case of its complement (Table 45).¹⁴ Although *in* is found much more

Table 44 *Use of in and in by following segment in the tablets of the Sulpicii*

	<i>in</i> (and <i>im</i>)	<i>in</i>
Before /f/, /s/	9	21
Before another sound	30	53

¹³ A Fisher exact test gave a *p*-value of 0.656, which is not significant at $p \leq 0.05$. I omitted instances which are followed by a break in the tablet which does not allow the editor to fill in an expected word, since it cannot be known what consonant came next. I have also omitted 4 instances where *in* is followed by a numeral.

¹⁴ I omitted several instances where the case of the following word cannot be ascertained, and also 4 instances where either the wrong case has been used, or a substandard spelling or error makes it uncertain which case was intended: *in de sigulos* for *in diēs singulōs*

Table 45 Use of *in* and *in* according to the case of its complement in the tablets of the Sulpicii

	<i>in</i>	<i>in</i> (or <i>im</i>)
+ acc.	11	12
+ abl.	30	51

frequently followed by an accusative than by an ablative, no significant correlation is found.¹⁵

Since I have found no linguistic factor which would explain the preponderance of *i-longa* used to write short <*i*>, it seems to me likely that scribes received training, or developed a practice amongst themselves, which encouraged them to use *i-longa* in this context, and especially in the word *in*. Adams may be right to see this practice as decorative, but in the light of the similar practices of the stonemasons of the Isola Sacra inscriptions (see Chapter 19) I suggest that the same reason applies: to increase legibility in a sequence of letters which involves several vertical strokes close together.¹⁶

Other factors for use of <*i*> on short /*i*/ might be similar to those found for *apices*, including a way of marking out names, and perhaps particularly imperial names. Flobert (1990: 106) observes in his corpus three examples of *Tib.*, stating ‘it is evidently a way to mark out the imperial *praenomen* carried by Tiberius and Claudius’ (c’est manifestement une façon de célébrer le prénom impérial porté par Tibère et Claude). In the tablets of the Sulpicii there are 28 examples of the abbreviation *Ti* for *Tiberius*, and only 5 of *Ti.*, while in the Herculaneum tablets there are 8 of *Ti.* and 3 of *Ti*. A tendency for *i-longa* to be used in this abbreviation was also

(68.3.3), *in porticum Augusti* (85.2.4), *in porticum Aug(usti)* (86.2.4–5), both for *in porticū*, *in quod erat scriptum* (90.2.5–6) for *in quō erat scriptum*. The numbers are different from the preceding table due to differences in preservation of the initial letter following *in* versus maintenance of evidence for the following case.

¹⁵ The *p*-value is 0.4688, using the Easy Fisher Exact Test Calculator at www.socscistatistics.com/tests/fisher/default2.aspx (accessed 22/07/2021).

¹⁶ A very clear sequence *in* without *i-longa* can be seen in line six of page 4 of the drawing of tablet 101 at Camodeca (1999: 651); it can be compared with *in* as the first word of tablet 25, page 2 (Camodeca 1999: 488).

i-longa in the Tablets of the Sulpicii and the Tablets from Herculaneum noted by Christiansen (1889: 37–8).¹⁷ However, I am not certain that this is due, as claimed by Flobert, to the celebrity of the emperors: it is the case that most, but not all, of the instances in the tablets of the Sulpicii refer to Tiberius or Claudius, who bore this name, while none of the instances at Herculaneum do. It is perhaps possible that the esteem attached to this name meant that the association of the abbreviation with *i-longa* spread to uses not referring to an emperor, and if so it must have lasted after Claudius' death, since the tablets containing *Ti*. are mostly datable to the 60s AD. But it is also notable that the sequence *TI* is the kind in which lengthening of the <i> occurs for reasons of legibility in the Isola Sacra inscriptions.

One might even wonder if there could be more localised reasons for use of *i-longa* in some cases. In TPSulp. 45, the *chirographum* of one Diognetus, slave of C. Novius Cypaerus, we find (along with a number of other substandard spellings) *ube* for *ubi* 'where' and *legumenum* for *leguminum* 'of pulses' as a result of the falling together of /i/ and /e:/. In the scribal portion of the text these words are spelt *ubi* and *leguminum*. Is it possible that the scribe reacted to Diognetus' misspellings by emphasising the correct vowel with an *i-longa*?¹⁸

¹⁷ Gordon and Gordon (1957: 192) were doubtful both of the frequency of use of *Ti*. and of the use of *i-longa* to mark out the name, or to mark an abbreviation: '[i]t seems to us rather that the tall I [i.e. *i-longa*] probably represents uncertainty about the vowel quantity or error of some other sort'.

¹⁸ The scribe does use *i-longa* for other instances of short /i/, however: *Ti(berio)*, *Ti(berii)*, *in* (twice), *item*, *intercolumnia*. As in *leguminum*, <i> is next to a letter involving a horizontal stroke in all these words.

Old-Fashioned Spelling? Problems and Different Histories

A key result which arises from my investigation is that treating old-fashioned spelling as a single category is not a particularly useful approach. More nuance is required, since the history, development and survival or loss of individual spelling rules and individual lexemes are highly varied and depend on a number of factors.

A good example of the complexities that arise with the concept of old-fashioned spelling is the use of the digraph <xs> for /ks/ (Chapter 14). The methods I have used to decide whether a spelling is old-fashioned (pp. 10–15) give different results: it seems always to have been less commonly used than <x> from its creation in the third or early second century BC until the fourth century AD, so we cannot talk about an absolute change in frequency; and the writers on language deprecate it without suggesting, as they do for other spellings, that they consider it old-fashioned. The major change seems to have been in register and/or social or educational background, with <xs> first appearing in Latin epigraphy in the *SC de Bacchanalibus* of 186 BC, but largely falling out of use in official texts by the first century BC. However, it appears to be part of the training of the scribes of the Caecilius Jucundus archive, is the majority usage in the tablets from London and continues to be used into the second century in texts (perhaps especially letters?) at Vindolanda, and into the fourth century in the curse tablets.

Similarly problematic is the case of the variation between <u> and <i> between /l/ and a labial plosive, and before a labial consonant in non-initial syllables (Chapter 6), where the move to the <i> spelling, and hence the old-fashionedness, varies

according to individual lexemes and morphological categories. For example, the <i> spelling is utterly dominant in the root *lub-* from the first century AD onwards, while *chupeus* competes with *clipeus* into the second century AD. In the first to fourth centuries AD, superlatives in *-issimus* massively favoured <i>, while *proximus* and *optimus* used <u> respectively 10% and 9% of the time, and *postumus* had <u> 96% of the time. Of the ordinals, *septimus* has <u> 5% of the time, but *decimus* 19%.

When a move from an older to a more innovative spelling occurs due to phonological change, sometimes the new spelling quickly becomes standard and apparently almost entirely replaces the older spelling. An example of this is the change from <uo> to <ue> before a coronal obstruent or syllable-final /r/ (Chapter 7): the newer spelling is not found until the final quarter of the second century BC, but is already dominant in the first century BC, and is almost never found after that except in highly archaising verse inscriptions, in the word *diuortia*, and in the divine name *Vortumnus*. Some spellings are found infrequently or not at all in the corpora, for example preservation of <oe> (/ɔi/ > /u:/ in the fourth century BC; see p. 40), <ai> (/ai/ > /aɛ/ in the second century BC; Chapter 2), <o> for /u/ (various sound changes in the third and second centuries BC; Chapter 5), <c> for /g/ (invention of <g> in the third century BC; Chapter 10), and the use of double writing of vowels to represent length, which came into use in the mid-second century BC but fell out of use fairly quickly (Chapter 9).

In other cases, the older spelling is maintained much longer, both in elite and sub-elite contexts. An example of this is the use of <uo> for /wu/ (Chapter 8). In part this reflects the later occurrence of the sound change /wɔ/ > /wu/ which led to the innovatory spelling <uu>, since this probably did not take place until the mid-first century BC; in part it also reflects the fact that the <uo> spelling allowed the maintenance of a useful distinction between two different phonological sequences, whereby /wu/, spelt <uo>, could be kept separate from /uu/, spelt <uu>. This spelling rule is found over a large geographical range (Pompeii, Vindolanda, Egypt), and was maintained at least until the early second century in my corpora; at Vindolanda it was shared by the equestrian prefect

Conclusions

Cerialis, scribes, and substandard spellers. The <uo> spelling for /wu/ is attested epigraphically as late as the fourth century AD, including fairly robustly into the second century AD in ‘official’ inscriptions.

Unlike sound change, spelling does not change in a way that is either regular or exceptionless. Certain lexemes may favour or resist innovatory spellings. I have already mentioned the lexical variation in the <u> / <i> interchange. Another example is the use of double <ll> in *millia* ‘thousands’, which was maintained as the standard spelling well into the first century AD, both in the epigraphic record generally and in the sub-elite corpora examined here, despite the fact that the phonological change to single /l/ had taken place by the mid-first century BC, and other words, such as *uīlicus*, are usually spelt with a single <l>. This can also compare with the similar reduction of /ss/ to /s/ after a long vowel or diphthong, which took place about the same time (Chapter 15). The tablets of the Sulpicii, which massively favour the <ll> spelling in *millia*, *millibus*, also heavily prefer <s> to <ss> in most words, although *caussa* may be preferred to *causa*. Nonetheless, use of <ss> also shows signs of survival for a long time, with several examples in curse tablets from Britain in the third and fourth centuries AD.

Another spelling whose survival was closely connected to particular lexemes was the use of <qu> to represent /k/ before a back vowel (Chapter 13). Original /k^w/ had lost its labiality in the third century BC, but <qu> was preserved in the corpora into the first century or early second century AD in *quom* for *cum* ‘when’ and *quur* for *cūr* ‘why’, and it is identified in these words by the writers on language into the fourth century AD (who, however, recommend the artificial *quum* for *cum*).

Not all changes in spelling rest on phonological changes. In addition to <xs>, mentioned above, the use of <ii> for intervocalic /jj/ (Chapter 11) was apparently an innovation of the first century BC, to more accurately represent the geminate consonant. While the writers on language are sometimes enthusiastic about this spelling, particularly since it is useful for scansion, their discussions imply that it is not part of the standard, and it is very

uncommon in the corpora. The use of <k> before /a(:)/ and <q> before /u(:)/ was a holdover from the adoption of the Etruscan alphabet; the former in particular was perhaps the longest-lasting old-fashioned spelling, although it underwent interesting mutations in usage over the course of the millennium or so in use to the end of the Roman empire.

For all these reasons, I will return from here on in to calling these spellings as a class ‘optional’ rather than ‘old-fashioned’. It will be recalled from the Introduction (pp. 15–18), that optional spellings are not (necessarily) the standard spelling for a given sound or sequences of sound, but are not substandard, and are non-intuitive, so that they will not be produced by a writer who has simply learned a basic mapping of individual letters to sounds. Optional spellings are a wider class than old-fashioned spellings (including, for example, the types of spelling mentioned on p. 22), and whether or not one of these spellings is in fact old-fashioned at a given time, register, social context etc. requires in-depth investigation. However, for the question of what use of optional spellings tells us about sub-elite education, it is the optionality rather than the old-fashionedness which is of particular importance, because it gives us an insight into a skill which is by necessity the result of a particular type of education.

Not all of the spellings discussed here are – as it turns out – even optional, still less old-fashioned: the use of <ll> in *millia* and *millibus*, for instance, is simply the standard spelling, at least until the end of the first century AD. Use of <xs> for /ks/ is an interesting case: it may be old-fashioned in the sense that it used to be used in legal inscriptions (into the first century AD, with one outlier from the early second century); on the basis of what the (presumably) second century AD writer Caesellius Vindex says, it is non-standard. It is however, non-intuitive (since either <x> or <cs>, which is occasionally found, are what one would expect given a relatively low level of orthographic education). As we shall see below, this may be a case where an optional spelling remains a part of a somewhat independent sub-elite spelling tradition after it has dropped out of use in the elite-defined standard.

Optional Spellings and Sub-elite Education

A primary result of the investigations carried out in this book is to bring to the surface how use (but not necessarily correct use) of the optional spellings which I have discussed is not restricted to those with a high level of education, at least as far as this can be deduced from other aspects of orthography, or occasionally external evidence of the writer's social position. This will have become clear throughout the book, but here I collect many of the texts found in the corpora which exhibit both optional and substandard spelling.

- P. Alfenus Varus (tablets of Caecilius Jucundus, CIL 4.3340.45): <q> for /k/ before <u> in *Iuqundo* for *Iucundō*. Substandard spelling: *Augussti* for *Augustī*, *acepisse* for *accēpisse*, *Pollionnis* for *Polliōnis*, *actum* for *actum*; *noue* for *nouem*; *Nucherina* for *Nūcerīna*.
- Privatus, slave of the colony of Pompeii (tablets of Caecilius Jucundus, CIL 4.3340.142, 143, 144, 145, 146, 150, 151): <uo> for /wu/ and for /uu/ in *seruos* for *seruus*, *duomuiris* for *duomuirīs*. Substandard spelling: *Hupsaei*, *Hupsaeo* for *Hypsaeī*, *Hypsaeō*, *pasquam* for *pascuam*, *pasqua* for *pascuā*.
- Salvius the slave (tablets of Caecilius Jucundus, CIL 4.3340.6): <uo> for /wu/ in *seruo[s]* for *seruus*. Substandard spelling: *noue* for *nouem*, *auctione* for *auctiōnem*, *stipulatu* for *stipulātum*, *minutati* for *minūtātīm*.
- C. Novius Eunus (tablets of the Sulpicii, TPSulp. 51, 52, 67, 68): <ss> for /s/ from old /ss/ in *promissi* for *promīsī*, including hypercorrect examples *Cessarīs*, *Hessucus*, *Hessco*, *Assinio*, *possitus*; <e> in first syllable of *spepodi* for *spopondī*, *puplicis* for *pūblicīs*; perhaps <e> for /i:/ < /e:/ < /ei/ in *dede* for *dedī*. Substandard spelling includes *Cessarīs* for *Caesarīs*, *Iobe* for *Ioue*, *sesterta* for *setertia*, *quator* for *quattuor* etc. (for full details, see [Adams 1990](#) or [Zair in press](#): 331–2).
- L. Faenius Eumenes (tablets of the Sulpicii, TPSulp. 27): <ss> for etymological /ss/ > /s/ after a long vowel or diphthong in *caussa*, *çausa* for *causa*; <e> for <o> in first syllable of *spepodi* for *spopondī*. Substandard spelling: *Putiollis* for *Puteolīs*.
- L. Marius Jucundus, freedman of Dida (tablets of the Sulpicii, TPSulp. 53): <e> for <o> in first syllable of *spepodi* for *spopondī*. Substandard spelling: *Putiol(is)* for *Puteolīs*.
- Octavius (Vindolanda, Tab. Vindol. 343): <xs> for <x> in *uexsaꝛe*; <k> before <a> in *karrum*, *ḡarro* for *carrum*, *-ō*; unetymological <ss> for /s/ in *nissi* for *nisi*. Substandard spelling: *illec* for *illaec*, *arre* for *arrae*, *que* for *quae*, *male* for *malae*, *mae* for *mē*, *necessari* for *necessarī*.

Optional Spellings and Sub-elite Education

- The writer of Tab. Vindol. 180, 181, and 344: <ss> for etymological /ss/ > /s/ after a long vowel or diphthong in *ussus* for *ūsūs*, *comississem* for *comīsissem*; <xs> for <x> in *uexsillari* for *uexillārī*. Substandard spelling: *bubulcaris* for *bubulcārīs*, *turtas* for *tortās*, *emtis* for *emptīs*, *balniatore* for *balneātōre*, and *Ingenus* for *Ingenuus*.
- The writer of Tab. Vindol. 597: <k> before /a(:)/ in *kanum* for *canum*. Substandard spelling: *lamnis* for *laminis* and *pestlus* and *peşil[us]* for *pessulus*.
- The writer of a letter from Maior to Maritimus (Tab. Vindol. 645): <ss> for etymological /ss/ > /s/ after a long vowel or diphthong in *fussá* for *fūsā*; perhaps <ii> for /j/ in *Cocejió*. Substandard spelling: *Vindolande* for *Vindolandae* and *resscribere* for *rescribere*.
- Aemilius Aemilianus (O. BuNjem 76–79): <xs> for <x> in *sexsagi[nta]* for *sexaginta* (on his non–old-fashioned use of <k>, see p. 153). Substandard spelling: *tridici*, *tridici*, *trid[ici]* (76, 77, 78, 79) for *trīticī*,¹ *septe* (76) for *septem* ‘seven’, *Febrarias* (76, 77) for *Februāriās*, *noe* (77) for *nouem*, *camelarius* for *camellārius* (77).
- The writer of P. Mich. VIII 467/CEL 141: <uo> for /wu/ (beside <uu> for /uu/) in *saluom* for *saluum*, *no]uom* for *nouum*, *fugitiuom* for *fugitiuum*, *tuom* (twice); <k> before /a(:)/ in *Kalab[el]*, *kasus* for *cāsus*. Substandard spelling: *co[lym]bade [un]a et un[a] nigra* for *colymbadem ūnam et ūnam nigram*, *ana]bo]ladum* for *anaboladium*, *postae for positae* etc.²
- The writer of P. Mich. VIII 468/CEL 142 and CEL 143; <q> before /u(:)/ in *sequurum* for *sēcūrum*. Substandard spelling: *speraba* for *sperābam*, *unu* for *ūnum*, *abes* for *habēs*, *pulbinō* for *puluīnō*, *aceperis* for *accēperis* etc.
- The writer of P. Mich. VIII 469/CEL 144: <uo> for /wu/ in *bolt* for *uult* ‘wants’; <q> before /u(:)/ in *qumqupibit* for *cumcupībit*, *sequнду* for *secundum*; *reşçreibae* for *rescribere*. Substandard spelling: *bolt* for *uult*, *imbenire* for *inuenire*, *epistula* for *epistulam*, *reşçreibae* for *rescribere* etc.
- The writer of P. Mich. VIII 470/CEL 145 and P. Mich. VIII 471/CEL 146: <q> before /u(:)/ in *sequurus* for *sēcūrus*, *aequm* for *aequum*, *tequm* for *tēcum*, *qurauit* for *cūrāuit*, *pauqum* for *paucum*. Substandard spelling: *benio* for *ueniō*, *Alexandrię* for *Alexandriae*, *açu* for *acum*, *inç* for *hinc* etc.
- The writer of a letter from Karanis (CEL 225): hypercorrect <qu> for /k/ before a back vowel in *laquonecoru* for *lacōnicōrum* ‘steam baths’. Substandard spelling: *laquonecoru* for *lacōnicōrum*, *domni* for *dominī*.

¹ For some reason this lexeme seems to have developed a voiced internal stop in speech (see Adams 1994: 108).

² For full examples of substandard spellings in this and the other letters from the Claudius Tiberianus archive, see Halla-aho (2003: 247–9).

Conclusions

- The writer of a curse tablet from Arretium (Kropp 1.1.1/1): <uo> for /wu/ in *uoltis* for *uultis*; perhaps <uo> for /we/ before a coronal in *uostrum* for *uestrum*. Substandard spelling: *interemates* for *interimātis* and *interficiates* for *interficiātis*, *nimfas* for *nymphās*.
- The writer of a curse tablet from Saguntum (Kropp 2.1.3/3): <q> before /u(:)/ in *pequnia* and *pequniam* for *pecūniam*. Substandard spelling: *Cr[y]se* for *Chrysē*, *pequnia* for *pecūniam*, *uius* for *huius*, *o[c]elus* for *ocellus*, *onori* for *honōrī*, *senus* for *sinus*.
- The writer of a curse tablet from Bath (Kropp 3.2/24): <xs> for <x> in *paxsa* for *pexam*; hypercorrect <ss> in *nissi* (twice) for *nisi*. Substandard spelling: *Minerue* for *Mineruae*, *paxsa* for *pexam*, *[pal]leum* and *p]aluleum* for *pallium*.
- The writer of a curse tablet from Uley (Kropp 3.22/3): <xs> for <x> in *exsigat* (twice) for *exigat*; hypercorrect <ss> in *nissi* for *nisi*. Substandard spelling: *lintiamine* for *linteāmine*.
- The writer of a curse tablet from Caerleon (Kropp 3.6/1): hypercorrect <ei> for /i:/ in *sanguinei* for *sanguinī*. Substandard spelling: *domna* for *domina* and hypercorrect *palleum* for *pallium*.
- The writer of a curse tablet from Carthage (Kropp 11.1.1/26): <o> for /u:/ in *iodicauerunt* for *iūdicāuērunt*. Substandard spelling: *a]nime*, *anime* for *animae*, *Metrete* for *Metrētae*, *demoniorum* for *daemoniōrum*, *uite* for *ūitae*, *ec* for *haec*, *uius* for *huius*, *is* for *hīs*, *os* for *hōs*, *interitu* for *interitum*, *coggens* for *cōgēns*.
- The writer of a funerary inscription from the Isola Sacra (IS 312): <xs> for <x> in *Felix* for *Fēlix*. Substandard spelling: *comparaberunt* for *comparāuērunt*.
- The writer of a note from London recording a loan taken out by Atticus (WT 55): <ss> for etymological /ss/ > /s/ after a long vowel or diphthong in *u]ssuras* for *ūsūrās*, *promissit* for *promisit*; <xs> for <x> in *dixsit* for *dīxit*. Substandard spelling: *abere* for *habēre*.
- The writer of a legal document from London (WT 67): <xs> for <x> in *Sexsti* for *Sextī*. Substandard spelling: *Masueti* for *Mansuētī*.
- The writer of a letter from London (WT 29): <ss> for etymological /ss/ > /s/ after a long vowel or diphthong in *[o]ccassionem* for *occāsiōnem* and hypercorrect *messibus* for *mēnsibus*. Substandard spelling: *salute* for *salūtem* (if not due to lack of space at the end of a line), *conpedia* for *compendia*, *messibus* for *mēnsibus*.

This is not to say that successful education in standard orthography is opposed to the use of optional spelling (except perhaps in the case of <xs>; see below pp. 268–9). An example of this is the prefect Cerialis at Vindolanda, who uses <ss> for etymological /ss/ > /s/ after a long vowel or diphthong, as well as <uo> for /wu/. And either Justinus, a prefect, or his scribe, use <u> rather than <i> in

lubentissime (260), and either Ascanius, a *comes Augusti*, or his scribe use <e> for /i:/ in *amecos* (Tab. Vindol. 605), although based outside Vindolanda. Further down the social scale, at least some of the scribes at Vindolanda combine largely standard spelling with <ss>, <xs> for /x/, <uo> for /wu/, occasional <k> before <a>, and even <qu> for /k/ before a back vowel (even if it is not clear that these optional spellings are as widespread among the scribes of Vindolanda as Adams might have thought; see pp. 273–5).

On the basis of the cases above, and the other evidence gathered in this book, it is reasonable to conclude that optional spellings were maintained in at least some educational traditions accessible by the sub-elite, both among those for whom writing was a profession and among others. As we have seen, this type of spelling cannot be used as a proxy for quality of education or of social class: it is equally found in the writing of prefects, scribes, and non-scribes whose spelling is otherwise non-standard at Vindolanda, and scribes, slaves, and members of the praetorian guard at Pompeii. Clearly, use of optional spelling is not restricted to the better educated, although those who make mistakes in their standard spelling may make mistakes in this area too.

There is even some evidence for the existence of particular traditions within the more general survival of optional spellings. As already noted, some spellings were more successful at surviving than others: notably <xs> for /ks/, <k> before <a>, and <uo> for /wu/, while others died off sooner. As stressed earlier, this suggests that optional spellings were not treated as a unified whole, but rather that individual spellings underwent their own history. However, there are cases whereby certain spellings seem to co-occur fairly often, implying the existence of a tradition in which they were taught together. The most notable instance of this is at Vindolanda, where <uo> for /wu/, <xs> for /ks/, and <ss> after long vowels and diphthongs are found several times in the same texts:

<uo> and <ss>: Tab. Vindol. 225; 256

<ss> and <xs>: Tab. Vindol. 309; writer of 180, 181, and 344

<ss> and <xs> and <ka>: Tab. Vindol. 343

Conclusions

These correlations occur in texts by writers from across the social scale: Cerialis (225), probable or possible civilians with substandard spelling (343, writer of 180, 181, 344) and, presumably, scribes (256, 309), although 309 is a letter from the civilian Metto, so the scribe is not necessarily from Vindolanda. The possibility that <ss> and <xs> travelled together, as it were, is also supported by the London tablets; although there is only one text in which both appear (WT 55), both spellings are – most unusually – in the majority in these tablets compared to <s> and <x> respectively. And <ss> and <xs> also co-exist in two curse tablets from Britain (Kropp 3.2/24, 3.22/3).

Use of <ss> is also interesting in terms of the development of orthographic traditions in several further ways. Firstly, it may have ended up being characteristic of British Latin spelling: as we have seen, it is found frequently in the Vindolanda and London tablets (much more so than in the tablets from Pompeii and Herculaneum, for instance), and is found in no other corpora other than the curse tablets in Britain from the second to the fourth century AD.³ This distribution is remarkable – if it is not merely chance, the only explanation I can suggest was that the army had a reasonably centralised education system that acted as the basis for a somewhat independent British orthographic tradition.⁴ Depending on how many people were involved in the initial creation and propagation of such a system, it is possible that the British orthographic tradition could reflect the preferences of even a single teacher.

The second interesting feature of <ss> is the extent to which it appears in texts which otherwise give evidence of unsuccessful learning of standard spelling, such as in the texts written by C. Novius Eunus in Pompeii in the first century AD, some writers at Vindolanda (Octavius, Tab. Vindol 344; the writer of 180, 181 and 344; the writer of 892) at the end of that century, in curse tablets in the third and fourth centuries AD (Kropp 3.2/24, 3.2/79, 3.18/1, 3.22/3, 3.22/5, 3.22/29, 3.22/32) and a London tablet (WT

³ Smith (1983: 918) gives some examples of <ss> from British inscriptions, but gives no idea of their frequency.

⁴ Cf. Mullen and Bowman (2021: 61): ‘we might speculate that the military may be involved in the origins and reasons for the changes in style and practice in writing which can be observed over the centuries’.

29). It seems as though <ss> was perhaps the optional spelling which had been best preserved in not only sub-elite but also substandard education.

The third is how often <ss> is used 'incorrectly', that is after a short vowel or in words which never had a geminate /ss/. Substandard spellers often simply write <ss> for any intervocalic /s/, of whatever origin: Eunus spells *Caesar* as *Cessar* (TPSulp. 51, 52, 67, 68), *Hesychus* as *Hessucus* (51, 52, 68), *positus* as *possitus* (51, 52) and *Asinius* as *Assinius* (67), Octavius (Tab. Vindol. 343), and sundry curse writers (Kropp 3.2/24, 3.2/79, 3.18/1, 3.22/2, 3.22/3, 3.22/5, 3.22/29, 3.22/32) have *nissi* (or *nessi*) for *nisi*, and one curse tablet contains *missericordia* (Kropp 3.22/34). It is possible that these learners simply failed to understand when to use <ss> for /s/ (unsurprisingly, since it was synchronically somewhat arbitrary), but it is also possible that in the educational tradition which they had experienced the rule had at some point been changed (again, reducing the arbitrariness with which it was applied), and was then passed down by teachers within that tradition.

Notwithstanding these tendencies, and the possible British tradition of using <ss>, it is clear that there was very little uniformity in the sub-elite educational experience, as far as optional spelling goes. Thus, for example, use of <xs> and <uo> are nearly non-existent in the tablets of the Sulpicii, but are common in the tablets of Caecilius Jucundus, despite the fact that these texts belong to the same genre, and are from much the same place at much the same time. The army texts from Vindolanda, Vindonissa, Bu Njem, and Dura Europos do not show a consistent military educational tradition of optional spelling, with the latter having no instances of <ss>, <xs> or <uo>. Although the letters of Claudius Tiberinus, presumed to be written by military scribes, do feature a number of optional spellings, the letters differ wildly between themselves as to use of <q> before <u>, <k> before <a>, <ei> for /i:/ etc. (as well as the extent to which their spelling approaches the standard).

However, given the relative frequency with which optional spellings have been found in the corpora considered here, it is possible that in the imperial period optional spellings actually became more commonly used by sub-elite writers than by the

elite? Posed in this way the question is probably not susceptible to an answer, partly because, as we have seen, optional spelling is not really a single category: instead we should think of each spelling as having its own history, development and profile; and partly because it is hard to think of a principled way of dealing with the problems that would arise given the data we have available.

Nonetheless, there are hints that certain spellings could, as it were, move down the food chain (and in fact this was implied in one of my methods for identifying old-fashioned spelling on p. 14). Mancini (2019) has identified a movement away from the use of <xs> in ‘official’ inscriptions in the first and early second century AD, but it continues as an alternative for much longer in other contexts (Chapter 14). Likewise, Nikitina (2015: 10–48) and Adams (in press) demonstrate a tendency for ‘official’ but non-legal inscriptions in the first century AD to use <i> rather than <u> spellings in front of a labial in non-initial syllables (in words in which this spelling varies), while the older spellings are very occasionally preserved in sub-elite contexts. Perhaps the most striking case is that of the use of <q> before /u(:)/, which is extremely uncommon in the first four centuries AD other than in the word *pecūnia* ‘money’, but is used in other lexemes in five of the Claudius Tiberianus letters in Egypt in the early second century AD (as well as once by P. Alfenus Varus in the tablets of Caecilius Jucundus from Pompeii).

However, we must be careful in applying a purely sociolinguistic approach to this kind of change: issues of genre and register may also be relevant. Let us return to <xs>, and Mancini’s (2019: 28) view of it as ‘informale e cancelleresco’.⁵ Mancini is operating with a very narrow definition of formal writing, i.e. that found in official and legal inscriptions as opposed to the type of ‘everyday’ documents that we have been considering, but this is still a surprising combination, since one might not expect bureaucratic writing to share characteristics with informal rather than formal texts. Is the difference between use of <xs> and <x> really one of register as implied by Mancini’s use of the term ‘informale’? Or is

⁵ It is not clear to me what exactly is encompassed by the term ‘cancelleresco’: I suppose that the modern English equivalent would be ‘bureaucratic’, but Mancini does not expand on what counts for him as bureaucratic in the ancient world.

it more a question of elite vs sub-elite writers? It is not always easy to disentangle these ideas: for example, consider the copy of an official letter of *probatio* sent from the *praefectus Aegypti* to the *praefectus* of the *cohors III Ituraeorum* (CEL 140). Assuming that the <xs> spelling was in the original (the copy itself was made by a scribe belonging to the cohort), is this an example of formal or bureaucratic writing? In the tablets of Caecilius Jucundus, <xs> seems to have been characteristic of a particular contractual formula in scribal hands: is this informal because belonging to a non-official genre, or formal because of the legal nature of the text? Or do the scribes count as having bureaucratic spelling? And what are we to make of the fact that the generically very similar tablets of the Sulpicii, and those from Herculaneum, almost entirely eschew <xs>? At Vindolanda it is possible (but by no means certain) that <xs> is more characteristic of civilian than military writers; this would be borne out by the near absence of <xs> in the Bu Njem ostraca and the Claudius Tiberianus letters, possibly written by military scribes. If this is correct, is the relevant distinction a sociolinguistic one of civilian vs military? Or of bureaucratic (if the scribes can be considered part of a bureaucracy) vs non-bureaucratic (in which case this causes problems for Mancini's definition)?

Whatever the solution, it is clearly not impossible for a change in orthography to take place at the level of genre or register rather than of class/social background. This is well recognised within the category of 'official' inscriptions, where we find the continuation of certain spellings longer in legal texts than in other kinds (on spelling in legal texts, see [Decorte 2015](#): 154–77). It is possible, therefore, that a situation could have emerged whereby some old-fashioned spellings were found more often at both ends of the formal–informal spectrum, say in legal texts and personal letters, than in texts in between.

The evidence of <k> also suggests ways that what we would consider a single spelling might have a highly nuanced usage in sociolinguistic and/or register terms ([Chapter 12](#)). In the word *cārus*, and particularly its superlative *cārissimus*, <k> seems to be more or less standard: in the letters from Vindolanda and elsewhere it is used as the majority spelling for these words, and

is especially characteristic of the brief messages at the end of letters written by non-scribes. These include Rustius Barbarus, whose spelling is otherwise highly substandard, but also several writers of equestrian rank. It is also common in the funereal context of the Isola Sacra, in inscriptions with perfectly standard spelling. In other lexemes, <k> can have an archaising, high-register force, going by its use in *karina* in a hexametric funeral inscription from the Isola Sacra (IS 223), which also includes a very late <u> spelling in *lubens* (Chapter 6). But <k> is also found amongst writers whose substandard spelling suggests sub-elite education: at Vindolanda in the letters of Octavius (Tab. Vindol. 343), and in an account (presumably) by a scribe (Tab. Vindol. 597); and in the Isola Sacra inscriptions IS 27, 34 and 319.

Even if the preservation and promulgation of optional spellings was not greater among sub-elite writers, we have seen plenty of evidence that they were learnt by sub-elite writers across a wide geographical and chronological range. This might fit well into the ‘competition’ model of ancient education espoused by Morgan (1998: 74–89). According to Morgan, education was bound up in a competition to be recognised as belonging to a particular cultural group, and the members of the dominant group in different areas and local contexts could define the criteria for entrance to this group at their own level. In Morgan’s discussion, the competition is one for ‘Greekness’, and based around the Greek literary texts that formed the ‘periphery’ of the educational curriculum. Thus, she argues, pupils and teachers would have the freedom – but also the concomitant anxiety – of choosing what texts to read with the aim of impressing the cultural group which the pupil aspired to, with success leading to increased status and more pupils for the teacher. Those with lower social status might be more inclined to play safe and read the authors who are most prominently found in schooltext papyri, and perhaps seen as more canonical, such as Euripides, Sophocles and Aeschylus, while those who read more ‘exotic’ authors come from those at a higher level. It is possible that, particularly among the sub-elite, a similar type of competitive approach may have characterised even the core training around reading and writing. Perhaps the use of optional spellings provided a similar marker that the learner had reached a higher level of

education that was appropriate for relatively secure and remunerative roles such as that of a scribe.

A final question raised by the corpora is whether there was a change in the use of optional spellings over time. Looking across the corpora, many optional spellings seem to be preserved relatively well at the sub-elite level into the second century AD, with a falling-off thereafter. To some extent this may be an artefact of the available corpora: most of the texts I have used have come from before the third century AD, with only the Dura Europos texts, the Bu Njem ostraca, some of the Paedagogium graffiti, some of the letters, some of the curses, and a handful of the Isola Sacra inscriptions, coming from a later period. Looking at the whole epigraphic evidence suggests that spellings like <xs> for <x>, <ei> for /i:/, <k> before <a>, and <uo> for /wu/ did last (although not necessarily in great numbers).⁶ The contexts in which these spellings did survive into and after the third century AD are worthy of further study.

The Education of Scribes and Stonemasons

The corpora provide evidence that groups of scribes used orthographic conventions which marked them out from other writers at the same time and place – in addition to the fact that their spelling was on the whole consistently close to the standard (sometimes significantly more so than non-scribal writers in the same corpora). This is particularly clear in the case of the tablets of the Sulpicii and those of Caecilius Jucundus.

Use of *apices* in the tablets of the Sulpicii is almost exclusively restricted to scribes (only one non-scribal writer uses them in the whole corpus). They also seem to have developed their own habit with regard to the use of *i-longa*: they share with the non-scribal writers the expected use of *i-longa* to represent long /i:/ and, to a lesser extent, /j/, but also use it frequently to represent short /i/, which is both unexpected and different from the usage of the other writers (but not from the stonemasons in the Isola Sacra; see

⁶ And even use of <o> for /u/ in a number of curse tablets – but for doubts on the reliability of these spellings, see pp. 67–71.

below). They are, however, extremely restrained in their use of other optional spellings, for example using <x> almost uniformly rather than <xs>, preferring <s> to etymological <ss> after a long vowel or diphthong, avoiding use of <k> and <q> for /k/. The consistent use of <ll> in *millia* and *millibus* is still standard in the first half of the first century AD, while their preference of <uu> for /w/ is, if anything, rather innovatory. Individualism – and even substandardism – in spelling is not entirely stamped out: there are single instances of <xs> and <cs> for /ks/, <uo> for /wu/, and the idiosyncratic spelling of *cui* as *cuoi*, [c]u[o]i. But the scribes of the Sulpicii as a body seem to be well-educated to the contemporary standard. This consistency need not be the result of special training, but is certainly not incompatible with it. Use of the geminate in the impersonal use of *parret* (TPSulp. 31) seems to be a characteristic of legal or contractual spelling – as opposed to the spelling *paret* in other contexts. Consequently, it is quite possible that this formed part of the training received by the scribe specifically for this purpose.

In the tablets of Caecilius Jucundus, it is the use of <xs> that marks out the spelling of the scribes. They use this digraph significantly more often than other writers, and even more so in the verb *dīcō* which forms part of a formula *habēre* (or *accēpisse*) *sē dīxit* (or *dīxērunt*). This greater use by the scribes, and its particular localisation in the formulaic language of finance, may suggest that use of <xs> would be seen as somewhat formal, or at least bureaucratic, at this time and place, which would support Adams' view of it as old-fashioned rather than Mancini's argument that it was a marker of informal texts (although the tablets are still presumably to be categorised as less formal than the legal texts from which <xs> is being lost at this time).

All this suggests that the scribes had undergone at least part of their education as a group, specifically for their work as scribes. We cannot say whether, for example, they were slaves or freedmen earmarked to be scribes and hence educated appropriately early in life, or whether they received additional training later in life, although the partly substandard, partly optional spelling of the scribe who has *cuoi* and [c]u[o]i (TPSulp. 48) suggests that he may have had a somewhat different education from the others. On

similar lines, there may be signs of a different educational tradition being received by the scribe of the earliest Caecilius Jucundus tablet (CIL 4.3340.1), since he is one of two to use <x> rather than <xs> in the *habēre sē dīxit* formula, and he is also the only scribe to use <q> before <u> in *pecūnia*. In this case, of course, the difference in date can explain the difference in education.

The other context in which information about scribal training may be available is the Vindolanda tablets. Adams (1995; 2003) has already drawn attention to this question, observing that the scribal output was both remarkably standard orthographically (and morphologically), as compared with texts probably written by non-scribal military personnel, notably the *renuntium* reports perhaps written by the *optiones* themselves (Adams 1995: 102–3, 130–1), and featured optional spelling: ‘[t]here was an educated secretariat at Vindolanda’ (Adams 1995: 130). This statement is less straightforward than it might seem. In fact, the use of optional spellings is not particularly a marker of scribal education at Vindolanda: instead we find it in the work of a number of writers, scribes and non-scribes, military and (probably) civilian, in those who produce standard and substandard spelling.

As already noted, the writing of the highly educated prefect Flavius Cerialis is characterised by optional spelling: he uses both <uo> for /wu/ and etymological <ss>. Likewise, his fellow prefect Justinus uniquely uses the spelling *lubēntiſsime*. But there is also quite a large cluster of old-fashioned spellings in texts which may have been written by civilians, or at any rate by scribes who were not based at Vindolanda. Of 10 examples of <xs> in the tablets, 5 are in letters from authors who either are or may be civilians (Tab. Vindol. 181, 309, 343), and whose letters were sent to Vindolanda rather than being written there. Even if Octavius, the author of 343, was a soldier, it seems plausible that the letter was not written by a scribe, given its idiosyncratic combination of optional and substandard spelling. Of 22 examples of <ss>, again, 7 are found either in the civilian letters 181, 309 and 343 (in the etymologically incorrect *nissi*), or the one written by Cerialis, and at least 2 others (314, 645) were sent to rather than from Vindolanda (although this does not rule out that they were written by military scribes). Use of <k> is characteristic both of Octavius and scribes: the latter almost

Conclusions

certainly for *uikario* (879), since it appears in the body of a letter whose closing greeting is written by another hand, and presumably in *karrā* (583) and *kanum* (597), which are both accounts. Of the two apparent instances of <e> in *ube* (642) to represent /i/ < /i:/ and *amecos* (650) to represent /i:/, both the author and recipient of the former letter may have been civilians, and the latter was sent to Vindolanda, perhaps by someone of equestrian or senatorial rank (as a *comes Augusti*), and not necessarily using a military scribe. Scribes are likely to be responsible for *quom* (248) for *cum*, and *quūr* (652) for *cūr*. By no means all of the optional types of spelling discussed in this book are found at Vindolanda: there are no cases of <ei> for /i:/, <o> for /u/ or /u:/, or <uo> for /we/, for instance.

In short, the evidence that optional spelling was widespread amongst the scribes is not as strong as might first appear, since we cannot attribute optional features at Vindolanda solely to them: quite a large proportion of the examples come from texts which are likely to have been written by non-scribes. It is perhaps unsurprising that highly educated members of the military community should also show optional spellings, but optional spelling seems to have been remarkably widespread amongst the broader community who interacted with the military at Vindolanda, including among civilians and those whose spelling was substandard.

One possible explanation for this is that the military was a major source of education for both its scribes and its soldiers, and that its scribes were also available for use by non-soldiers as well (at least when they were writing letters to members of the army). Under this picture, therefore, we could imagine a rather conservative orthographic tradition, not dissimilar to that learnt by the prefects Justinus and Cerialis, which was characteristic of the military in (northern?) Britain, and not just at Vindolanda, which also influenced the kind of spelling used by civilian authors on its fringes. But this must remain speculative in the absence of further evidence. At any rate, however, the use of optional spellings was not restricted to the Vindolanda scribes alone.

Nonetheless, Adams has been proved right that the orthography of the Vindolanda documents, even if not restricted to the scribes, is fairly old-fashioned (or, rather, uses optional spellings), when we compare it to most other corpora, and especially those from the

military camps at Vindonissa, Bu Njem and Dura Europos. The only other corpus from a military context which shows similarly optional features is the letters of Claudius Tiberianus, although the actual orthographical rules being followed are somewhat different: while both Vindolanda and P. Mich. VIII 467/CEL 141 and 469/144 show <uo> for /wu/, 467/141 uses <k> before <a> much more consistently than at Vindolanda, and almost all the letters sometimes use <q> before <u>, which is almost non-existent at Vindolanda, and 469/144 has <ei> for /i:/, which is lacking at Vindolanda. Conversely, the letters do not use <xs> at all, whereas this is fairly common at Vindolanda. And of course, the spelling of the Claudius Tiberianus letters is in general more substandard than that at Vindolanda. All this suggests that there was (perhaps unsurprisingly) no army-wide spelling standardisation, and hence presumably no fixed educational tradition that applied across the empire. The idea that particular divisions of the army could develop their own spelling traditions is somewhat supported by the optional spellings found at Vindolanda (but not only among scribes, or indeed military personnel), and the Tiberianus letters; although the successfulness with which their writers approach the standard varies greatly between these two corpora.

Where the scribes do stand out as recipients of a separate training from other writers in the Vindolanda tablets is in the use of *apices*, which as far as we can tell is restricted to texts produced by scribes. In this regard, the Vindolanda tablets are just like those of the Sulpicii, although the rationale for placement of the *apex* on a word is very different in the two corpora; indeed, the very strong preference for placing an *apex* on word-final /ɔ(:)/ and /a(:)/ at Vindolanda marks them out from all the other corpora and inscriptions containing *apices* that we have seen.

The evidence of the Isola Sacra inscriptions is particularly interesting for the light it throws on the practice of another group of professional writers, the stonemasons. We may doubt to what extent some of their practices should properly be considered the result of training in orthography, rather than in design, layout, spacing etc. (for instance the use of *i-longa* in double II sequences). However, there are distinct parallels both in terms of *i-longa* and *apices* with what we find in the tablets of the Sulpicii and at Vindolanda: in

particular, in the former the use of *i-longa* on short /i/ for purposes of clarity and legibility, and in both the use of *apices* as a means of text structure and/or decoration, without long vowels necessarily being the primary target, but with names as a favoured site.

Optional Spellings: Evidence for Sound Change

Examination of optional spellings provides some interesting data regarding both the dating and the process of various sound changes.

The change of /wɔ/ and /k^wɔ/ to /wu/ and /k^wu/ seems to have taken place later than that of /uɔ/ to /uu/. This is shown by investigation of the relevant inscriptional evidence from the first century BC, which suggests that /uɔ/ to /uu/ had already happened by the first half of the century, while the change to /wu/ and /k^wu/ did not take place before the middle of the century. But it is also backed up by the clear continuation of the distinction between a spelling <uu> for /uu/ and <uo> and <quo> for /wu/ and /k^wu/ for (at least) decades later: most obviously in the Vindolanda tablets, but also in the tablets of Caecilius Jucundus, where /wu/ is always spelt <uo> while /uu/ is usually spelt <uu> (once <uo>), and one of the letters of Tiberianus probably also uses this system.

In initial syllables the spelling variation between <u> and <i> between /l/ and a labial is probably a sound change. On the basis of the *lubēns* ~ *libēns* interchange, it looks as though /u/ > /i/ could already have happened towards the end of the third century BC, with the <u> spelling continuing for some while as an archaism in a word which occurs often in formulaic contexts, but being seriously outnumbered by <i> from the first century AD onwards. This would fit in with the apparent non-existence of <u> spellings in *liber* ‘book’. Alternatively, one could argue for /u/ developing an allophone like [ʊ] or [y], leading to variation in spelling through to the first century BC, with eventual merger with /i/ perhaps not actually taking place until the first century AD at the latest.⁷ In either case, it is

⁷ In support of this proposal is the occasional spelling with <y>: *lybens* (AE 1983.541, 1991.878), *lybes* (AE 1978.438), *clypeo* (*Hispania Epigraphica* 1994.404, after AD 217), *clypeum* (*Hispania Epigraphica* 1999.239, third century or later). However, De Martino (1994: 755–6) argues that spellings like these are hypercorrect, and do not reflect pronunciation.

surprising that the spelling in <u> was so strongly maintained for several hundred years longer in *clupeus* ~ *clipeus* than in *lubēns*. Perhaps instead the allophone of /u/ was very sensitive to phonetic environment such that it merged with /i/ quicker in *liber* than in *libet* and in *libet* quicker than in *clipeus* (apparently not till the third century AD).⁸

The corpora in fact preserve two of the latest instances of *lubēns* (Tab. Vindol. 260, late first century AD; IS 223, first or second quarter of the second century AD), and provide some hints that the <u> spelling is probably old-fashioned rather than being evidence for /u/ at the time. In the case of the Vindolanda example, the single use of <u> by a non-scribe compares with the more common <i> used by scribes (and perhaps others). In the case of IS 223, it is a poetic inscription which also uses <k> before <a>, an arguably old-fashioned feature in a word other than *cārus*.

In non-initial syllables before labials it is even more difficult to pin down the variation between <u> and <i>. In some words or morphological environments, the reflex of a short vowel in this context seems simply to have been /u/ or /i/, and hence is written with <u> (e.g. *occupō*) or <i> (e.g. *-hibeō*) from the earliest evidence available to us (second or first century BC). In other words, the fluctuation between <u> and <i> suggests an allophone which was not consistently identifiable as belonging to either /u/ or /i/. Until the second, and perhaps also the first, century BC, words in which <u> and <i> varied seem to have been more commonly written with <u>. This, combined with Velius Longus' evidence for a change in pronunciation of this sound, suggests to me that the allophone was originally something like [u̠].⁹ In many words, this was then fronted to something like [i̠] from around the first centuries BC and AD, leading to a preference for spelling with <i> (but not ruling out <u> as a possible representation).

The exact quality of this vowel was very sensitive to fine-grained phonetic contexts, leading to variation in the uptake of the <i> spelling, as shown both in my corpora and the epigraphic

⁸ Although on the face of it *lubet* and *liber* seem like practically identical environments, the stem of *liber* is of course *libr-* outside the nominative singular, so open vs closed syllable or /ɛ/ vs /ɪ/ following /b/ might have been relevant environments.

⁹ See Allen (1978: 57–9); Weiss (2020: 72). Cf. Garcea (2012: 151).

evidence more generally. The very frequent superlatives in *-issimus*, for example, are almost entirely spelt with <i>, and in these forms [i] may have completely fallen together with /i/ in the first century AD. However, in other superlatives like *maximus*, *proximus*, *plurimus* we find more variation, with <i> spellings being much more common, but some <u> spellings appearing in the corpora in the first and second centuries AD, and also in other inscriptional evidence. At what point in these words [i] had become identical to /i/ is hard to tell.

On the other hand, some lexemes apparently maintained the spelling with <u> as standard, notably *postumus*, *monumentum*, and *contubernālis*, although at different rates, going by their use in the epigraphical record as a whole. While *monumentum* might be argued to have retained an old-fashioned <u> spelling due to being a high-register word, the same does not seem to be true of *postumus*, or, in particular, *contubernalis*, so there does not seem a strong reason for why the older spelling should have been retained as standard if the vowel was really /i/. It is also notable that the <u> spelling seems to have been more resistant in official inscriptions in *proximus* than in other superlatives (see p. 88), and that *optimus* maintained a relatively high rate of <u> spelling at 9% in the first four centuries AD (see p. 98). On the other hand, even in *contubernālis*, *monumentum*, and *postumus* <i> spellings are not unknown, suggesting that the vowel in question was not straightforwardly /u/. This suggests to me that the change of [u] towards [i] may have been somewhat retarded when there was an /o/ in the preceding syllable,¹⁰ and apparently especially in *postumus*, *monumentum*, and *contubernālis*.

It is just possible that by the late first century into the second century AD this effect was starting to wear off, with more of a movement of the vowel towards [i], even though the <u> spelling was on the whole maintained as standard. The Vindolanda tablets show both <u> and <i> spellings in roughly equal amounts for *contubernalis*, in comparison to the general trend in the first to

¹⁰ It must be admitted, however, that *decimus* has a much higher rate of <u> at 19% than *optimus*, despite not containing /o/ in the first syllable, so this is clearly not the only factor in retention of <u>. An /u/ in the first syllable apparently militated against analysis of the vowel in the second syllable as /u/, going by the rarity of the spelling in *plurimus*.

Optional Spellings: Evidence for Sound Change

fourth centuries AD, which heavily favours the <u> spelling, and the <u> spelling is found in writers who use other optional spellings. In the Isola Sacra inscriptions the <i> spelling of *monumentum* is twice as common as the <u> spelling, precisely the reverse of the situation in the epigraphy as a whole, and it is associated with substandard spelling.

Spelling of word-final /i/ with <e>, as in *sibe* for *sibi*, *ube* for *ubi* etc., is in almost all cases likely to reflect a lowering of /i/ in absolute word-final position to [e] from the first century AD, alongside a similar lowering in final syllables that end with a consonant, rather than being an old-fashioned spelling reflecting the second stage of the development /ei/ > /e:/ > /i:/ > /i/. A number of cases of spelling of /u/ with <o> I would count as evidence for some speakers showing lowering of /u/ to [o] even as early as the second century AD, perhaps especially in word-final syllables (although some examples probably are instances of old-fashioned spelling).

APPENDIX

<uo> and <uu> in Catullus

In Chapter 8 I have collected epigraphic evidence for an earlier development of /uo/ to /uu/ (around the beginning of the first century BC) than of /wɔ/ and /k^wɔ/ to /wu/ and /k^wu/ (around the middle of the first century BC). A possible non-epigraphical source of supporting evidence for this is the spelling of these sequences in the poems of Catullus, who was writing in the 50s BC.¹ The key early manuscripts of Catullus from the fourteenth century are the *Oxoniensis* (O = Oxford, Bodleian Libraries, MS Canon. class. lat. 30), *Sangermanensis* (G = Paris, Bibliothèque Nationale de France, MS lat. 14137) and *Romanus* (R = Vatican City, Biblioteca Apostolica Vaticana, MS Ottob. lat. 1829). The non-extant manuscript from which G and R were copied is known as X, and the manuscript, thought to be in Verona around AD 1300, from which both O and X descend is called V.² There is also a much earlier manuscript, the *Codex Thuaneus* (T = Paris, Bibliothèque Nationale de France, MS lat. 8071), of the ninth century AD, which contains only poem 62 (on all of this see Thomson 2003: 23–38; Kiss 2015; Oakley 2021). For the manuscript readings, I use Thomson (2003), who normally prints <uu> for both /wu/ and /k^wu/, and /uu/, and does not note spellings with <uo> in the apparatus unless there is some other variant textual feature, but mentions *Caluos* (53.3) and *nouos* (61.54) in the commentary on the latter.³ The edition of Mynors (1958) does generally print the spelling <uo> where this can be found or conjectured in OGR or T, and thus provides one additional case, *equos* at 66.54.⁴

¹ It would of course be interesting to see if the pattern identified below was true for other Classical authors. I have restricted myself to Catullus partly because of the fairly short amount of text, and partly because of the relatively restricted apparatus, as well as the availability, in Mynors (1958), of an edition which prints <uo> spellings when these are justifiably to be found in the predecessor of the earliest manuscripts (V). V also contained other optional spellings discussed in this book, in the form of <k> for /k/ in *karum* (2.6) and <ei> for /i:/ in *Furei* for *Furī* (23.1; not included in Thomson's 2003 apparatus), *mei* for *mī* (27.3), and probably also in a number of cases where textual corruption can be explained by confusion caused by original <ei>, such as *ne* (6.2 and 14.1) for *nī*, and *tauri et* for *taurī* (63.10). As shown in Chapters 12 and 3 respectively, both <k> before /a:(ɔ)/, and <ei> for /i:/ continued to be used after Catullus was writing (and for many centuries in the case of <k>, especially in the word *cārus*).

² Some scholars think that O and X are derived from a copy (known as A) of V, a manuscript thought to be in Verona around AD 1300 (Kiss 2015: xviii). If correct, this has no consequences for the textual criticism of the poems.

³ Curiously, he does print *diuolso* at 64.257, and *uolturium* at 68.124.

⁴ That this spelling is in V is confirmed by the apparatus at Catullus Online (www.catullusonline.org/CatullusOnline/?dir=poems&w_apparatus=1, accessed 25/07/2022), along with

<uo> and <uu> in Catullus

In Catullus' poetry there are 44 instances of /wu/ and /k^wu/, of which 4 are spelt <uo> in all of O, G and R (and hence in V); a further 5 are printed by Mynors on the basis either of one of the principal manuscripts or of highly plausible conjectures. In addition, a spelling *seruos* also lies behind 23.1 *seruus*, as noted by Thomson (2003: 262). By comparison, of 39 instances of /uu/, there is only evidence of 2 instances which may have been spelt <uo> (both conjectures, although highly plausible ones). See Table 46 for all the examples. This distinction, between 10/44 <uo> and <quo> spellings for /wu/ and /k^wu/ and 2/39 <uo> spellings for /uu/, is statistically significant.⁵

Table 46 Possible cases of <uo> and <quo> in the archetype of Catullus

Words containing /wu/ and /k ^w u/			Words containing /uu/		
Poem	Original spelling	Manuscript readings and conjectures	Poem	Original spelling	Manuscript readings and conjectures
23.1	seruos	seruo est OG: est seruo R: seruo al. seruus est R ²	63.92	tuos	Ellis: tuo V
53.3	Caluos	V	64.288	non uacuos	Bergk: non accuos O: non acuos GR: al. non- acrios R ²
61.54	nouos	V			
61.202	uolt	Calphurnius: uolunt V			
62.40	conuolsus	T: conclusus OGR: con- tusus R ²			

digital images of the manuscripts. However, OGR have *uolt* for Mynors' *uolt* at 8.9 (I am grateful to Stephen Oakley for pointing this out to me).

⁵ A Fisher exact test gives a *p*-value of 0.0293 for these figures, i.e. the difference between the rates is significant at *p* ≤ 0.05. The test was carried out using the Easy Fisher Exact Test Calculator at Social Science Statistics (www.socscistatistics.com/tests/fisher/default2.aspx, accessed 25/07/2022).

Appendix

Table 46 (*cont.*)

Words containing /wu/ and /k ^w u/			Words containing /uu/		
Poem	Original spelling	Manuscript readings and conjectures	Poem	Original spelling	Manuscript readings and conjectures
62.60	aequom	equom T: equo V			
63.5	deuolsit	Haupt: deuo- luit V			
64.257	diuolso	V			
66.54	equos	V			
68.124	uolturium	uoltarium V			

If the greater frequency of <uo> spellings for /wu/ and /k^wu/ reflects the spelling of Catullus himself (which is of course not certain), it could result from the fact that the <uu> spelling for /uu/ was better established at the time he was writing than <uu> and <quu> for /wu/ and /k^wu/, the latter having only just developed from /wɔ/ and /k^wɔ/. Alternatively, it is possible that Catullus wrote <uo> both for /wu/ and /k^wu/, and for /uu/, and the divergence in the spelling reflects the earlier loss of the spelling <uo> for /uu/ than for /wu/ and /k^wu/. That is, copyists were more likely to replace <uo> with <uu> when it represented /uu/, since <uo> for /uu/ became uncommon relatively early, whereas <uo> for /wu/ and /k^wu/ was maintained for much longer.

BIBLIOGRAPHY

- Adamik, Béla (2020). The transformation of the vowel system in African Latin with a focus on vowel mergers as evidenced in inscriptions and the problem of the dialectal positioning of Roman Africa. *Acta Classica Universitatis Scientiarum Debreceniensis* 56: 9–25
- Adams, James N. (1977). *The Vulgar Latin of the Letters of Claudius Terentianus (P. Mich. VIII, 467–72)*. Manchester: Manchester University Press
- Adams, James N. (1990). The Latinity of C. Novius Eunus. *Zeitschrift für Papyrologie und Epigraphik* 82: 227–47
- Adams, James N. (1994). Latin and Punic in contact? The case of the Bu Njem ostraca. *Journal of Roman Studies* 84: 87–112
- Adams, James N. (1995). The language of the Vindolanda writing tablets: an interim report. *Journal of Roman Studies* 85: 86–134
- Adams, James N. (1999). The poets of Bu Njem: language, culture and the centurionate. *Journal of Roman Studies* 89: 109–34
- Adams, James N. (2003). The new Vindolanda writing-tablets. *Classical Quarterly* 53: 530–75
- Adams, James N. (2007). *The Regional Diversification of Latin, 200 BC–AD 600*. Cambridge: Cambridge University Press
- Adams, James N. (2013). *Social Variation and the Latin Language*. Cambridge: Cambridge University Press
- Adams, James N. (2016). *An Anthology of Informal Latin 200 BC–AD 900. Fifty Texts with Translations and Linguistic Commentary*. Cambridge: Cambridge University Press
- Adams, James N. (in press). Was Classical (late Republican) Latin a ‘standard language’? *Transactions of the Philological Society*
- Allen, W. S. (1978). *Vox Latina. The Pronunciation of Classical Latin*. Cambridge: Cambridge University Press
- Anderson, R. D., P. J. Parsons and R. G. M. Nisbet (1979). Elegiacs by Gallus from Qaṣr Ibrīm. *Journal of Roman Studies* 69: 125–55
- Andreau, Jean (1974). *Les affaires de monsieur Jucundus*. Rome: École Française de Rome
- Ax, Wolfram (2011). *Quintilians Grammatik (Inst. orat. I, 4–8). Text, Übersetzung und Kommentar*. Berlin and Boston, MA: De Gruyter
- Bagnall, Roger S. and Jennifer A. Sheridan (1994). Greek and Latin documents from ‘Abu Sha’ar, 1992–1993. *The Bulletin of the American Society of Papyrologists* 31: 109–20

Bibliography

- Barwick, Karl (1964). *Flavii Sosipatri Charisii Artis Grammaticae Libri V*. Second edition. Leipzig: B. G. Teubner
- Beltrán Lloris, Francisco (2006). An irrigation decree from Roman Spain: the Lex rivi hiberiensis. *Journal of Roman Studies* 96: 147–97
- Besnier, Maurice (1898). Inscriptions et monuments de Lambèse et des environs. *Mélanges d'archéologie et d'histoire* 18: 451–89
- Biddau, Federico (2008). *Q. Terentii Scauri De orthographia*. Hildesheim: Weidmannsche Verlagsbuchhandlung
- Biddau, Federico (2016). Le fonte letterarie di interesse ortografico e il loro valore. In Rolando Ferri and Anna Zago (eds.), *The Latin of the Grammarians. Reflections about Language in the Roman World*, 49–68. Turnhout: Brepols Publishers
- Bispham, Edward (2000). Carved in stone: the municipal magistracies of Numerius Cluvius. In Alison E. Cooley (ed.), *The Epigraphic Landscape of Roman Italy*, 18–38. London: University of London
- Bloomer, W. Martin (2013). The ancient child in school. In Judith Evans Grubbs and Tim Parkin (eds.), *The Oxford Handbook of Childhood and Education in the Classical World*, 444–62. Oxford: Oxford University Press
- Bonnet, Guillaume (2005). *Dosithée. Grammaire latine*. Paris: Les Belles Lettres
- Bowman, Alan K. and J. David Thomas (1983). *Vindolanda: The Latin Writing Tablets*. London: Society for the Promotion of Roman Studies
- Bowman, Alan K. and J. David Thomas (1994). *The Vindolanda Writing Tablets (Tabulae Vindolandenses II)*. London: British Museum Press
- Bowman, Alan K. and J. David Thomas (2003). *The Vindolanda Writing Tablets (Tabulae Vindolandenses III)*. London: British Museum Press
- Bowman, A. K., J. D. Thomas and R. S. O. Tomlin (2010). The Vindolanda writing-tablets (Tabulae Vindolandenses IV, Part 1). *Britannia* 41: 187–224
- Bowman, A. K., J. D. Thomas and R. S. O. Tomlin (2011). The Vindolanda writing-tablets (Tabulae Vindolandenses IV, Part 2). *Britannia* 42: 113–44
- Bowman, A. K., J. D. Thomas, and R. S. O. Tomlin (2019). The Vindolanda writing-tablets (Tabulae Vindolandenses IV, Part 3): new letters of Iulius Verecundus. *Britannia* 50: 225–51
- Boys-Stones, George (2018). *L. Annaeus Cornutus: Greek Theology, Fragments, and Testimonia*. Atlanta, GA: SBL Press
- Cagnat, René, Alfred Merlin and Louis Chatelain (1923). *Inscriptions latines d'Afrique (Tripolitaine, Tunisie, Maroc)*. Paris: Éditions Ernest Leroux
- Camodeca, Giuseppe (1999). *Tabulae Pompeianae Sulpiciorum. Edizione critica dell'archivio puteolano dei Sulpicii*. Rome: Edizioni Quasar
- Camodeca, Giuseppe (2017a). *Tabulae Herculaneses. Edizione e commento. Volume I*. Rome: Edizioni Quasar
- Camodeca, Giuseppe (2017b). Il latino nei documenti della prassi giuridica campana. *Linguarum Varietas* 6: 19–37
- Capini, S. (1999). *Molise. Repertorio delle iscrizioni latine. VII. Venafrum*. Campobasso: CO.GE.M.

Bibliography

- Carnoy, A. (1906). *Le latin d'Espagne d'après les inscriptions. Étude linguistique*. Second edition. Brussels: Misch & Thron
- Castagnetti, Sergio (2012). *Le 'leges Libitinae' flegree. Edizione e commento*. Naples: Satura Editrice
- Castrén, Paavo and Henrik Lilius (1970). *Graffiti del Palatino II. Domus Tiberiana*. Helsinki: Tilgmann
- Cenerini, Francesca (1992). Regio VIII. Aemilia. Forum Livi. *Supplementa Italica* 10: 33–59
- Chahoud, Anna (2019). Lucilius on Latin spelling, grammar and usage. In Giuseppe Pezzini and Barnaby Taylor (eds.), *Language and Nature in the Classical Roman World*, 46–78. Cambridge: Cambridge University Press
- Christiansen, Jacobus (1889). *De apicibus et i longis inscriptionum latinarum*. Kiel: H. Frencke
- Cignolo, Chiara (2002). *Terentiani Mauri. De litteris, de syllabis, de metris*. Hildesheim, Zürich and New York, NY: Georg Olms Verlag
- Clackson, James (2011). Latin inscriptions and documents. In James Clackson (ed.), *A Companion to the Latin Language*, 29–39. Malden, MA, Oxford and Chichester: Wiley-Blackwell
- Clackson, James (2015). *Latinitas, Ἑλληνισμός and standard languages. Studi e Saggi Linguistici* 53.2: 309–30
- Clackson, James and Geoffrey Horrocks (2011). *The Blackwell History of the Latin Language*. Malden, MA, Oxford and Chichester: Wiley-Blackwell
- Coleman, Robert (1963). Two linguistic topics in Quintilian. *The Classical Quarterly* 13: 1–18
- Colson, F. H. (1924). *M. Fabii Quintiliani Institutiones oratoriae liber I*. Cambridge: Cambridge University Press
- Costabile, Felice, Claudia Angelelli, Stefano Musco, Giulia Baratta, M. Laura Santarelli and Massimiliano Ferrara (2018). L'archetipo di formula processuale dell'Editto 'Iudex esto. Si parret ...': l'invenzione di Mucio Scevola delle azioni con *intentio certa*. La scoperta degli affreschi della 'Villa del Giurista' sull'Aniene a Roma. *Minima Epigraphica et Papyrologica* 21.23: 9–125
- Cotugno, Francesca (2015). *I longa in iato nel Corpus Vindolandense. Studi e Saggi Linguistici* 53: 189–206
- Cotugno, Francesca and Giovanna Marotta (2017). Geminated consonants in the Vindolanda tablets. Empirical data and sociolinguistic remarks. In Piera Molinelli (ed.), *Language and Identity in Multilingual Mediterranean Settings. Challenges for Historical Sociolinguistics*, 269–88. Berlin and Boston, MA: De Gruyter Mouton
- Courrier, Cyril (2017). Plebeian culture in the city of Rome, from the Late Republic to the Early Empire. In Lucy Grig (ed.), *Popular Culture in the Ancient World*, 107–28. Cambridge: Cambridge University Press
- Crawford, Michael H. (1996). *Roman Statutes*. London: Institute of Classical Studies, University of London

Bibliography

- Cresci Marrone, Giovannella (2012). *Officina sì, officina no, officina come*. In Angela Donati and Gabriella Poma (eds.), *L'officina epigrafica romana*, 297–312. Faenza: Fratelli Lega Editori
- Cser, András (2020). *The Phonology of Classical Latin*. Medford, MA, Oxford and Chichester: Wiley-Blackwell
- Cugusi, Paolo (1973). Le più antiche lettere papiracee latine. *Atti della Reale Accademia delle Scienze di Torino. II.2: Classe di scienze morali, storiche e filologiche* 107: 641–87
- Cugusi, Paulo (1992–2002). *Corpus Epistularum Latinarum. Papyris Tabulis Ostracis Servatarum*. Florence: Edizioni Gonnelli
- Cugusi, Paolo and Maria Teresa Sblendorio Cugusi (2008). *Carmina Latina Epigraphica Moesica. Carmina Latina Epigraphica Thraciae*. Bologna: Pàtron
- De Martino, Marcello (1994). La questione del *sonus medius* in latino tra filologia, storia ed ermeneutica. *Atti dell' Istituto Veneto di Scienza, lettere ed arte. Classe di scienze morali, lettere ed arti* 152: 737–88
- de Melo, Wolfgang D. C. (2019). *Varro. De lingua Latina*. Oxford: Oxford University Press
- de Vaan, Michiel (2008). *Etymological Dictionary of Latin and the Other Italic Languages*. Leiden and Boston, MA: Brill
- de Vaan, Michiel (2012). Latin deverbal presents in *-ā-*. In H. Craig Melchert (ed.), *The Indo-European Verb. Proceedings of the Conference of the Society for Indo-European Studies, Los Angeles 13–15 September 2010*, 315–32. Wiesbaden: Reichert Verlag
- Decorte, Robrecht P.-J. M. (2015). *Latin Legal Language: A Linguistic and Epigraphic Investigation of Roman Statutes*. PhD thesis, University of Cambridge
- Degrassi, Atilio (1947). *Inscriptiones Italiae. Vol XIII – fasti et elogia. Fasciculus I – fasti consulares et triumphales*. Rome: La Libreria dello Stato
- Delamarre, Xavier (2003). *Dictionnaire de la langue gauloise. Une approche linguistique du vieux-celtique continental*. Second edition. Paris: Editions Errance
- Dessau, Hermann (1892–1916). *Inscriptiones Latinae selectae*. Berlin: Weidmann
- Di Napoli, Marta (2011). *Velii Longi. De orthographia*. Hildesheim: Weidmannsche Verlagsbuchhandlung
- Dickey, Eleanor (2012–15). *The Colloquia of the Hermeneumata Pseudodositheana*. Cambridge: Cambridge University Press
- Dickey, Eleanor (2017). *Stories of Daily Life from the Roman World. Extracts from the Ancient Colloquia*. Cambridge: Cambridge University Press
- Diehl, Ernestus (1925–31). *Inscriptiones Latinae Christianae Veteres*. Berlin: Weidmannsche Buchhandlung
- Dupraz, Emmanuel (2015). Avant la latinisation: l'épigraphie du pays marse aux III^e et II^e siècles avant notre ère. In Emmanuel Dupraz and

Bibliography

- Wojciech Sowa (eds.), *Genres épigraphiques et langues d'attestation fragmentaire dans l'espace méditerranéen*, 253–74. Mont-Saint-Aignan: Presses universitaires de Rouen et du Havre
- Eck, Werner, Antonio Caballos and Fernando Fernández Gómez (1996). *Das senatus consultum de Cn. Pisone patre*. Munich: C. H. Beck'sche Verlagsbuchhandlung
- Ernout, Alfred and Antoine Meillet (1985). *Dictionnaire étymologique de la langue latine: histoire des mots*. Fourth edition. Paris: Librairie Klincksieck
- Étienne, Robert (1965). La naissance de l'amphithéâtre: le mot et la chose. *Revue des Études Latines* 43: 213–20
- Fischer, Iancu (1995). Les normes du latin dans quelques inscriptions officielles de l'Empire. In Louis Callebat (ed.), *Latin vulgaire, latin tardif IV. Actes du 4e colloque international sur le latin vulgaire et tardif. Caen 2–5 septembre 1994*, 467–81. Hildesheim, Zürich and New York, NY: Olms-Weidmann
- Flobert, Pierre (1990). Le témoignage épigraphique des apices et des *l longae* sur les quantités vocaliques en latin impérial. In Gualtiero Calboli (ed.), *Latin vulgaire, latin tardif II. Actes du IIème Colloque international sur le latin vulgaire et tardif (Boulogne, 29 août–2 septembre 1988)*, 101–10. Tübingen: Max Niemeyer Verlag
- Fortson, Benjamin W. (2008). *Language and Rhythm in Plautus. Synchronic and Diachronic Studies*. Berlin and New York, NY: Walter de Gruyter
- Fortson, Benjamin W. (2020). An overlooked usage of apices and *i longae*? Notes on *CIL* VI 2080. *Zeitschrift für Papyrologie und Epigraphik* 214: 67–79
- Foster, Frances (2019). Teaching 'correct' Latin in late antique Rome. *Language and History* 62.2: 57–73
- Fries, Simon (2019). Kleines Lautgesetz, große Wirkung. Die Formen *nisi, nimis, nihil, mihi, tibi, sibi, iūs* und ihre Gemeinsamkeiten. *Indogermanische Forschungen* 124: 61–114
- Gager, John G. (1992). *Curse Tablets and Binding Spells from the Ancient World*. New York, NY: Oxford University Press
- Garcea, Alessandro (2012). *Caesar's De analogia*. Oxford: Oxford University Press
- García González, Juan José (1994). Usos de *i longa* en los diplomas militares de *CIL* XVI (c. 50 DC–300 DC). In Anonymous (ed.), *Actas del VIII Congreso Español de Estudios Clásicos. Madrid, 23–28 de septiembre de 1991*, Volume 1, 519–26. Madrid: Ediciones Clásicas
- Gibson, Bruce (2011). Latin manuscripts and textual traditions. In James Clackson (ed.), *A Companion to the Latin Language*, 40–58. Malden, MA, Oxford and Chichester: Wiley-Blackwell
- Giglioli, G. Q. (1949–50). Noterelle epigrafiche. *Bullettino della Commissione Archeologica Comunale di Roma* 73: 31–54
- Glare, P. G. W. (ed.) (2012). *Oxford Latin Dictionary*. Second edition. Oxford: Oxford University Press

Bibliography

- Glinister, Fay (2007). Constructing the past. In Fay Glinister and Clare Woods (eds.), *Verrius, Festus and Paul. Lexicography, Scholarship and Society*, 11–32. London: University of London, School of Advanced Study, Institute of Classical Studies
- González, Julián and Michael H. Crawford (1986). The Lex Irmitana: a new copy of the Flavian Municipal Law. *Journal of Roman Studies* 76: 147–243
- Gordon, Joyce S. and Arthur E. Gordon (1957). *Contributions to the Palaeography of Latin Inscriptions*. Berkeley, CA: University of California Press
- Granino Cecere, Maria Grazia (2005). *Supplementa Italica. Imagines. Latium Vetus 1 (CIL, XIV; Eph. Epigr., VII e IX. Latium Vetus praeter Ostiam)*. Rome: Edizioni Quasar
- Gregori, Gian Luca and Maria Mattei (1999). *Supplementa Italica. Imagines. Roma (CIL, VI) 1. Musei Capitolini*. Rome: Edizioni Quasar
- Grig, Lucy (2017). Introduction. In Lucy Grig (ed.), *Popular Culture in the Ancient World*, 1–36. Cambridge: Cambridge University Press
- Halla-aho, Hilla (2003). Scribes and the letters of Claudius Terentianus. In Heikki Solin, Martti Leiwo and Hilla Halla-aho (eds.), *Latin vulgaire, latin tardif. Actes du VIe colloque international sur le latin vulgaire et tardif, Helsinki, 29 août–2 septembre 2000*, 246–52. Hildesheim, Zürich and New York, NY: Olms-Weidmann
- Harris, William V. (1989). *Ancient Literacy*. Cambridge, MA, and London: Harvard University Press
- Harris, William V. (2016). Literacy in everyday ancient life: from Gabii to Gloucestershire. In Anne Kolb (ed.), *Literacy in Ancient Everyday Life*, 143–58. Boston, MA, and Berlin: Walter De Gruyter
- Hartmann, Felix (2020). *The Scribes of Rome. A Cultural and Social History of the Scribae*. Cambridge: Cambridge University Press
- Hartmann, Markus (2005). *Die frühlateinischen Inschriften und ihre Datierung*. Bremen: Hemen Verlag
- Harvey, Paul (1975). Cicero leg. agr. 2. 78 and the Sullan colony at Praeneste. *Athenaeum* 53: 33–56
- Hassall, M. W. C. and R. S. Tomlin (1982). Inscriptions. *Britannia* 13: 396–422
- Helntula, Anne (2007). *Le iscrizioni sepolcrali latine nell'Isola sacra*. Rome: Institutum Romanum Finlandiae
- Hempenstall, Kerry (2005). The Whole Language–phonics controversy: an historical perspective. *Australian Journal of Learning Disabilities* 10: 105–19
- Hinard, François and Jean Christian Dumont (2003). *Libitina. Pompes funèbres et supplices en Campanie à l'époque d'Auguste*. Paris: De Boccard
- Holtz, Louis (1981). *Donat et la tradition de l'enseignement grammatical. Étude sur l'Ars Donati et sa diffusion (ive–ixe siècle) et édition critique*. Paris: Centre National de la Recherche Scientifique
- Ihm, M. (1899). Additamenta ad Corporis vol. IX et X. *Ephemeris Epigraphica* 8: 1–221

Bibliography

- International Phonetic Association (1999). *Handbook of the International Phonetic Association: A Guide to the Use of the International Phonetic Alphabet*. Cambridge: Cambridge University Press
- Ittész, Máté (2015). On the chronology and the phonetics of the change *o* > *u* in final closed syllables in Latin. *Indogermanische Forschungen* 120: 329–42
- Keegan, Peter (2012). Reading the ‘pages’ of the *Domus Caesaris: pueri delicati*, slave education, and the graffiti of the Palatine paedagogium. In Michele George (ed.), *Roman Slavery and Roman Material Culture*, 69–98. Toronto, Buffalo, NY, and London: Toronto University Press
- Keil, Heinrich (1855–80). *Grammatici Latini*. Volumes 1–7. Leipzig: Teubner. Reprint (2009). Cambridge: Cambridge University Press.
- Kiss, Dániel (2015). Introduction: a sketch of the textual transmission. In Dániel Kiss (ed.), *What Catullus Wrote. Problems in Textual Criticism, Editing and the Manuscript Tradition*, xiii–xxx. Swansea: The Classical Press of Wales
- Kolb, Anne (ed.) (2016). *Literacy in Ancient Everyday Life*. Boston, MA, and Berlin: Walter De Gruyter
- Kramer, Johannes (1991). Die Verwendung des Apex und P.Vindob. L 1 C. *Zeitschrift für Papyrologie und Epigraphik* 88: 141–50
- Kroonen, Guus (2013). *Etymological Dictionary of Proto-Germanic*. Leiden and Boston, MA: Brill
- Kropp, Amina (2008a). *Defixiones. Ein aktuelles Corpus lateinischer Fluchtafeln*. Speyer: Kartoffeldruck-Verlag Kai Brodersen
- Kropp, Amina (2008b). *Magische Sprachverwendung in vulgärlateinischen Fluchtafeln (defixiones)*. Tübingen: G. Narr
- Kuznetsov, Alexander (2013). Sweet Protogenes’ grave. *Zeitschrift für Papyrologie und Epigraphik* 187: 132–43
- Lemerle, Paul (1937). Nouvelles inscriptions latines de Philippes. *Bulletin de Correspondance Hellénique* 61: 410–20
- Leppänen, Ville and Tommi Alho (2018). On the mergers of Latin close-mid vowels. *Transactions of the Philological Society* 116: 460–83
- Leumann, Manu (1977). *Lateinische Laut- und Formenlehre*. Second edition. Munich: C. H. Beck’sche Verlagsbuchhandlung
- Lieberg, Godo (2005). Tiburtini versus Pompeiani: CIL IV 4966–4973. *Museum Helveticum* 62: 56–64
- Lindsay, Wallace M. (1894). *The Latin Language. An Historical Account of Latin Sounds, Stems, and Flexions*. Oxford: Clarendon Press
- Lindsay, Wallace M. (1913). *Sexti Pompei Festi De verborum significatu quae supersunt cum Pauli epitome, Thewrewkianis copiis usus*. Leipzig: Teubner
- Loporcaro, Michele (2015). *Vowel Length from Latin to Romance*. Oxford: Oxford University Press
- Malloch, S. J. V. (2020). *The Tabula Lugdunensis. A Critical Edition with Translation and Commentary*. Cambridge: Cambridge University Press

Bibliography

- Mancini, Marco (2019). Repertori grafici e regole d'uso: il caso latino <xs>. In Luciano Agostiniani and Maria Pia Marchese (eds.), *Lingua, testi, storia. Atti della giornata di studi in ricordo di Aldo Luigi Prosdocimi (Firenze, 6 giugno 2017)*, 13–53. Florence: Giorgio Bretschneider Editore
- Marek, Václav (1977). *Greek and Latin Inscriptions on Stone in the Collections of Charles University*. Prague: Univerzita Karlova
- Marengo, Silvia M. (2004). Regio IV. Umbria. Camerinum. *Supplementa Italica* 22: 161–71
- Marichal, Robert (1992). *Les ostraca de Bu Njem*. Tripoli: Grande Jamahira Arabe, Libyenne, Populaire et Socialiste
- Marichal, Robert (1998). *Les graffites de La Graufesenque*. Paris: CNRS Éditions
- Mariotti, Italo (1967). *Marii Victorini. Ars grammatica*. Florence: Felice Le Monier
- Marotta, Giovanna (2015). Talking stones. Phonology in Latin inscriptions? *Studi e Saggi Linguistici* 53.2: 39–63
- McDonald, Katherine (2015). *Oscan in Southern Italy and Sicily. Evaluating Language Contact in a Fragmentary Corpus*. Cambridge: Cambridge University Press
- Meiser, G. (1998). *Historische Laut- und Formenlehre der lateinischen Sprache*. Darmstadt: Wissenschaftliche Buchgesellschaft
- Meyer, Elizabeth A. (2004). *Legitimacy and Law in the Roman World. Tabulae in Roman Belief and Practice*. Cambridge: Cambridge University Press
- Mommsen, Theodor et al. (1863–). *Corpus Inscriptionum Latinarum*. Berlin: George Reimer and Walter De Gruyter
- Morgan, Teresa (1998). *Literate Education in the Hellenistic and Roman Worlds*. Cambridge: Cambridge University Press
- Mullen, Alex and Alan Bowman (2021). *Manual of Roman Everyday Writing. Volume 1. Scripts and Texts*. Nottingham: LatinNow ePubs. Available at <https://latinnowepubs.github.io/ScriptsandTextsVol1/mobile/index.html> (accessed 06/12/2021)
- Mynors, R. A. B. (1958). *Catulli carmina*. Oxford: Clarendon Press
- Nachtergaele, Delphine (2015). The code alternation in the Claudius Terentianus archive. *Glotta* 91: 208–25
- Nikitina, Veronika (2015). *Standardisation and Variation in Latin Orthography and Morphology (100 BC–AD 100)*. DPhil thesis, University of Oxford
- Nishimura, Kanehiro (2011). Notes on glide treatment in Latin orthography and phonology: *-iciō, seruus, aiō*. *Historische Sprachforschung* 124: 193–209
- Oakley, Stephen P. (2021). The manuscripts and transmission of the text. In Ian Du Quesnay and Tony Woodman (eds.), *The Cambridge Companion to Catullus*, 263–90. Cambridge: Cambridge University Press
- Oliver, Revilo P. (1949). The Claudian letter F. *American Journal of Archaeology* 53: 249–57

Bibliography

- Oliver, Revilo P. (1966). *Apex and sicilicus*. *American Journal of Philology* 87: 129–70
- Papini, Alessandro (2017). The <o/u> graphemic oscillation in Latin epigraphy. Some preliminary sociolinguistic remarks. *Graeco-Latina Brunensia* 22: 255–67
- Paribeni, R. (1923). Roma. *Notizie degli scavi di antichità* 20: 349–96
- Penney, John (2011). Archaic and old Latin. In James Clackson (ed.), *A Companion to the Latin Language*, 220–35. Malden, MA, Oxford and Chichester: Wiley-Blackwell
- Perrin, Bernadotte (1919). *Plutarch. Lives, Volume VIII: Sertorius and Eumenes. Phocion and Cato the Younger*. Cambridge, MA: Harvard University Press
- Peruzzi, Emilio (1962). Testi latini arcaici dei Marsi. *Maia* 4: 117–40
- Platnauer, Maurice (1951). *Latin Elegiac Verse. A Study of the Metrical Usages of Tibullus, Propertius and Ovid*. Cambridge: Cambridge University Press
- Pokorny, Julius (1959). *Indogermanisches etymologisches Wörterbuch*. Bern and Munich: Francke Verlag
- Powell, Jonathan G. F. (2007). A new text of the *Appendix Probi*. *Classical Quarterly* 57: 687–700
- Prinz, Otto (1932). *De o et u vocalibus inter se permutatis in lingua Latina. Quaestiones epigraphicae*. Inaugural dissertation, University of Halle-Wittenberg. Halle: Eduardus Klinz
- Richardson, J. S. (1982). The *Tabula Contrebiensis*: Roman law in Spain in the early first century BC. *Journal of Roman Studies* 73: 33–41
- Rodríguez Adrados, Jesús Victor (1971). Usos de la *Í longa* en CIL II. *Emerita* 39: 159–68
- Rolfe, John C. (1922). The use of devices for indicating vowel length in Latin. *Proceedings of the American Philosophical Society* 61: 80–98
- Romualdi, Antonella (2009). *Villa Corsini a Castello*. Florence: Polistampa
- Rosén, Hannah (1999). *Latine loqui. Trends and Directions in the Crystallization of Literary Latin*. Munich: Wilhelm Fink Verlag
- Russell, Donald A. (2001). *Quintilian. The Orator's Education*. Cambridge, MA, and London: Harvard University Press
- Sarullo, Giulia (2021). Some remarks on the rendering of velars in the archaic Latin inscriptions. In Noemí Moncunill Martí and Manuel Ramírez-Sánchez (eds.), *Aprender la escritura, olvidar la escritura. Nuevas perspectivas sobre la historia de la escritura en el Occidente romano*, 241–61. Vitoria: Universidad del País Vasco
- Scheid, John (2007). *Res gestae Diui Augusti. Hauts faits du divin Auguste*. Paris: Les Belles Lettres
- Seidl, Christian (1996). Die finanziellen Schwierigkeiten eines Getreidehändlers und der Profit, den die Linguistik daraus ziehen kann. In Hannh Rosén (ed.), *Aspects of Latin. Papers from the Seventh International Colloquium on Latin Linguistics*, 99–115. Innsbruck: Innsbrucker Beiträge zur Sprachwissenschaft

Bibliography

- Selkirk, Elizabeth (1996). The prosodic structure of function words. In James L. Morgan and Katherine Demuth (eds.), *Signal to Syntax. Bootstrapping from Speech to Grammar in Early Acquisition*, 187–214. Mahwah, NJ: Lawrence Erlbaum Associates
- Sen, Ranjan (2015). *Syllable and Segment in Latin*. Oxford: Oxford University Press
- Sen, Ranjan and Nicholas Zair (2022). Liquid polarity, positional contrast, and diachronic change: clear and dark /r/ in Latin. *Diachronica* 39: 409–48
- Sigismund-Nielsen, Hanne (2013). Slave and lower-class Roman children. In Judith Evans Grubbs and Tim Parkin (eds.), *The Oxford Handbook of Childhood and Education in the Classical World*, 286–301. Oxford: Oxford University Press
- Sihler, Andrew L. (1995). *New Comparative Grammar of Greek and Latin*. Oxford: Oxford University Press
- Smith, Colin (1983). Vulgar Latin in Roman Britain: epigraphic and other evidence. In Hildegard Temporini and Wolfgang Haase (eds.), *Aufstieg und Niedergang der römischen Welt. Geschichte und Kultur Roms in Spiegel der neuen Forschung*, pt. 2, vol 29.2, 893–948. Berlin and New York, NY: Walter De Gruyter
- Solin, Heikki (2003). Contributi sull'epigrafia anziate. *Epigraphica* 65: 69–116
- Solin, Heikki (2020). The wall inscriptions of Ostia. In Arja Karivieri (ed.), *Life and Death in a Multicultural Harbour City. Ostia Antica from the Republic through Late Antiquity*, 319–32. Rome: Institutum Romanum Finlandiae & Edizioni Quasar
- Solin, Heikki and Marja Itkonen-Kaila (1966). *Graffiti del Palatino I. Paedagogium*. Helsinki: Tilgmann
- Sommer, Ferdinand and Raimund Pfister (1977). *Handbuch der lateinischen Laut- und Formenlehre. Eine Einführung in das sprachwissenschaftliche Studium des Lateins. Band I: Einleitung und Lautlehre*. Fourth edition. Heidelberg: Carl Winter Universitätsverlag
- Somerville, Ted (2007). The orthography of the new Gallus and the spelling rules of Lucilius. *Zeitschrift für Papyrologie und Epigraphik* 160: 59–64
- Speidel, Michael A. (1996). *Die römischen Schreibrtafeln von Vindonissa. Lateinische Texte des militärischen Alltags und ihre geschichtliche Bedeutung*. Brugg: Gesellschaft Pro Vindonissa
- Speidel, Michael A. (2016). Soldiers and documents: insights from Nubia. The significance of written documents in Roman soldiers' everyday lives. In Anne Kolb (ed.), *Literacy in Ancient Everyday Life*, 179–200. Boston, MA, and Berlin: Walter De Gruyter
- Stauner, Konrad (2016). New documents from the Roman military administration in Egypt's eastern desert: the Ostraca from the Praesidium of Didymoi. In Burak Takmer, Ebru N. Akdoğan Arca and Nuray Gökalp Özdil (eds.), *Vir Doctus Anatolicus. Studies in Memory of Sencer Şahin*, 796–815. Istanbul: Kuzgun Yayınevi

Bibliography

- Stephens, Laurence (1985). New evidence concerning iambic and cretic shortening in Classical Latin. *Classical Philology* 80: 239–44
- Stephens, Laurence (1986). The shortening of final *-o* in Classical Latin: a study in multiple conditioning and lexical diffusion of sound change. *Indogermanische Forschungen* 91: 236–58
- Stoppacci, Patrizia (2010). *Cassiodoro. De orthographia. Tradizione manoscritta, fortuna, edizione critica*. Florence: Edizioni del Galluzzo
- Suárez-Martínez, Pedro Manuel (2016). Le *medius sonus* latin. *Glotta* 92: 227–36
- Tacoma, Laurens E. (2016). Bones, stones, and Monica. Isola Sacra revisited. In Elio Lo Cascio and Laurens E. Tacoma (eds.), *The Impact of Mobility and Migration in the Roman Empire. Proceedings of the Twelfth Workshop of the International Network Impact of Empire (Rome, 17–19 June 2015)*, 132–54. Leiden and Boston, MA: Brill
- Taylor, Lily R. (1961). Freedmen and freeborn in the epitaphs of Imperial Rome. *American Journal of Philology* 82: 113–32
- Thomasson, Bengt E. (1996). *Fasti Africani. Senatorische und ritterliche Amtsträger in den römischen Provinzen Nordafrikas von Augustus bis Diokletian*. Stockholm: Svenska Institutet i Rom
- Thomson, Douglas (2003). *Catullus*. Toronto, Buffalo, NY, and London: University of Toronto Press
- Tomlin, Roger S. O. (2016). *Roman London's First Voices. Writing Tablets from the Bloomberg Excavations, 2010–2014*. London: Museum of London Archaeology
- Tomlin, Roger S. O. (2018). *Britannia Romana: Roman Inscriptions and Roman Britain*. Oxford: Oxbow Books
- Toner, Jerry (2009). *Popular Culture in Ancient Rome*. Cambridge and Malden, MA: Polity Press
- Väänänen, V. (1966). *Introduction au latin vulgaire*. Paris: Klincksieck.
- Versteegh, Kees (2002). Dead or alive? The status of the standard language. In J. N. Adams, Mark Janse and Simon Swain (eds.), *Bilingualism in Ancient Society: Language Contact and the Written Word*, 52–74. Oxford: Oxford University Press
- Vine, Brent (1993). *Studies in Archaic Latin Inscriptions*. Innsbruck: Innsbrucker Beiträge zur Sprachwissenschaft
- Vine, Brent (2016). Latin *bēs/bessis* ‘two-thirds of an *as*’. In Andrew M. Byrd, Jessica DeLisi and Mark Wenthe (eds.), *Tavet Tat Satyam: Studies in Honor of Jared S. Klein on the Occasion of His Seventieth Birthday*, 324–30. Ann Arbor, MI, and New York, NY: Beech Stave Press
- Wachter, Rudolf (1987). *Atlanteinische Inschriften*. Bern, Frankfurt & New York, NY: Peter Lang
- Wagner, Friedrich (1956–7). Neue Inschriften aus Raetien. *Bericht der Römisch-Germanischen Kommission* 37/38: 215–64
- Walde, A. and J. B. Hofmann (1938–54). *Lateinisches Etymologisches Wörterbuch*. Third edition. Heidelberg: Carl Winter

Bibliography

- Wallace, Rex (2011). The Latin alphabet and orthography. In James Clackson (ed.), *A Companion to the Latin Language*, 9–28. Malden, MA, Oxford and Chichester: Wiley-Blackwell
- Weiss, Michael (2010). Observations on the *littera* rule. Handout, East Coast Indo-European Conference 29, Cornell University, 19 June 2010. Available at www.academia.edu/1709398/Observations_on_the_Littera_Rule (accessed 04/11/2020)
- Weiss, Michael (2012). Italo-Celtica: linguistic and cultural points of contact between Italic and Celtic. In Stephanie W. Jamison, H. Craig Melchert and Brent Vine (eds.), *Proceedings of the 23rd Annual UCLA Indo-European Conference*, 151–73. Bremen: Hempen Verlag
- Weiss, Michael (2020). *Outline of the Historical and Comparative Grammar of Latin*. Second edition. Ann Arbor, MI, and New York, NY: Beech Stave Press
- Welles, C. Bradford, Robert O. Fink and J. Frank Gilliam (1959). *The Excavations at Dura-Europos Conducted by Yale University and the French Academy of Inscriptions and Letters, Final Report V, Part I, The Parchments and Papyri*. New Haven, CT: Yale University Press
- Willi, Anna (2021). *Manual of Roman Everyday Writing. Volume 2. Writing Equipment*. Nottingham: LatinNow ePubs. Available at <https://latinnowepubs.github.io/WritingEquipmentVol2/mobile/index.html> (accessed 31/08/2021)
- Winterbottom, Michael (1970). *M. Fabi Quintiliani Institutionis oratoriae libri duodecim*. Oxford: Clarendon Press
- Youtie, Herbert C. and John G. Winter (1951). *Michigan Papyri VIII. Papyri and Ostraca from Karanis. Second Series*. Ann Arbor, MI: University of Michigan Press
- Zair, Nicholas (2017). The origins of *-urC-* for expected *-orC-* in Latin. *Glotta* 93: 255–89
- Zair, Nicholas (in press). ‘Old-fashioned’ spelling in the Roman Empire. In Theresa Roth, Emmanuel Dupraz and Valentina Belfiore (eds.), *Schriftkonventionen in pragmatischer Perspektive. Akten der Arbeitstagung der Indogermanischen Gesellschaft (Brüssel, 13–14. September 2018)*, 321–46. Louvain: Peeters
- Zetzel, James E. G. (2018). *Critics, Compilers and Commentators. An Introduction to Roman Philology, 200 BCE–800 CE*. New York, NY: Oxford University Press

INDEX

- Augustus, Emperor, 92–93
- Caesar, Gaius Julius, 90–91, 92–93, 135, 202
- Catullus, 6, 280–282
- chirographa, 29–30
- Cicero, Marcus Tullius, 91–92, 134–135, 183, 202
- Claudius Tiberianus, 19, 36, 56, 63–64, 66–67, 105, 125, 154–155, 161–162, 163–164, 181, 275
- Claudius, Emperor
 - conservative spelling, 47
 - new letters, 8, 115
 - speech at Lyon, 212, 245–247
- contracts. *See* *chirographa*
- Fasti
 - Consulares*, 113–114
 - Triumphales*, 113–114
- foreign words, spelling of, 145, 153
- grammarians. *See* *language, writers on*
- language, writers on, 37–39
- Laudatio Turiae*, 113, 210, 245–247
- law, language of, 14–15, 83–84, 88–89, 114–118, 121, 199–200, 204
- poetry, 42, 82, 280–282
- Quintilian, 7, 13, 16–17, 38, 60–61, 114–118
- Res Gestae Divi Augusti*, 82, 113, 182, 210, 211–212, 245–248
- Rustius Barbarus, 35–36, 57, 61–62, 154, 181
- spelling traditions
 - army, 35–36, 57, 61–62, 154, 181
 - British, 186, 265–266
- spelling, optional
 - definition of, 1–3, 261
- testationes*, 29–30
- Tiberius, spelling of name, 256–257
- Virgil, 6, 47–48, 183
- vowels
 - lengthening, 43, 239, 244, 255
 - raising, 9, 40–41, 48, 53, 54, 59–60, 65, 109
 - shortening, 42–43, 54, 59, 61–62, 213, 233–235, 239–243, 250, 251–252

