Wizard doesn't make errors in LaTeX, and answers questions about LaTeX by editing `latex.tex`.

Guru knows whether to edit `latex.tex`, `lplain.tex`, `article.sty`, or `art10.sty`.

LaTeX style

Novice types `a$_{1}$` because the error in `a_{1}` occurred on the '`_`'.

User types `$a_{1}$` because Leslie Lamport says so.

Other packages

Novice could do more in Pagemaker.

User doesn't see the difference between TeX macros and WordPerfect macros.

Hacker writes macros to make TeX look more like `troff`.

Wizard types `\input troff` to process old `troff` files.

Guru types

```
\input txtmacros
\input text.txt
```

to format plain text.

Life, everything

Novice thinks that learning TeX will take a long time.

User realises that it wasn't so bad after all.

Programmer tries to convince himself that the next macro is really going to save time in the future.

Wizard daydreams idly about how much he could have done with his life if he had never heard of TeX.

Guru realises that a life without TeX is not worth living.

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Philology

Some remarks on typesetting classical Latin

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Abstract

Besides requiring special fonts and/or hyphenation patterns, typesetting of ancient languages, in particular classical Latin, requires that some stylistic points should be taken into consideration; for instance, medieval codices and Renaissance books should *not* be taken as models, but, if an old style flavor is desired, books printed in the late XVII century should be imitated. Particular attention is given to the issue of the letters 'u' and 'v'.

1 Introduction

The excellent paper by Yannis Haralambous [1] on hyphenation of ancient Greek and Latin published in *TUGboat* 13.4 gives me the opportunity of expressing my ideas about the style of composition of ancient languages with particular reference to classical Latin. Having prepared the hyphenation patterns for modern Latin [4], I was very pleased to find Haralambous's work on ancient Latin and ancient Greek and to see how he solved the difficulty of preparing hyphenation tables that allow to deal with prefixes that are so common in both languages.

Haralambous cites a Latin example from [7], having taken into account the Chicago manual of style [8], where: a) upper-case 'V' and its corresponding lower-case 'u' are used; b) the ligature 'æ' (which implies also œ, Æ, Œ) is used. The Chicago manual of style, in practice, suggests to set Latin according to what the scholars call the *restituta* [*lectio*], that is in a way that supposedly imitates the original setting.

In this paper I will try to prove that the *restituta* in reality imitates the medieval codices and the first printings, not the original way of writing Latin by the Roman themselves, so that the *restituta* should be avoided in favor of a more modern way of setting classical Latin.

2 The Latin script

We are all aware that ancient Romans used 'V' for indicating several different sounds, one of which was the back closed vowel /u/, another was the closed bi-labial vowel /y/ (same as the Greek Υ from which the Roman glyph 'V' derives), but certainly also the voiced labio-dental fricative consonant /v/, especially when it was in intervocalic position (how

would they have pronounced the word VVVLA otherwise?), or at the beginning of a word when it was followed by a vocalic 'V' as in VVLGVS, VVLT, ... The fact that the consonantic value of the letter 'V' is maintained consistently in all the Romance languages (with possible alterations into a bi-labial fricative or a bi-labial plosive) confirms this value. I came across the works of Quintilianus [14] where he complains about the poverty of the Latin alphabet (of his time) that does not allow to distinguish the three sounds represented by the same glyph; Fig. 1 shows a page of a XVI century book where his complaints are reported. Besides Quintilianus' complaints, Fig. 1 gives an example of classical Latin typeset according to the habits of the early printings.

We are also aware of the fact that twenty centuries ago our Roman and Greek ancestors did not use lower-case letters; these are a medieval variation of the uncial script of either language; such variation was substantially complete in the eighth or ninth century, while the complex system of Greek diacritics (see the fonts produced by Silvio Levy [5] or by Mylonas and Whitney [6]) was complete around the seventh century. Also the punctuation varied a lot (that is, it was either completely absent or reduced to very simple marks) and it was settled down just during the Renaissance, in practice, with the advent of printing.

Fig. 2 shows a page of one of the last codices that was composed for the Duke Federico of Urbino [16]; the script is defined *calligrafia umanistica libraria o tonda* (book or round humanistic script) and is particularly easy to read.[1] The use of capitalization ("lucas" [Luke] and "dei" [God's] in lower case, for example), abbreviations, ligatures, punctuation, accents, is very different from what we use today; 'u' is regularly used in lower case, except in one case where 'v' is used (... env/merare longissimum est.), and 'V' is used in small caps, especially after 'Q'. Abbreviations such as 'Q̇' or 'q̇' for 'qui', or 'p̃' for 'prae', make this text difficult to understand for readers not acquainted with paleography even if the lettering is very clear.

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[1] A similar script defined *calligrafia umanistica diritta* (straight humanistic script) was used by the engravers working for Manunzio as a model for producing what now we call "roman type"; the *calligrafia umanistica inclinata o corsiva* (slanted or cursive humanistic script) was the model for designing what now we call "italics". In Italian still nowadays these font shapes are called *tondo* and *corsivo* instead of "romano" and "italico" respectively.

When in the fifteenth century Gutenberg, Manunzio and the other prototypographers designed the glyphs for use in printing, they imitated the three current Latin handwritten styles (Texture, Roman and Italic), and these did not contain upper- and lower-case 'V' and 'U'; in printing they preserved the manuscript tradition of using 'V' for the upper-case and 'u' for the lower case letter *independently from the language* in use. I have seen books in Latin, Italian, French, English, Spanish, German printed in the XV, XVI and XVII centuries, where this habit was preserved. Sometimes in the initial position a lower case 'v' was used independently of the consonantic or vocalic function of the letter, while in the 42-line Bible by Gutenberg (at least in the sample page reproduced in [10]) 'u' and 'v' are correctly used but only at the beginning of the words.

Sporadic attempts to eliminate this anomaly were made by many grammarians, for example Trissino for Italian [12], but they remained *vox clamans in deserto* till the second half of the XVIII century. Fig. 4 shows a couple of facing pages from a book by Trissino printed in 1547 [13], where he uses the phonetic alphabet he had proposed in [12] for the Italian language: it includes two glyphs for the two sounds of each of the letters 'e', 'o', 's', and 'z', it uses 'u' and 'v' correctly even in capitalized titles, and uses 'k' instead of 'ch' (not always) and 'lj' instead of 'gli'; there are no unusual abbreviations, the ligatures concern only the letter 's' followed by another 's' or by 't' and the spelling is unusually modern, except perhaps for an excessive use of 'h' compared to modern usage.

According to my sources [11], it was the Dutch printer Elsevier that eventually succeeded in doing away with this confusion and used the proper letter for the proper sound; Fig. 5 shows a couple of pages of a book printed by Elsevier in 1649, where in the body of the text 'u' and 'v' are used according to the new style, while in the titles set in capitals or caps-and-small-caps the old style is preserved and the glyph 'V' is used throughout. In the XVIII century the new style of using 'v' and 'u' in the proper places had become almost universally accepted, so that you can recognize a two century old book from other elements (language style, font design, ligatures, page graphic layout, ...), not from the use of 'u' and 'v'.

Before the age of printing the lower-case letter 'i' was dotless in the humanistic straight and cursive scripts (see Fig. 2); the dot was introduced with the

Figure 1: The grammarian Quintilianus (I century A.D.) discusses the pronunciation of Latin and complains that 'V' ('u' in print) is supposed to represent several sounds, one of which is the *Aeolicum digamma*. This page reports part of the section "De literis & earum potestate" (The letters and their value): [...] *aliquae nobis necessariae literae, non cum Graeca scribimus,* ([...]) *sed proprie in Latinis, ut in his* ["]*seruus & uulgus*["]*, Aeolicum digamma desideratur. Et medius est quidam, u, &, i, literae sonus. Non enim sic* ["]*optumum*["] *dicimus, ut* ["]*optimum*["].

German scripts from which Texture is derived. Besides a number of ligatures[2], some of which survived till to day, there were two different glyphs for the letter 's', one for the end of the words and one for internal or initial positions. The latter closely resembled an 'f', the difference being that the tie did not cross the stem of the letter (see again Fig. 2); the ligature of the latter glyph with a regular 's' gave rise to the 'ß' glyph. Among these ligatures there are 'æ', 'Æ', 'œ', and 'Œ' that were totally unknown twenty centuries ago. Furthermore many shorthand notations, abbreviations, substitutions of 'n' and 'm' with a

tilde accent on the preceding vowel (always Fig. 2), occasional accents on the desinence of the ablatives (even in printing), etc. etc., were such that a modern unskilled reader may find it difficult to read a XV or XVI century book.

These are the main reasons why I think medieval manuscripts and early printings should not be taken as a model for setting classical Latin into type. Nor should they be taken as a model *today* for setting into type the works of the medieval writers themselves; would you set *The Canterbury tales*, or *El cantar de mio Cid*, or *Le romans de la rose*, or *Il decameron* making use only of 'V' and 'u', and using all the other abbreviations, ligatures, unusual glyphs, diacritics, and the like? The only reason for doing so might be for reproducing those masterpieces with the look they had their days, but this would be useful only for scholars, and I doubt that

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[2] In a recent issue of *TTN* [17] Peter Flynn asks if "someone would like to try faking (*sic*) up the ct and st ligatures"; I like these ligatures that were so frequent in XVIII century books and I admit that sometimes such graphic devices are useful for giving "that particular flavor" to the printed page.
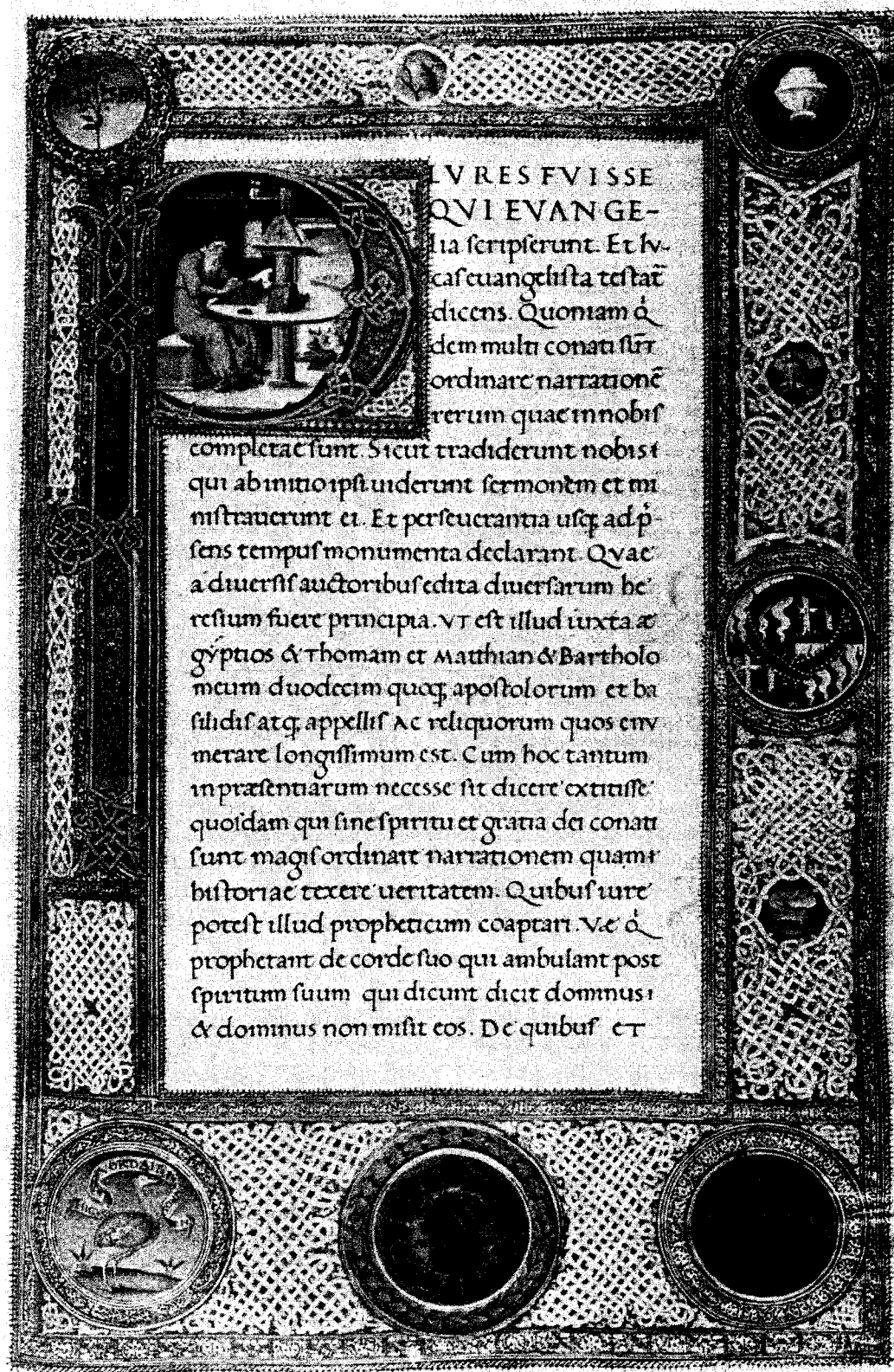
Figure 2: The *Codex Urbinas* containing the Latin version of the New Testament translated by Jerolamus. Reproduced from [9, page 153] by courtesy of Mr Ghiorzo, president of the publishing house.

CORNELIVS·LVCIVS·SCIPIO BARBATVS·GNAIVOD·PATRE
PROGNATVS·FORTIS·VIR·SAPIENSQVE – QVOIVS·FORMA·VIRTVTEI·PARISVMA
FVIT – CONSOL CENSOR·AIDILIS·QVEI·FVIT·APVD·VOS – TAVRASIA·CISAVNA
SAMNIO·CEPIT – SVBIGIT·OMNE·LOVCANA – OPSIDESQVE ABDOVCIT

Figure 3: Inscription on the sarcophagus side of L. Cornelius Scipio Barbatus (259 B.C.). Vatican Museum. Archaic lapidarian script.

IL SESTΩ LIBRΩ
DE LA ITALIA LIBERATA
DA GOTTHI.

Il sestω muove il campω, ε fà il gran vallω

N EL Tempω, che si stava entr'a le mura
Il Capitaniω, a far ripari,ε fossi,
E che quei cavalier, ch'avean piljatω
Faulω, eran iti a liberare Areta,
I buon legati cω i tribuni insieme,
Che si trovar nel'adunatω stuolω,
Faceanω exercitar tutte le genti ;
Tal,che i tirωni almen due volte al giωrnω
Si riduceanω sωpra la quintana,
Et imparavan quivi a fare il passω
Pare di tempω, ε di lungheza equale,
Da gir cωn essω almen tre milja a l'hωra .
Poi si davanω al cωrsω, et al saltare
Saralje,ε fossi, et a natar ne l'ωnde;
E dopω questω,ivanω cωntra un palω
Nωdωfω,ε grossω , ε di rωbustω legnω,
Ch'avanzava sει piε sωpra la terra ,
E cωn un scudω grave, et una mazα,
Ch'era di pefω dωppiω d'una spada ,
Cωmbatteαn secω, ε cωme a un lωr nimicα
Tentavan di ferιrlω hor ne la gωla ,
Hore ne i fiαnchι,ετ hora ne la faccia;

SESTΩ   96
Nε lji menavan mai se nωn di punta.
Eranω anchωr quei giωvinetti ιntεnti
A tirar hafte,ε trar balεstre, ετ archi,
Et a saltar sωpra cavai di legnω,
E destramente maneggiarsi in essi.
Et imparavan'anchω a pωrtar pefι
A cavar.fossi, ε far tutti i ripari,
Ch'eran mestieri a circωndare il vallω.
Ωnde venendω Belifáriω il grande
Una mattina nel spuntar de l'alba
A riveder cωme si stava il campω ,
Per farlω caminar versω Tarεntω,
Il vεckiω.Paulω se lji fece incωntra
Et in tal modω a lui parlandω disse.
I llustre Capitan, luce del mωudω,
Divifi havem lji allωggiamenti tutti,
Et hαvem postω ogni centuria insieme
Sωttω il suω cωnteftabile, che stansi
A mangiαrε, ε dωrmir sempre in un locω.
Et ωrdιnatω havem,che ogni prωmossω
Habbia i suoi fαnti, εstian pressω al sergente ;
E che i sergenti stian cω i capωrali,
E quei cω i lωrω icunωmi, ε squadrieri;
Tenendω sempre i cωnsueti luochi.
Et iω lji faciω stare in questα fωrma;
Acciò, che meljω sι cωnωscαn tutti
L'un l'altrω ,ε cerchi ogniun di farsi hωnωre,

Figure 4: Two facing pages of a XVI century Italian book set in print with a phonetic alphabet adapted to the sounds of the Italian language; this phonetic alphabet was partially used until the end of the XIX century, but the regular use of 'u' and 'v' for representing their own sound was not adopted until the second half of the XVII century.

Figure 5: Two facing pages of a Latin book printed by Elsevier in the second half of the XVII century where, at least in plain text, 'u' and 'v' are used consistently with their value. The original is set with a type size of 6.52 pt, so that reading requires a pretty good eyesight.

such a modern imitation of the past would really be appreciated by the scholars themselves.

To give an ancient look to ancient texts, while maintaining readability for modern readers, I'd suggest imitating the typesetting style of the little book reproduced in Fig. 5: titles have a pretty old fashioned look, the text is easily readable, the proper choice of fonts can add a lot, and the page's graphic design gives the final touch; I'd suggest reviving the "two-diagonal" method for positioning the facing pages one in front of the other. The little book of Fig. 5 gives many hints in this respect, although it must have been a sort of pocket handbook, that is a booklet without a pretentious look.

3 Ancient writing style

From Roman times we have actual specimens of marble, stone and clay inscriptions, besides a few papyri; before the Augustean period the glyphs were simple and without serifs. In Fig. 3 there is a transcription of a tomb epitaph, where I deliberately used sans serif fonts so as to imitate the original script.

The different uses of the glyph 'V' can be readily seen; among the others, the fact that the diphthong 'OV' is sometimes used as in Greek for the sound /u/, while the word PARISVMA implies the sound /y/: in the classical times the same word became in fact PARISSIMA. The diphthong 'AE' (or the ligature 'Æ') is missing and is still written as the Greek diphthong 'AI', where it comes from; the Greek diphthongs 'OI' and 'EI' still appear in that III century B.C. specimen, while such diphthongs will not be used any more in the classical age, from the I century B.C. onwards.

<div align="center">

C·TREBIVS·L·F·LONGVS

VETERANVS·COHORTIS

SECVNDAE·PRAETORIAE

</div>

Figure 6: Funerary inscription of the Augustean age. (City Museum of Bologna) Square lapidarian script.

Another example comes from an Augustean marble post, reset in Fig. 6 in Roman capitals; the original is engraved with the square lapidarian capitals that were used as a model to design most modern Roman upper case glyphs. It can be noticed that the ligatures 'Æ' are completely absent although there are three instances of the diphthong 'AE'.

4 Modern style for classical Latin

Classical Latin could be set in Roman capitals or, may be, in Roman small caps, only in case one wants

to give the flavor of classical inscriptions or handwritten codices; in such cases I'd rather use only the glyph 'V'.

The Latin text cited by Haralambous would turn out this way:

> FLVMEN EST ARAR, QVOD PER FINES HAE-
> DVORVM ET SEQVANORVM IN RHODANVM
> INFLVIT, INCREDIBILI LENITATE, ITA VT
> OCVLIS IN VTRAM PARTEM FLVAT IVDICARI
> NON POSSIT. ID HELVETII RATIBVS AC
> LINTRIBVS IVNCTIS TRANSIBANT. VBI PER
> EXPLORATORES CAESAR CERTIOR FACTVS
> EST TRES IAM PARTES COPIARVM HELVETIOS
> ID FLVMEN TRADVXISSE, QVARTAM FERE
> PARTEM CITRA FLVMEN ARARIM RELIQVAM
> ESSE, DE TERTIA VIGILIA CVM LEGIONI-
> BVS TRIBVS E CASTRIS PROFECTVS EST AD
> EAM PARTEM PERVENIT QVAE NONDVM FLV-
> MEN TRANSIERAT. EOS IMPEDITOS ET IN-
> OPINANTES ADGRESSVS MAGNAM PARTEM
> EORVM CONCIDIT: RELIQVI SESE FVGAE
> MANDARVNT ATQVE IN PROXIMAS SILVAS
> ABDIDERVNT.

But the reading of a long text set only in capitals is tiresome, so that common lower-case Roman or, sometimes, Italic type is more adequate for longer texts; in any case I find no reason for using just the glyphs 'V' and 'u', as done until the XVII century, because that is a bad habit that was done away with in all other modern languages which, nevertheless, up to that century were handwritten and printed with that curious anomaly: three glyphs to render the voiceless guttural consonant /k/, namely 'c', 'k' and 'q', and one glyph to render two different sounds as /u/ and /v/.

In passing, it may be interesting to compare the hyphenation produced by my modern Latin hyphenation patterns with those produced by the patterns created by Haralambous for medieval Latin. The same text, written in a modern way with the criteria I discussed above gets the following hyphens:

> Flu-men est Arar, quod per fi-nes Hae-duo-rum et Se-qua-no-rum in Rho-da-num in-fluit, in-cre-di-bi-li le-ni-ta-te, ita ut ocu-lis in utram par-tem fluat iu-di-ca-ri non pos-sit. Id Hel-ve-tii ra-ti-bus ac lin-tri-bus iunc-tis trans-ibant. Ubi per ex-plo-ra-to-res Cae-sar cer-tior fac-tus est tres iam par-tes co-pia-rum Hel-ve-tios id flu-men tra-du-xis-se, quar-tam fe-re par-tem ci-tra flu-men Ara-rim re-li-quam es-se, de ter-tia vi-gi-lia cum le-gio-ni-bus tri-bus e ca-stris pro-fec-tus est

ad eam par-tem per-ve-nit quae non-dum flu-men trans-÷-ie-rat. Eos im-pe-di-tos et ino-pi-nan-tes ad-gres-sus ma-gnam par-tem eo-rum con-ci-dit: re-li-qui se-se fu-gae man-da-runt atque in pro-xi-mas sil-vas ab-di-de-runt.

Manual separation of prefixes by means of the underscore definition explained in [4] was used; in practice it was used only to separate the prefix trans-, and it is marked with a ÷ mark in the above text. In this respect Haralambous's patterns are far superior; of course for using Haralambous patterns it is necessary to \lccode and \uccode properly the letters 'u' and 'V' since they correspond to one another in passing from upper case to lower case and vice versa.

5 Conclusion

Several arguments have been set forth for explaining why classical Latin (and other ancient languages as well) should not be set according to the typesetting style used in the early age of printing and in the medieval codices; although the *restituta* version of Latin texts is enjoying a certain popularity among the scholars, the *restituta* "gives back" the appearance of writing and printing of the first centuries of this millennium, not the appearance of the original script of twenty centuries ago.

Although I believe in what I claimed in this paper, I might be wrong or miss some point; therefore I'd like to invite the readers of *TUGboat* to a broader debate on matters concerning the typesetting of old texts. Haralambous has already given fundamental contributions to this debate, not only with the paper that originated this comment of mine, but also with his many fonts for unusual languages; among the others let me draw attention to his paper [2] concerning the typesetting of old German, where he explains the motivations that pushed him to design his beautiful Schwabacher fonts. In [3] he also contributed, among others, the ancient Greek epigraphical characters and the rules for setting Greek epigraphs. There is enough material already, but except for [2], I believe most of us miss the aesthetic viewpoint.

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