<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 /kʷ/. 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 'uacuus', 'ingenuus', 'occiduus', 'exiguus'. eadem diuisio uocalium in uerbis quoque est, <ut> 'metuunt', 'statuunt', 'tribuunt', 'acuunt'. ergo hic quoque *c* littera non *q* apponenda est.

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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 *uacuus*, *ingenuus*, *occiduus*, *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*. (Cornutus, in Cassiodorus, *De orthographia* 1.45–8 = GL 7.150.5–9)

an rursus aliae redundent, 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)

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'locutionem' quoque Antonius Rufus per 'q' dicit esse scribendam, quod sit ab eo est '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 superuacuam 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 nihilum, '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.

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[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>.

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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)

к autem dicitur monophonos, quia nulli uocali iungitur nisi soli ᴀ 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 ᴄ, quamuis quidam praecipiant ad originem debere referri, quia est 'locutus' a loquendo, 'secutus' a sequendo, <et ideo> per ǫ potius quam per ᴄ haec scribenda. nam 'concussus' quamuis a 'quatio' habeat originem et 'cocus' a coquendo et 'cotidie' a quoto die et 'incola' ab inquilino, attamen per ᴄ quam per ǫ 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]

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[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).

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 superuacue 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)

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k littera non scribitur, nisi a littera in principiis nominum uel uerborum conse-
quentis 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-Probus, *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 praeponebant in omni parte orationis, ut
kaput et similia; nos uero *non* usurpamus k litteram nisi in Kalendarum
nomine scribendo. itemque illi q praeponebant, 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 praeceptum,
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)

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<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

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[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).

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 Ḳrassi / 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/otoribus / 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

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[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(ci)t*.

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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 abbrevi-
ated as *k.*). I have not removed proper names where these seem
originally to have been the same lexeme.[9]

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[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 *c̣[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 inscrip-
tions), '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); 'candidat'* (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 *euokatus*. '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').

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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(ausa)* (CIL 1².592; 42–41 BC (*recte* for AD; EDR130948), *kaus(a)* (CIL 10.960; 10–3 BC, EDR149425), *ka[ussa* (CIL 10.1469; 20 BC–AD 20, EDR147145).

[12] *kalumniam* (AE 2001.1757), but alongside only one example of *ca/[lumniae* (?) (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').

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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): 'arkae' ('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 'arkae' 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.

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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 *ḳ. 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

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[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

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[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]ṣsime* (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.

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

letters; 632 also includes the word *caballi*, while 670 has
Cataracṭoni. In 613 the other hand writes *capitis*, and in 875
Canḍiḍị, Çạ[, Carạṇṭ[.

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
kạrịsṣịme	242	Letter (from Cerialis?)
karissime	247	Letter to Cerialis
Karuṣ	250	Letter to Cerialis
Karuṣ	251	Letter to Cerialis
karissime	285	Letter (to Cerialis?)
kạrịssime	288	Letter, perhaps to Cerialis
karissima	291	Letter to Lepidina
kạrissima	292	Letter to Lepidina
kạrịssimạ	293	Letter from Severa (to Lepidina?)
karissim	331	Draft letter
karisime	341	Letter
karrum	343	Letter from Octavius
ḳarro	343	Letter from Octavius
ka[ri]ṣsime	355	Letter
kạrịsịmẹ	531	Letter
karrạ	583	Account
kanum	597	Account
kạrissime	611	Letter
karissime	613	Letter
karissị[me]	623	Letter
kạrịssime	632	Letter
kạrịss[i]ṃạ	661	Letter
kạr[i]ṣṣime	696	Letter
karissimo	670ᵃ	Letter
karissime	869	Letter from Secundus
ḳarissime	875	Letter
uikario	879	Letter
karissịṃọ	893 add	Letter to Verecundus

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

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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 *muḍetur* 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 *ḍebetorem* 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 *ḳarro* (and *K(alendas)*), /ka(:)/ is otherwise spelt <ca> in *Candido*, *explicabo*, *spịcas*, *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 *laṃṇis* for *laminīs* 'sheets' and *pestlus* and *peṣṭḷ[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

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[19] Whether the in the second syllable of *dupuṇḍi* for *dupondiī* 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.

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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 *caṣṭṛi[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

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[21] I owe this observation to Katherine McDonald (p.c.).

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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 *]kas(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]ṛịṣṣịṃẹ* 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 *karissiṃẹ* (CEL 140, AD 103, copy of an official letter from the *praefectus Aegypti*), and *karissi[mum* (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 *Kalaḥ[el]* might be particularly likely in a foreign place name, but

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[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]xoricito* for *Oxyrynchiton*, *kastresia* for *castrēnsia* (205), *prepositis* for *praepositīs*, *horiorum* for *horreōrum*, *debotis* for *deuōtīs*, *quatuor* for *quattuor*, *preuere* for *praebēre*, *statiḥis* for *statīuīs* (233). In letters 231, 232 and 233, <k> appears only as an abbreviation in the phrase *praef(ectus) k(astri)*; the writers use <ca> in *catafractariorum* (231), *Arcadii* (231), *castri* (232), *ṣignificarunt* (232), *catafr(actarius)* (232), *catafrac(tarii)* (233).

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), *Callist[* (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
karíssimáe	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.

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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 *Terenteae* for *Terentiae*, *filis* for *filiīs*, *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 *kalendariọ* (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 *Ḳ[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 nonexistent, compared to several hundred instances of <ca>. The only instance is *Karkidoni* (Kropp 11.1.1/37), from Carthage, which is presumably a foreign name; Greek letters are also used at the start

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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 *kommendo* (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), *Nikaęnsis* (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

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[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); 'sequr', 'secur' (245);

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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 *sequritas* 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 *sequm*.

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); 'sequm', 'secum' (61). In the last case I also used the 'and not' function with 'secumd' to remove spellings of *secundus* etc. as *secumdus* 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 'sequr', '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 *Iaqubus* (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

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[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.

other certain instance of <qu>: *Iuqundo* (45, undated but presum-
ably 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>: *quụr* (Tab. Vindol.
652) for *cūr* 'why' could be analysed as having <q> for /k/ and
<uu> for /uː/, 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.

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[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.

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	cụ[lcit]as	469/144
pauqum	471/146	cumcupiṣc[e]r[e]	469/144
mequm	472/147	acuṃ[in]e	472/147

[a] Presumably *aequm* for *aequum* represents spoken [aẹkum], with reduction of /kʷ/ 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>: *]quṣ*, 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', *cịcquam* 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 *quiqumque* (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 *quīcumque*. 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.

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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
proqurator	Kropp 2.1.1/2	First century AD	Hispania Tarraconensis
proqurator	Kropp 2.1.1/3	First century AD	Hispania Tarraconensis
pequnia	Kropp 2.1.3/3	First–second century AD	Hispania Tarraconensis
pequniam	Kropp 2.1.3/3	First–second century AD	Hispania Tarraconensis
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

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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*.